## Part Two: Participants Scientific Contributions

### A Contribution to the Palynological Knowledge of Lower Cretaceous Stratigraphy of the Middle Magdalena Valley, Colombia, South America

(with 3 figures)

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#### Summary

In the present study a description is given of a pollen grain, which because of its abundance and characteristics, is an indicative fossil of "Tambor" Formation, which is considered in the chronogeological scale as of Valanginian age.

The grain characteristics suggest a generic relation with other grains found in the Alpine Triassic, and other grains reported with different names, including the lower Cretaceous from other places of Europe and Asia (Yemen). It is the first time this grain is reported in South America.

#### Presentation

This is the first part of a study and some of the preliminary conclusions about a palynological investigation, made by the author under the sponsorship of Empresa Colombiana de Petróleos in its Geological Laboratory at El Centro, Santander, Colombia.

#### **Purpose of the Investigation**

With the desire to elaborate a group (column) of fossils as basis for the palynological analysis for Middle Valley of Magdalena River, the studies were started with the deepest Cretaceous, known as "Tambor" or "Arcabuco".

Actually there exists in Colombia a great interest for the Cretaceous because of the recent oil discoveries in sediments of that age, in the Southern part of the country.

#### Samples and Slides Preparation

The samples were taken from cores of the oil well "Infantas 1613" which situation and location is shown in the attached map (fig. 1).

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The material used is exclusively sandstone, almost quartzite, with some thin dark colored inclusions, where one finds very rich organic matter.

The technic of preparation was to remove the silex by H<sub>2</sub>F, following the Erdtman Method, improved by W. KLAUS.

The slides were prepared by the system of single grains embedded in glycerin-jelly.

#### Working Method

The analysis of the grains was made with a binocular Leitz microscope through No. 10, 45, 60, 100 objectives and 10-X eyepiece; photos are taken with an automatic Leitz Camera.

#### Acknowledgment

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#### Geology

The "Tambor" formation rests unconformably on the Triassic-Jurassic, called "Giron Series", formed by three members: basic group conglomeratic, intermediate group of gray sandstone, shales or red limolites, and the upper group formed by sands.

The red elements found in the lower and medium members are probably reworked "Giron" rocks.

The "Tambor" formation possibly represents continental deposits and litoral deposits from the begining of the Cretaceous cycle of marine sedimentation.

"Infantas 1613" oil well, located in the Gauss coordinates 1.257.830.60-N and 1.033.022.06-E originated in Bogotá, encountered upper oligocene sediments down to 2060 feet, further 1600 feet of Middle Oligocene and lower Oligocene. The Eocene, 500 feet, rests unconformably on the "Galembo" member of "La Luna" formation of the upper Cretaceous. The section through the Cretaceous is represented by 6900 feet of sediments from "La Luna, Simiti, Tablazo, Paja, Rosablanca y Tambor" formations. The total depth of the well is 11,100 feet.

A standard stratigraphical column for Middle Magdalena Valley is attached (fig. 2).

#### Taxonomy and Nomenclature

The symbols used in descriptions and the morphological terminology follow the principles of IVERSEN & TROELS SMITH (1950).

All preparations, slides and holotypes are kept in the files of Palynological Laboratory of Empresa Colombiana de Petroleos at El Centro, Santander, Colombia.

Anteturma : Pollenites R. Por.

S u b a n t e t u r m a : Praepollenites (PANT, 1954) emend.

S u b t u r m a : Circumpolles (PFLUG, 1953) emend.

Genus: Corollina MALJAWKINA, 1949.

Corollina ecopetrolis n. sp.

Holotype: Photo No. 1, Slides M-3-a, Single Grain.

Derivatio nominis: Homage to Empresa Colombiana de Petroleos (Ecopetrol).

Description. Polar view circular to oval; side view like an open umbrella (see fig. 3).

On the distal side parallel to the equatorial line there is a bright, light color ring without any relief around the grain, separating two more dark zones.

