

A SECOND UPPER PALEOZOIC BLATTOID (INSECTA) FROM BETANCOURT, CHUBUT PROVINCE, ARGENTINA

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ABSTRACT – A new blattoid species *Anthracoblattina archangelskyi* sp. nov. from Betancourt, Chubut Province, Argentina was found in the same horizon of the Rio Genoa Formation which yielded *Archangelskyblatta vishniakovae* Pinto, 1972. The latter species was firstly dated in the Permian based in the age attributed to the associated taphoflora. The analysis of further fossil insects collected in the same strata allowed the age of the deposits to be established as Carboniferous. This age is corroborated by the new species.

Key words: insecta, blattoid, Paleozoic, Argentina

RESUMO – Uma espécie de barata *Anthracoblattina archangelskyi*, sp. nov., foi coletada em Betancourt, Província de Chubut, Argentina na mesma camada da Formação Rio Genoa de onde provém *Archangelskyblatta vishniakovae* Pinto, 1972. Esta última espécie foi inicialmente datada como Permiano, idade que havia sido atribuída à tafoflora. Mais tarde, através da análise de outros insetos, a idade foi redeterminada como Carbonífero. O estudo da nova espécie confirma esta idade.

Palavras-chave: inseto, blatária, Paleozóico, Argentina.

INTRODUCTION

Two pieces of rock, part and counter-part, with an imprint of a wing were given to the senior author. Prof. Dr. Sergio Archangelsky and his son, Prof. Dr. Miguel Archangelsky collected the material at Betancourt, Chubut Province, Argentina. Another blattoid from that area *Archangelskyblatta vishniakovae* Pinto, 1972a (Fig.1.4a-b herein) had already been described, but this taxon was considered by Schneider (1983, p.126) as synonymous with *Kashmiroblatta* Verma, 1967 (Fig.1.6 herein). However, the two genera show strong differences as has been pointed out by Pinto *et al.* (1992) and by Würdig *et al.* (1998) at the First Paleontomological Conference in Moscow. *Archangelskyblatta* is thus not a synonym of *Kashmiroblatta*, but an independent and valid genus. It was found at the 2nd Plant Horizon of Feruglio, 2.5 km South of the “Casa de Betancour”, whose profile was

described by Suero (1958). The sediments, which belong to the Nueva Lubecka Facies, Rio Genoa Formation were firstly attributed to the Lower Permian by Suero (1958) based on its flora. Consequently, *Archangelskyblatta vishniakovae* was considered Lower Permian. Later on, however, based on new insects and arachnid data, the age of these deposits was changed to Upper Carboniferous (Pinto & Ornellas, 1978; Pinto & Hünicken, 1980; Pinto *et al.*, 1992).

GEOGRAPHICAL AND STRATIGRAPHICAL DATA

The new species was found at the Betancourt Chubut Province, Argentina at the same area and stratigraphical level of occurrence of *Archangelskyblatta vishniakovae*, Lubeckian in age. It belongs to a genus known exclusively from the Carboniferous which thus

confirms this age already attributed to that Formation on the basis of insects and an arachnid.

Remarks on the age

The current controversy about the best definition for the international age of the Lubeckian brings the need of some comments. This will be done through a condensed analyses of some papers: Amos *et al.* (1973) concluded that the *Levipustula* zone is Carboniferous (Westphalian) and the *Canocrinella* zone is Lower Permian. In the same work Celso Reyes argues that *Canocrinella* can not be considered index of the Permian because it was found both above and below the *Pseudoschuvagerina* zone, Carboniferous of Bolivia. Cuneo & Sabattini (1987) discussing the age of the Rio Genoa Formation have proposed to extend the range of the typical Carboniferous species *Levipustula levis* and *Lissochonetes jachalensis* to the Lower Permian based on the presence of *Crurithyris roxoi* and *Yagonia* associated with those species. The reverse interpretation is more logical specially because *Crurithyris* has its range from the Devonian to the Permian and *Crurithyris roxoi* is not Permian but based on palinological analysis (Daemon & Quadros, 1970) and insects (Pinto & Purper, 1979), Upper Carboniferous.

Later on in "A new perspective" about the "Neopaleozoic Floristic Succession from Northwestern Argentina", Archangelsky & Cuneo (1991) subdivided that succession into three zones: A - "The oldest floristic assemblage (*Archaeosigillaria* zone, Malimanian Age, late Tournaisian to early Viséan).....marked by the dominance of *Nothorhacopteris* and *Botrychiopsis*". B - "Toward the end of the Carboniferous (Stephanian), arborescent communities became more important, giving rise to a transitional floral assemblage (Interval zone)... where a successional process took place during the Tupean and 'Trampeaderian'."...C - "The next step was marked by the first record of the Glossopterids, related approximately to the C-P boundary. This new assemblage (*Gangamopteris* zone) is correlated with coeval Patagonian floras that have several common species and are referred to the local Lubeckian Age... it is possible to suggest a subdivision of the zone into a lower and an upper unit. Changes in *Glossopteris* and *Gangamopteris* have been recognized: the species number increases toward the upper unit, as well as secondary venation complexity in their leaves". These data show that, at least part of *Gangamopteris* zone could have reached the

Upper Carboniferous.

