

above, is not found in any other genus of the Orbitoididæ, it seems necessary to erect a new genus to include this form. I propose the name *Orbitosiphon* for this new genus.

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<sup>1</sup> *Pal. Ind.*, n.s., 1937, 24, Mem. No. 1, 52.

<sup>2</sup> *Proc. Nat. Acad. Sci.*, Washington, 1929, 15, 288.

On the Association of the Orbitoidal  
 Genera *Discocyclusina* and *Lepidocyclusina*  
 in the Yaw Stage (Priabonian) of Burma

IN 1907, Vredenburg<sup>1</sup> summarised the known facts regarding the distribution of the genera *Discocyclusina* and *Lepidocyclusina* in the Indian region as follows:

"*Orthophragmina*<sup>2</sup> and *Lepidocyclusina* have never been found together . . . . . In almost every section, *Orthophragmina* occurs up to the top of the Eocene, and *Lepidocyclusina* from the very base of the Oligocene so far as these series are developed . . . . . In countries where the intervening stages are better developed, it is quite possible that one may observe an association of the two genera *Orthophragmina* and *Lepidocyclusina*: if at any place the first appearance of *Lepidocyclusina* preceded the final extinction of *Orthophragmina*, both genera might naturally be found in the same bed."

In contrast with N.W. India, where beds of Priabonian age have not been so far recognised, the Eocene-Oligocene succession of Burma is more continuous and the Priabonian horizon is represented by marine fossiliferous beds of the Yaw stage. Recently, while examining a collection of foraminifera<sup>3</sup> from these beds, I have noticed the occurrence of two orbitoids which have so far not been recorded from these beds. These are: a *Lepidocyclusina* of the sub-genus *Polylepidina* and a stellate *Discocyclusina* of the sub-genus *Asterocyclusina*. The discovery of these two orbitoids from the Yaw stage of Burma is of considerable interest in view of

the fact that no well authenticated record of the association of these two genera in the same bed has so far been reported in the Indian

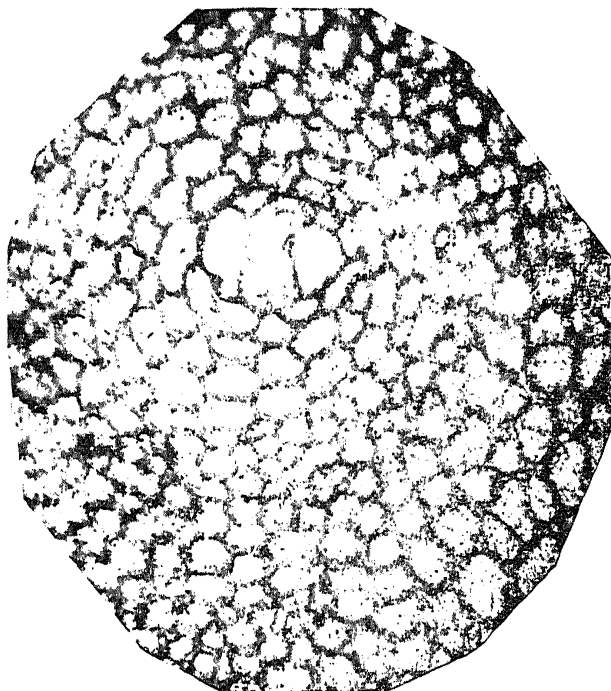


FIG. 1

*Lepidocyclusina (Polylepidina)* sp. Equatorial section  
 × 48. Loc.—From Yaw shales, near Yesain, Pakokku  
 District, Burma.



FIG. 2

*Discocyclusina (Asterocyclusina)* sp. Equatorial section  
 showing structure of the 'Pseudophragmina-type'. ×15.  
 Loc.—Same as for Fig. 1.

region, though the possibility of discovering such an association was anticipated by Vredenburg so far back as 1907. The present record is also important in extending the range of the

genus *Lepidocyclina* down to the Upper Eocene (Priabonian) in the Indian region.

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<sup>1</sup> *Rec. Geol. Surv. Ind.*, 1907, **35**, 66.

<sup>2</sup> *Orthophragmina* is a typonym of *Discocyclina*.

<sup>3</sup> I am indebted to the Director, Geological Survey of India, for the material and for kind permission to publish this note.

### A Note on the Morphology and Chromosome Number of *Litchi chinensis* Sonner

*Litchi chinensis* is one of the important fruit trees of India. It is cultivated extensively in Behar and Bengal. In 1929 Abdur Rahaman Khan<sup>1</sup> published an account on the pollination and fruit formation in litchi (*Nephelium litchi* Camb.). In this he has given an account of the occurrence of different types of flowers in the panicle as also the periodicity of flowering of the plant. Since then no other important contribution has appeared on the morphology or cytology of the plant.

The present note gives a preliminary account of the results of observations that have been made during the last two seasons. It is proposed to extend the investigations and to publish a fuller account of it in due course.

The author's observations agree in general with those of Khan regarding the nature of the panicle and the types of flowers produced. The cymes, however, were found to bear both "Male" and "Female" flowers during the transition stage. Distinct periodicity of flowering has been noted in different plants. The limits of the flowering period may or may not overlap. Observations made so far indicate that there may be two to five stages of flowering ("Flushes").

The different floral parts develop in the following sequence: calyx, andrœcium and gynœcium. A gynophore is present and a fleshy

disc occurs between the calyx and the andrœcium. The so-called "Male" flowers show normal meiotic process and the haploid number of chromosomes has been determined to be fourteen ( $n = 14$ ). A pistillode is present in these flowers, inside which normally developed ovules with integuments are noted but always in a collapsed or shrivelled condition. In the "Female" flowers the filaments of the anthers are very short and perfect pollen grains are produced as a result of normal meiotic process, but the pollen grains are not liberated from the microsporangium due to the non-dehiscence of the anthers. The pollen grains of the "Male" flowers are binucleate at the time they are shed. The pollen grains of both types of flowers are morphologically similar in shape and size and are also viable.

The development of the female gametophyte is of the normal type and a normal eight-nucleate embryo-sac is produced.

The aril arises from two different primordia which develop from the funicle and from the outermost cells of the outer integument. The products of these primordia get fused for a considerable length upwards from the base of the seed, but remain free at the top where they overlap. The fruit shows three distinct layers. The tubercles develop from the epicarp.

My thanks are due to Mr. I. Banerji under whose guidance the investigation is being carried out.

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<sup>1</sup> Khan, Abdur Rahaman, *Agri. J. of India*, 1929, 183.

### A Note on the Chromosome Numbers of *Cassia*

IN the present note the writer desires to briefly describe his observations on the chromosome numbers of *Cassia occidentalis* L. and *C. auriculata* L. The first species is widely distributed throughout this country and extends