

*MESOZOIC SPORAE DISPERSAE FROM ZAIRE — IV. FURTHER CONTRIBUTION TO THE PALYNOLOGY OF STANLEYVILLE AND LOIA GROUPS

HARI K. MAHESHWARI

Birbal Sahni Institute of Palaeobotany, 53 University Road, Lucknow 226 007, India

ABSTRACT

In this communication, results of palynological examination of some more samples of Stanleyville and Loia groups are reported. The Stanleyville samples are dominated by the *Classopollis* pollen. The palynologically productive range of the Loia Group in Samba bore-hole is now extended up to 682.42 m where *Equisetosporites* pollen predominate.

Key-words — Palynology, *Classopollis*, Stanleyville and Loia groups, Jurassic-Cretaceous, Zaire.

सारांश

जायरे से मध्यजीवी युगीन विकरणीत बीजाणु - स्तानलैविल्ले एवं लोआया समूहों के परागणविक अद्ययन पर और अंशदान - हरि कृष्ण माहेश्वरी

प्रस्तुत शोध-पत्र में स्तानलैविल्ले एवं लोआया समूहों के कुछ और नमूनों के परागणविक अद्ययन के परिणामों का उल्लेख किया गया है। स्तानलैविल्ले के नमूने क्लासोपॉलिस के परागकणों से प्रभावी हैं। साम्बा वेध-छिद्र में लोआया समूह की परागणु-धारक सीमा अब 682.42 मीटर तक बढ़ा दी गई है जहाँ पर कि इक्वीसीटोस्पोराइटिस के परागकणों की बाहुल्यता है।

INTRODUCTION

THE Jurassic-Cretaceous sediments in Zaire are represented by 3 groups, viz., Stanleyville, Loia and Bokungu, in ascending order. The Stanleyville Group (± 450 m) outcrops in the east and north-east of the central basin of Zaire and rests disconformably on the Triassic Haute-Lueki Group or unconformably over the Precambrians. The group basically comprises argillites and sandstones, sometimes with shales or bituminous layers, particularly in the middle portion.

The Loia Group disconformably overlies the Stanleyville Group and is subdivisible, particularly so in the Samba bore-hole, into three distinct lithostratigraphical units. It is disconformably overlain by the essen-

tially red facies of the Bokungu Group (see Cahen *et al.*, 1959).

About 160 samples from the three groups were palynologically analysed by Maheshwari, Bose and Kumaran (1977a, 1977b). A number of depth intervals which were earlier found to be palynologically barren have been re-examined by repeat processing of the samples, and the data collected is presented here.

RESULTS

A total of 17 samples, 8 from the Stanleyville Group and 9 from the Loia Group, were reprocessed for pollen and spores. Of these only 7 samples, 2 from the Stanleyville Group and 5 from the Loia Group, proved to be palynologically productive.

*The paper is dedicated to the late Mr L. S. Cahen, former Director of the Musée Royal de l' Afrique centrale, Tervuren, Belgium.

All the 4 samples from complex 5 (Stanleyville Group) of the Samba bore-hole again proved to be unfossiliferous. Of the 4 C.F.L. bore-hole samples, only 2, one from the top of bed 1 and the other from the base of bed 2, yielded palynomorphs. All the 9 samples from the Loia Group are from the same sequence in the Samba bore-hole as palynologically investigated earlier (Maheshwari, Bose & Kumaran, 1977a). The depths represented by these samples were earlier reported to be barren of spores and pollen. However, the fresh samples representing the same depths show presence of palynomorphs in 5 samples, one from formation 4c, one from formation 4b and 3 from formation 4a. So far no palynomorphs were known from formation 4a of the Loia Group.

In general, the palynomorph recovery has been very poor, and most of the palynomorphs are covered by amorphous organic structureless debris. No technique could be devised to remove these debris and hence a substantial number of palynomorphs could not be identified with confidence. As such, a statistical approach to understand the distributional pattern of the miospore taxa was not found feasible.