Other data can be obtained in Pinto (1995) which shows that in the Rio Genoa Formation, both facies Piedra Shotle and Nueva Lubecka present several typical Carboniferous genera. Now reinforcing those data the new species belongs to the genus *Anthracoblattina* which is exclusively Carboniferous in North America, Europe and Asia. A Carboniferous age is therefore maintained for the Nueva Lubecka facies at Betancourt.

SYSTEMATICS

Class Insecta

Subclass Pterygota

Infraclass Neoptera

Superorder Blattopteroidea

Order Blattodea Brunner, 1882

Family Phylloblattidae Schneider, 1983

Anthracoblattina Scudder, 1879

Diagnosis. Costal area: a narrow strip with more than ten mostly simple and rarely furcated costal veins; veins of M typically posteriorly directed; CuA slightly inclined to the posterior side, occupying the posterior margin up to apex; simple arcuate CuP.

Anthracoblattina archangelskyi sp.nov.

Fig.1.1-2

Etimology. In honour of Professors Sergio Archangelsky and Miguel Archangelsky.

Holotype. Imprint of partial fore wing. Museo Argentino de Ciencias Naturales Bernardino Rivadavia – BA PB n° 640.

Plastotype. at the Museu de Paleontologia Universidade Federal do Rio Grande do Sul, Porto Alegre.

Type locality. Second Plant Horizon - Profile Lote 11 – Betancourt (Suero, 1958).

Type stratus. Nueva Lubecka Facies, Rio Genoa Formation, Betancourt, Argentina.

Diagnosis. Insect whose fore wing reaches 21.05mm in length and 11mm in width; narrow costal area occupying almost 2/3 of the wing length; SC with a distal fork and sending off 11 long oblique branches to the anterior margin; R forking near midlength and before M furcation; CuA slightly curved basally runs straight slightly inclined to the apex, sending off at least 7 oblique branches, one being furcate; simple CuP slightly arcuate to the posterior margin; eight simple anal veins hardly seen; feeble straight cross-veins.