#### SUBDIVISIONS GENERALIZED LITHOLOGIC THICKNESS цтно-і STANDARD NOMENCLATURE System SERIES METERS LOGY DESCRIPTION Colombia GULFCOAST mostly conglomerate at base COLORADO la cira fossils ш OLIGOCENE CHUSPAS GROUP alternating red shale and coarse congiomeratic б FORMATION > VICKSBURG sandslane (2)575-3200 à GROUP × MUGROSA z o muarosa fossils (lacal) < FORMATION shale with thin beds line argined sondstone. \_ -ESMERALDAS htes corres lessify local l CHORRO GROUP œ EOCENE sondstone with interbedded sillstone and shale FORMATION JACKSON EM æ 1225-2300 accasional lignite seams ш {?} ш LA PAZ sandstone, mossive, cross-bedded conglomeratic ≩ FORMATION ō . . local hard, lottered shale" (.toro" fm ( MIDWAY FM PALEOCENE LISAMA FORMATION 950-1225 interbedded shale, siltstone and sondstone cont seams DANIAN ? sulfstone ~~~ shale, gray, soft, fissile MAESTRICHTIAN ± 1000 UMIR SHALE NAVARRO ----scattered concretionary beds of ironstone ~ -GROUP coal seams ш CAMPANIAN TAYLOR MARL ۰ \_ LA LUNA FORMATION ۰. SANTONIAN 2 predominantly calcareous shale with limestone inter-180-350 ŝ AUSTIN ∍ GALEMBO MEMBER <del>ti i</del> beds, chart beds and limestone concretions. ∍ CHALK CONJACIAN 50-225 black, thin = bedded, colcareous shale medium soft Ô PILIAMANA MEMBER TURÓNIAN EAGLE FORD hard, black,colcareous shale limestone beds, pyrite concretions 50-100 ш SALADA MEMBER 50-125 CENOMANIAN SALTO LIMESTONE WOODBINE FM hard, araillaceous limestone, shale partings O цĹ WASHITA GROUP 202 250-650 black thin\*bedded shale ∢ SIMITI SHALE ALBIAN FREDERICKSBURG limestone and mar! 150-325 Ī TRINITY TABLAZO LIMESTONE abundantly fossiliterous GROUP ш APTIAN BASAL LIMESTONE GROUP 125-625 black, soft, thinly laminated shale NUEVO LEON PAJA FORMATION Re massive limestone and mark BARREMIAN GROUP ROSA BLANCA 150-425 $\mathbf{O}$ abundantly fossiliferous FORMATION 24 ш CORE-SAMPLES HAUTERIVIAN ≩ DURANGO dark red sittstone, sandstone and conglomerate ò 0-650 VALANGINIAN? GROUP aray or top, with for a minifera TAMBOR FORMATION 4444 ? 1 110 1 110 1 110 JURAinterbedded red and brown siltstone, shale and sand = GIRON FORMATION 2 (UNDIFFERENTIATED) stone, with volcanics TRIAS

#### Standard nomenclature for Middle Magdalena Valley-Colombia (Upper Tertiary excluded)

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There is another zone in the middle of the grain, which is thinner than the rest of the grain body, showing perhaps the reducing thickness of the ektexine possibly indicating the tetrade mark. It lets the light go through easily, compared with the rest of the body (see fig. 3).

The radius of this circle is 1/4 of the equatorial line radius. The ektexina is very thin; its sculpture in the interior zone, limited by the ring, is microreticulated. In the exterior zone of the characteristic luminous ring, one can see concentric rings as lines that come one after the other.

Size: 25-32 microns.

#### Stratigraphic Distribution

Up to now this type has been found in the upper part of the "Tambor" Formation, equivalent to Valanginian age.

#### References

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3b sculpture







3a





3f

Fig. 3.

# **ZOBODAT - www.zobodat.at**

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: <u>Jahrbuch der Geologischen Bundesanstalt</u> <u>Sonderbände</u>

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