

some of his selections. I am satisfied that the pollen grains figured by him in the stylar canal belong to the *Butomopsis*: they are identical in character with the pollen grains found in the anthers of this plant. I have not seen the sections showing pollen grains inside the ovary, but there is no reason to doubt the accuracy of his observation. These observations should be worthy of a detailed record even if the pollen grains were "foreign". Mr. Johri's full paper may be awaited with interest.

¹ Harris, T. M., "The fossil flora of Scoresby Sound, East Greenland," *Mémoires de Grönland*, 1932, **85**, 1-133.

² Harris, T. M., "A new member of the Caytoniales," *New Phyt.*, 1933, **33**, 97-114.

³ Johri, B. M., "Life-history of *Butomopsis lanceolata* Kunth," *Nature*, 1935, **136**, 338.

⁴ Joshi, A. C., "Morphology of the stylar canal in angiosperms," *Ann. of Bot.*, 1934, **48**, 967-974.

⁵ Kräusel, R., in Engler's *Nat. Pflanzenfam.* 2nd ed., 1926, **13**.

⁶ Sahni, B., "Foreign pollen in the ovules of *Ginkgo* and of fossil plants," *New Phyt.*, 1915, **14**, 149-151.

⁷ Thomas, H. Hamshaw, "The Caytoniales, a new group of Angiospermous plants from the Jurassic rocks of Yorkshire," *Phil. Trans. Roy. Soc. London, Ser. B.*, 1925, **213**.

⁸ Thomas, H. Hamshaw, "The early evolution of the angiosperms," *Ann. of Bot.*, 1931, **45**, 652, 654.

⁹ Thomas, H. Hamshaw, "The nature and origin of the stigma," *New Phyt.*, 1934, **33**, 173-198.

With reference to the above note of Prof. B. Sahni, a copy of which was kindly shown to me about a week after it had been sent to the press, I think it necessary to make the following remarks. The necessary figures and some other interesting details will be found in my full paper which will soon appear elsewhere.

1. In the stylar canal of one carpel there was a row of six pollen grains of which five could be seen in a single section. It is this that was figured in the note published by me in *Nature*. The pollen grains are approximately 24 microns in diameter and the stylar canal is $1\frac{1}{2}$ to 2 times as wide.

2. In a dozen other cases (from three different flowers) pollen grains were found *inside the ovary*. One of these was located on the surface of an ovule (which was unfortunately cut obliquely) and had actually germinated, although the pollen tube was very short.

The writer was himself greatly surprised when he saw these pollen grains in such unexpected quarters and a careful examination of their size and nuclear contents left no doubt whatever that they belonged to the same species.

Before entering into a detailed discussion of the theoretical bearings of this discovery, the writer wished to be sure whether a similar thing had been observed before in any other plant. An enquiry from Prof. K. Schnarf of Vienna brought forth the reply last month, that the phenomenon was absolutely unique and had never been noticed by him in the existing literature on Angiosperms.

As Prof. Sahni has pointed out, the occurrence of pollen grains inside the ovary of an undoubted angiosperm like *Butomopsis*, sets one thinking about the difference between a Gymnosperm and an Angiosperm. *Caytonia Thomasi* provides material for comparison and speculation; and so does *Gnetum*, if we agree to designate the inner envelope as a stylar canal and not as an integument.

B. M. JOHRI.

Botany Department,
Agra College, Agra,
February 1, 1936.

Chromosome Numbers in *Phœnix farinifera*, Roxb.

TWENTY-ONE species of *Phœnix* have been enumerated in the *Index Kewensis*; of these, five species are natives of South India. The chromosome numbers of the various species are not available except for the cultivated date palm—*Phœnix dactylifera*, Linn. Nemec (1910) gives the $2n$ number as 28.

The author of the present note has, from several counts made in the metaphase plates of pollen mother-cells, determined the haploid (n) number of chromosomes in *Phœnix farinifera*, Roxb. (common on the east coast of the Peninsula) as 18.

G. V. NARAYANA.

Oil Seeds Section,
Agricultural Research Institute,
Coimbatore,
January 6, 1936.