STANLEYVILLE GROUP

Both the samples, i.e. RG 78817 (near the top of bed 1, 123.5-124.4 m in C.F.L. bore V) and RG 78853 (near the base of bed 2, 134.8-137.6 m in C.F.L. bore VI), are dominated by the species of the genus *Classopollis*, particularly *C. aquistanus* Reyre and *C. indicus* Maheshwari. The other commonly occurring taxon is the genus *Cycadopites*.

Sample RG 78853 also yielded one specimen each of *Cyathidites australis* Couper, *Converrucosporites* sp., *Retitriletes* sp. and *?Araucariapollenites* sp. Some of the smaller specimens presently included under the genus *Cycadopites* could possibly be bennettitalean pollen, but the preservation is not good enough for a definite identification. No bennettitalean cuticle was recovered in the macerates.

The palynological assemblage is too poor to be of any help in age determination of the sediments. However, in the dominance of the genera *Classopollis* and *Cycadopites*, the present assemblage from beds 1 and 2

is totally different from the assemblage from beds 3 and 7. The dominance of the genus *Classopollis* has little significance stratigraphically as we know that this taxon has had several peaks during Lower Jurassic to Middle Cretaceous periods (Srivastava, 1966; Reyre, 1973).

LOIA GROUP

Formation 4c of the Loia Group is represented by the sediments between 564.98 and 678.70 m in the Samba bore-hole. The samples between 673.27 and 678.70 m were earlier proved to be palynologically productive (Maheshwari, Bose & Kumaran, 1977a). The productive range of this formation is now extended to 662.42 m. This sample, i.e. RG 35465 has a mioflora dominated by *Equisetosporites* pollen; *Classopollis indicus* pollen are frequent whereas *Ephedripites mesozoica* pollen are also present. Thus this sample has an assemblage virtually similar to that of the samples RG 35467 and RG 35468, except for the apparent absence of the genus *Tricolpites*.

Sample RG 35495 from the base of formation 4b, representing the sediments between 738.33 and 739.65 m, has now yielded a mioflora comprising *?Deltoidospora*, *?Cicatricosisporites*, *Ephedripites*, *?Bennettiteapollenites*, *Classopollis* and *Liliacidites (Clavatipollenites)*, and fungal bodies. This flora is much too poor as compared to the one from the immediately overlying sediments between 736.48 and 737.08 m, which shows the dominance of the genera *Perotrilites* and *Cyathidites*, and the presence of the genera *Couperisporites*, *Schizosporis* and *Tricolpites*, none of which is present in the sample RG 35495.

Samples RG 35502, RG 35506 and RG 35507 represent formation 4a between the depth 755.97 and 765.67 m. The palynological assemblage from these samples is dominated by *Classopollis* sp. cf. *C. indicus*; *Ephedripites mesozoica* is fairly represented while *Cycadopites* type pollen are common. *Equisetosporites* spores are rare. This assemblage is therefore quite different from that of the formation 4b which is dominated by the genus *Perotrilites*.

Thus, the palynologically productive range of the Loia Group in the Samba bore-hole is now extended up to 682.42 m,

ACKNOWLEDGEMENTS

The material for the present investigation was provided by the late Dr L. Cahen

through Dr M. N. Bose. The author thanks Dr Bose for his keen interest in the work and for providing necessary working facilities.

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EXPLANATION OF PLATE

(All photomicrographs are. $\times 500$)

1. *Todisporites major* Couper, 1953.
- 2, 3. *Deltoidospora* sp., fig. 3 in lateral view.
4. *Dictyophyllidites* sp.
5. *Stereisporites* sp.
6. ?*Lycopodiumsporites* sp.
7. *Schizaeoisporites* sp.
8. *Converrucosisporites* sp. cf. *C. variverrucosus* (Delcourt & Sprumont) Brenner, 1963.
9. *Verrucosisporites* sp.
10. *Perotrilites pannuceus* Brenner, 1963.
11. *Microcachryidites* sp.
- 12, 15. *Ephedripites mesozoica* Maheshwari et al., 1977.
13. *Cycadopites* sp.
14. *Equisetosporites* sp.
16. *Clavatipollenites* sp. (?*Liliacidites* sp.).
17. *Tricolpites* sp.
18. *Klukisporites pseudoreticulatus* Couper, 1958.
- 19-21. *Classopollis* sp. cf. *C. indicus* Maheshwari, 1974.
22. *Cycadopites gracilis* Sah & Jain, 1965.
23. Incertae sedis.
24. *Alternaria* sp.
25. Fungal spore.

