

trate both of his methods. I take liberty to give in this respect the general formulæ from which his methods follow as direct statements.

Below are the general formulæ; for the first method:—

$$\left(\sum_1^n 10^{r-1} \cdot a_r\right)^2 = \sum_1^n (10^{r-1} \cdot a_r)^2 + 2\sum_1^{n-1} 10^{p+q-2} \cdot a_p \cdot a_q \quad (1)$$

$p \neq q$ , where  $a_r$  denotes the figure in the  $r$ th place in the number of  $n$  digits. And for the second method:—

$$\left(\sum_1^n 10^{r-1} \cdot a_r\right)^2 = b^2 + 2 \cdot 10^n \cdot \sum_1^n 10^{r-1} \cdot a_r - 10^{2n} \quad (2)$$

where  $10^n - \sum_1^n 10^{r-1} \cdot a_r = b$ .

Moreover it is to be noted that the second method is valid for all cases where the given number,

$$\sum_1^n 10^{r-1} \cdot a_r > b,$$

and not particularly when a majority of figures in the given number are greater than 5, as mentioned by him in his latter note.

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1. Siddiqi, *Curr. Sci.*, 1947, 16, 178. 2. —, *Ibid.*, p. 251.

#### A NOTE ON THE OCCURRENCE OF SPORES COMPARABLE TO *RODEITES* *DAKSHINI* SAHNI FROM THE DECCAN INTERTRAPPEAN BEDS OF VIKARABAD

THE purpose of the present note is to record the occurrence of spores, comparable to those of *Rodeites dakshini* Sahni from the intertrappeans of Vikarabad area in Hyderabad State and to throw light on the age of the intertrappean beds of this area.

There are one complete and one half of two circular sections about  $380 \mu$  in diameter. The spore wall consists of four layers. There are two inner layers which can be distinguished under high magnification, then there is a prismatic layer, with the cell walls radially elongated. This is the thickest portion of the spore wall, about  $35 \mu$ . The cells must have been tabular or prismatic. The outermost part is one-layered and thick. The spore wall is in all about  $45 \mu$  thick.

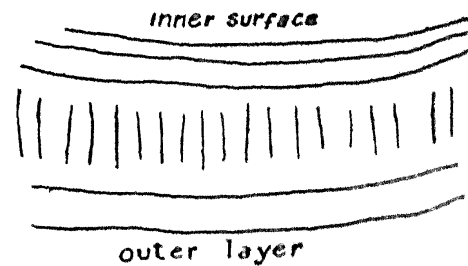
The entire section is circular in outline. The other section is semi-circular. It lies on the edge of the microslide. These two seem to exhibit the typical wall structure of the sporocarp of the Marsileaceæ.

The megaspores of all the genera, *Marsilea*, *Regnellidium* and *Pilularia* are almost identical in a transverse section. The dehiscence of the spore and the nature of the resulting apical papilla are of classificatory importance. No signs of dehiscence were seen in the available sections. This might be due to one or both of two reasons, *viz.*, either the sections might not be in the median longitudinal plane, or the spores might not have dehisced at all.

A fossil sporocarp, containing both mega- and micro-spores, comparable to that of *Regnellidium diphyllum* has been described under the name *Rodeites dakshini* by Sahni.<sup>1</sup> The spores of the same genus were described by Sahni and Rao.<sup>2</sup>

*Rodeites dakshini* is from the intertrappean beds of the Central Provinces. The horizon

being simliar, there is great possibility for these being identical, but pending definite evidence such a comparison is not made.



Spore wall  $\times 315$

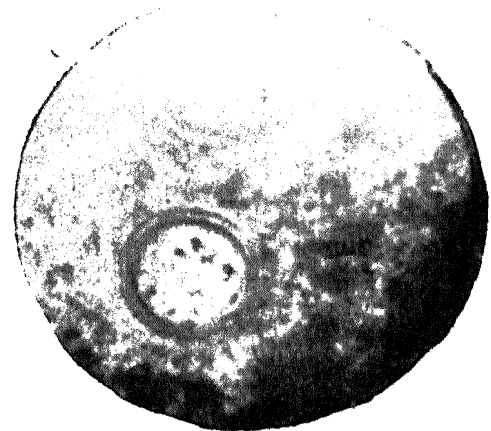


Figure and Photograph showing one complete and one half of two sections of the Spores. ( $\times 36$ )

Seward<sup>3</sup> has remarked that the Hydropteridinae are almost completely absent from pre-Tertiary strata. This suggests that beds containing them are not older than Tertiary in age.

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1. Sahni, B., *J. Ind. Bot. Soc.*, 1943, 22. 2. Sahni, B. and Rao, H. S., *Proc. Nat. Acad. Sci. India*, 1943, 13. 3. Seward, A. C., 1910, *Fossil Plants*, 2.

#### CHEMICAL COMPOSITION OF STORAGE ORGANS OF PLANTS— A FACTOR IN PHOTOPERIODISM

SEVERAL investigations by the author have shown that the chemical composition of the storage material of plants markedly affects their physiological behaviour with regard to several functions.

It has been observed that those plants in which starch is the main storage material continue to flower at a higher temperature than those in which sugar is mainly stored. Experiments on beet (*Beta vulgaris*) and barley (*Secale cereale*) gave the following results (Table I). The data are based on observations of a minimum of ten plants in all treatments.