Ram Sarcophagus from Cuddappah.

WITH reference to Mr. M. D. Raghavan's article on "A Ram Sarcophagus from Cuddappah" appearing in 1935, November issue of *Current Science*, the following observations may be of interest.

After seeing the object in the Madras Museum and after examining its detachable head carefully, I find myself unable to

agree to the author's statement that the "Ram's head is clearly modelled". Except for what the author calls "the curling horns", I fail to find anything to warrant the conclusion that the object is a clear model of a ram's head. On the other hand, the slightly curving and tapering facial portion and the omission of the ears (especially when the artist has taken pains to mark the position of the comparatively smaller eyes and the nasal holes) seem to suggest that the maker intended this removable head portion of the sarcophagus to represent a hovering bird (perhaps a Vulture) and not the head of a ram. If it represents a hovering bird, then the "curling horns" may be taken to represent a pair of sturdy wings. Again this part of the sarcophagus is so small and suits so ill the rest of it from the point of view of proportion, that it raises in my mind the doubt, whether the person who made the object ever meant this sarcophagus to represent a ram. The presence of the six legs adds colour to this doubt.

Composite objects are not uncommon in pre-historic archæology. It seems to me to be more reasonable to call this sarcophagus a composite object than to christen it a "ram sarcophagus". It may be a fantastic representation of some mythological figure associated with death that loomed large in the minds of those pastoral people. One must remember that the big, the unnatural, the grotesque and the unknown appealed to the primitive mind more than anything else and the primitive man made attempts whenever he had opportunities to represent his imaginary pictures of these in his handicrafts.

Further on in the article the author makes mention that this sarcophagus is the second "funerary vessel in animal form known from South India". This is incorrect. The Superintendent of Archæology, Cochin State, in his annual report of the Archæological Department of the Cochin State for the year 1109 M. E. (1933-34 A.D.) mentions that a sarcophagus which has "the appearance of a cow in a lying posture" was discovered at Kattakampal in the year 1933-1934. This report was published a few months before or very shortly after this supposed "Ram Sarcophagus" was unearthed.

K. GOVINDA MENON.

Madras,
February 5, 1936.

The Mineral Bababudanite—An Explanation.

IN my reply to Mr. M. B. Ramachandra Rao's letter entitled "The Kaldurga Conglomerates and the Iron Ore Series of the Bababudans, Kadur District, Mysore," published in this *Journal* (Dec. 1935), I am afraid I have not made myself quite clear in my remarks regarding the origin of the mineral bababudanite when I said "my colleague, M. R. Srinivasa Rao, and I were the first to point out that the mineral was developed as a result of thermal metamorphism." The intention at the time of writing this was not what this statement would literally imply, for I was aware that Jayaram had suggested the secondary nature of bababudanite and I have myself referred to it in one of my papers.¹ What was intended to be claimed was, that the exact nature of the rocks involved in the process of metamorphism giving rise to bababudanite, was elucidated for the first time in the course of my work.

CHARLES S. PICHAMUTHU.

Central College,
Bangalore,
February 5, 1936.

¹ C. S. Pichamuthu, *Curr. Sci.*, 1935, 3, 608.

Mathematics and the Sciences.

THE review of *Descriptive Mathematics* on page 556 of the January number of *Current Science* demands comment. The book reviewed is *not* a companion volume to *Graphs and Statistics*, though a contrast to it. Nor is it a book for "statisticians whose background of mathematics is negligible"; if it were so, why the title *Descriptive Mathematics*? Your reviewer seems to have got nowhere near the standpoint of the book. One difficulty seems to be that the unique situation we enjoy here in Bombay is not appreciated—it is possible for us to act in making striking departures from the ordinary courses in elementary College mathematics without taking the whole body of teachers with us immediately. *Descriptive Mathematics* is an endeavour to define such a departure, not to popularise it; but the standards your reviewer appears to have applied in valuing the book are quite conventional. He merely thinks of students as they are, and not as they might be were they successfully led through such a course as is proposed. He seems, so far as his ideas are clear, to differ in no essential respect from