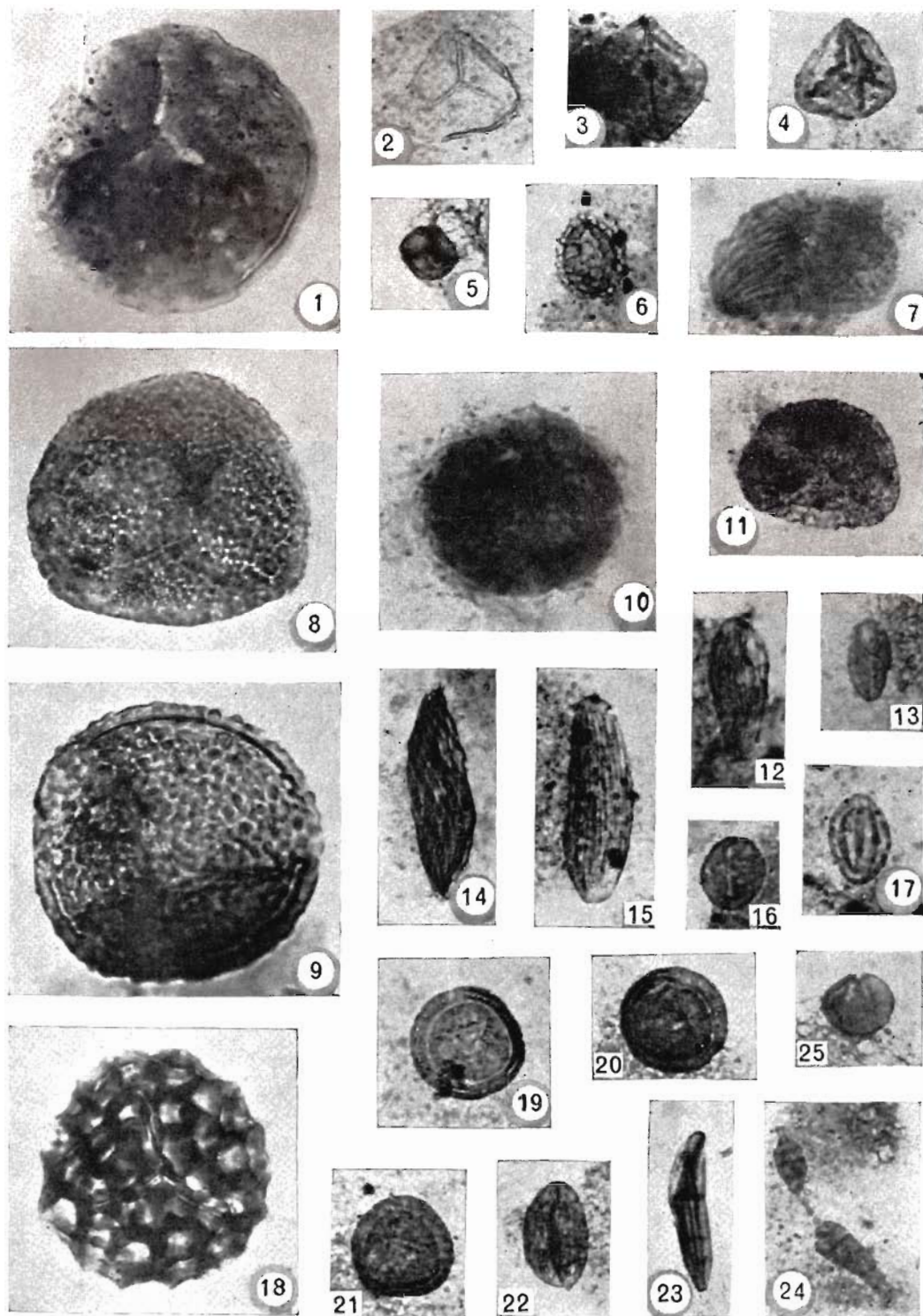


PLATE 1