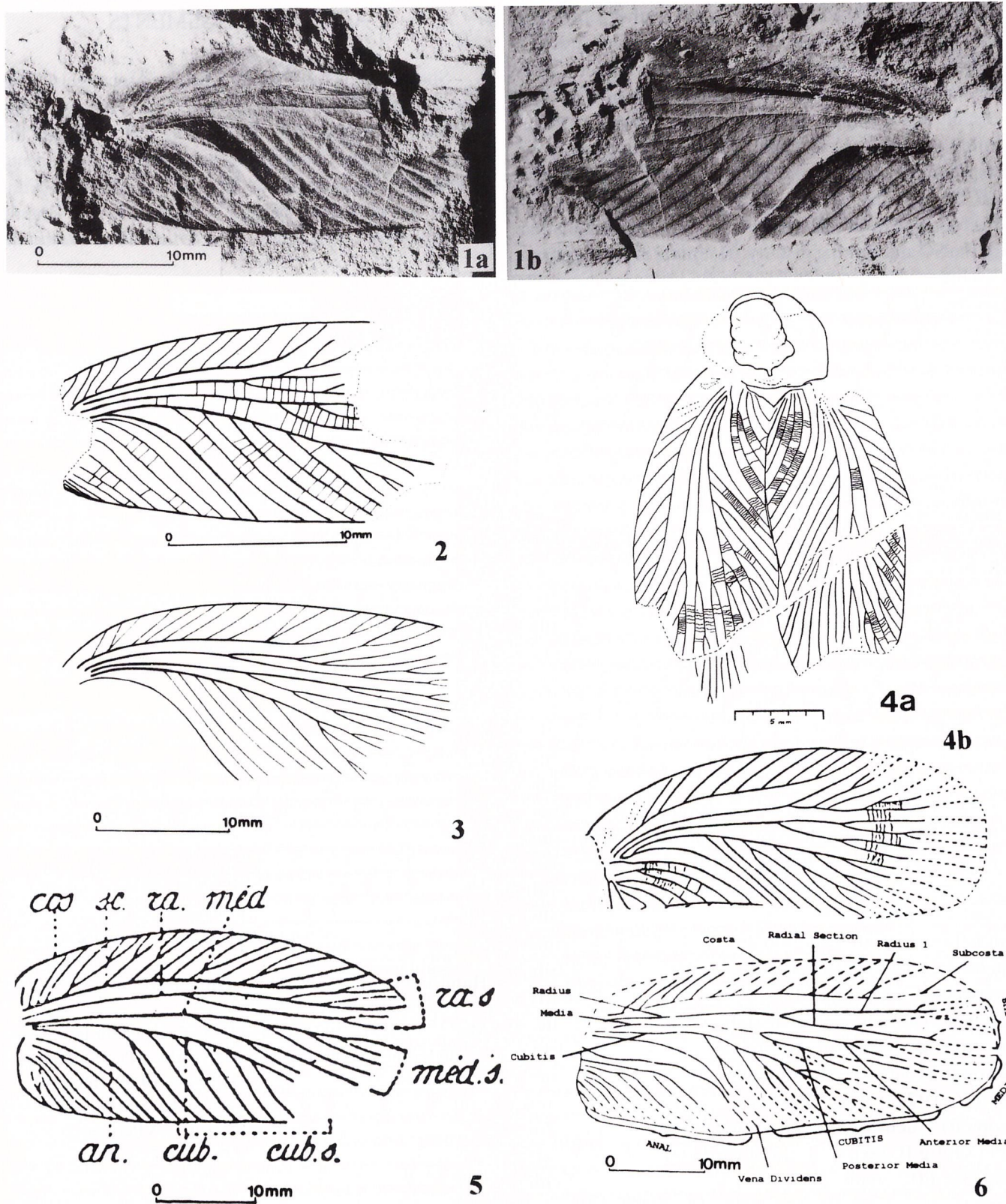


Figure 1.1a-b. *Anthracoblattina archangelskyi* sp. nov. Holotypus BA PB 640; 1.2. *Anthracoblattina archangelskyi* sp. nov. Reconstruction drawing; 1.3. *Anthracoblattina oliveirai* (Carpenter), 1930; 1.4 a-b. *Archangelskyblatta vishniakovae* Pinto, 1972; 1.5. *Anthracoblattina ensifer* Brongniart, 1892; 1.6. *Kashmiroblatta marahomensis* Verma, 1967.

Description. Basal area and apex of the fore wing missing. Length of the fragment: 21.05mm, greatest width: 11mm. Anterior margin slightly arched. Well developed SC, parallel to the anterior margin, forking distally and giving off 11 long oblique simple veins to the anterior margin. Costal area: a narrow strip occupying approximately 2/3 of the wing length. R remote sends off from SC an oblique furcate branch at the level of the furcation of SC; RS originating before the termination of the SC and forking distally. M remote is divided from R a little distally at the level of the RS origin and typically sends off its branches to the posterior side. Very large cubital area; basally CuA slightly curved, straightly inclined to the posterior side up to the apex sends off straight oblique branches to the posterior margin; five simple branches followed by one forked branch and another simple branch occupying the posterior margin and reaching the apex; simple CuP arcuate; large anal area with eight oblique parallel veins running toward to the posterior margin. Feeble straight cross-veins.

Remarks. This species presents a strong similarity with *Anthracoblattina oliveirai* (Carpenter, 1930) (Fig.1.3 herein) in size and general disposition of the veins, but the latter differs in having two bifurcate veins arising from the subcostal vein, a much anterior bifurcation of R and the first branch of M furcates after the furcation of R at the level of the origin of the second branch of R; CuA with six simple oblique veins before forking. The present species, however, has the first five veins simple, the sixth branches twice, and the seventh is a simple vein. Annal veins are missing in *A. oliveirai*. *Archangelskyblatta vishniakovae* Pinto, 1972 (Fig.1.4a-b herein) shows some overall similarity in the veins structure but differs fundamentally in R furcating after the furcation of M and in bearing a large space between the main veins including between CuA and CuP which is also very slightly arcuate. The new species also shows strong similarities to several species of *Anthracoblattina* described by Brongniart (1893), Handlirsch (1906) and by Meunier (1916-1921). The species presented in Meunier (op.cit), such as *A. brongniarti* Handlirsch 1906 in Pl. XI, fig.II, text-fig. 35 and var.1 Pl. XII, fig.1, text-fig. 36, differ mainly in having a larger costal area with greater number of veins. *A. ensifer* Brongniart, 1892 in Pl. XII, fig. 3, 4 and 5, text-fig. 38-40 (Fig.1. 5 herein) differs in vein bifurcation of the cubital veins and in greater number of costal veins. All species mentioned plus other 15 registered in Schneider (1983 p.123) occur in North America, Europe and Asia in the Carboniferous, mostly in the Stephanian.

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