

neither too deep (1/45) nor too shallow (1/60); while in 62 per cent. of Indian bones the groove was deeper than 1/45 and in only 3.5 per cent. it was shallower than 1/60 of the length of the bone.

Considering the distribution of the femora according to the depth of the groove it was found that in 87 per cent. the groove was deeper than 1/52 and in 13 per cent. shallower than 1/51 of the length of the bone. Corresponding figures for Irish⁴ are 50 per cent. and 50 per cent. for English⁴ 30 per cent. and 70 per cent. respectively.

The conclusion from the above results appears to be obvious. In the majority of Indian femora the patellar groove is deeper than it is in Europeans. The increased depth is attributable to more frequent rubbing movements of the patella, on the patellar groove, in the much more active knee joint of an Indian.

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Hyderabad (Sind),
October 9, 1945.

M. A. SHAH.

1. Siddiqui, M. A. H., *J. Anat.*, 1934, **68**, 331. 2. Shah M. A., *Ibid.*, 1942, **77**, 110. 3. Shah, M. A., *Cur. Sci.*, (in Press) 1945. 4. Martin, C. P., *J. Anat.* 1932, **66**, 371. 5. Siddiqui, M. A. H., *Ibid.*, 1936, **70**, 410.

A NOTE ON THE CULTURE OF OSPHRONEMUS GORAMI LACEPEDE IN CEMENT CISTERNS*

MASONRY cisterns, usually regarded as unsuitable for Gourami culture, have been found suitable provided adequate weedage is offered.

A pair of adult Gourami, measuring 10" and 10½", was introduced in June into a cement tank in the Municipal Park at Rajahmundry. The tank cuts a cross-shape internally and covers an area of 40 square feet with 3½ feet depth. The sides are vertical and cemented and the bottom is evenly plastered. The water is let in through a pipe arrangement at the bottom. A 3-inch layer of fine sand was spread at the bottom to plant *Hydrilla* in clusters.

The fish were found to feed on the tender foliage of *Hydrilla*. To keep them in prime condition the supplemental diet of ground-nut oil-cake was also given. In the last week of September the fish were restless and the female was suspected to guard a particular spot amidst the vegetation, while the male was vigilant some two feet away from the female. After the fry emerged, a search was made for the nest near the suspected spot. The trailing shoots and the foliage of *Hydrilla* were knitted nicely to form a thick cover with an opening facing the centre of the cistern. The nest was 6 inches above the ground. It was vertically drawn out and had no distinct form.

Fingerlings numbering 30, of the size of 1" to 1½" were seen frequently coming to the surface of water. Gourami can thrive and breed in masonry tanks of fair depth, if any suitable material like *Hydrilla* for nest-building is furnished.

Inland Fisheries,
Nellore,
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V. D. SPURGEON.

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SYMBIOSIS IN SPITTLE INSECT* PTYELUS NEBULOSUS FABR.

THE present communication deals with the symbiosis of *Ptyelus nebulosus* Fabr. belonging to the family *Cercopidæ*. The two tumours of Bacteriotomes are on either side of the abdomen and as usual differ in size. The one nearer to the skin is coloured ochre to brown. The other which covers the former tumour as seen from inside is reddish in colour. The intensity of the colour of the tumour is more in the nymphal stages than in the adult stages of the insect. While dissecting it was observed that the brown tumour is a very delicate one for it disintegrates into small bits when kept for sometime in tapwater, but this is not the case with the red tumour.

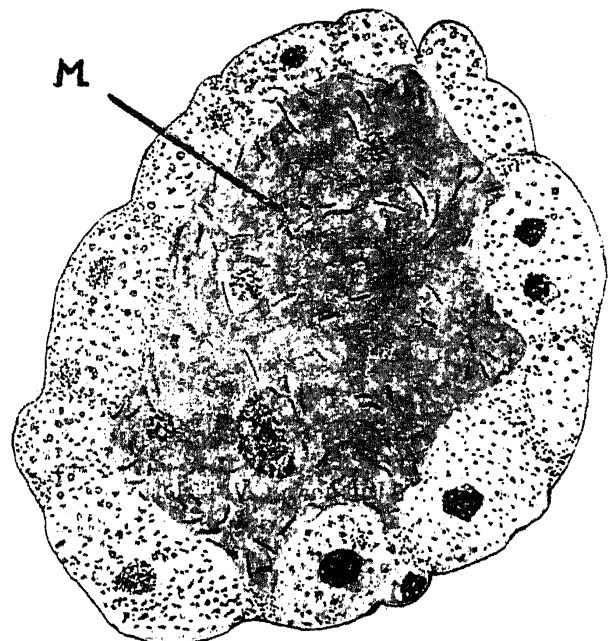


FIG. 1. M. Bacteria.

Fig. 1 stained in Heidenhain's hæmatoxylin (without counter-stain) represents a cross-section of the red tumour. Syncytium is full of bacteria, its circumference is surrounded by cells not infected by bacteria but the cell

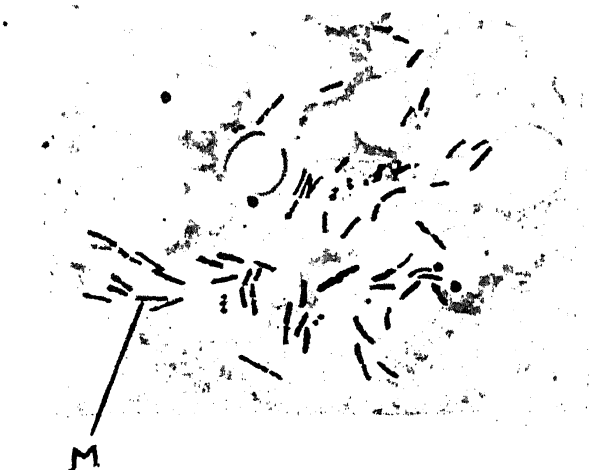


FIG. 2. M. Bacteria

margin is very indistinct. Fig. 2 represents a smear from the red tumour, the smear was fixed with Bouin's fluid and subsequently stained with Giemsa as mentioned in my previous

* Identification of the insect has yet to be confirmed.

communication (*Current Science*, Vol. 14, R.P. 210-11, August 1945). The bacteria are not uniform in size as has been noticed by several workers on Symbiosis. These bacteria stain red with Giemsa. According to the previous work done in this Laboratory these bacteria are real Symbiots and are probably responsible for the pigment production. This hypothesis can be incidentally conformed by the observation that during the nymphal stages the red bacteriotome is more intense in colour than in the adult stage.

With regard to the brown tumour it may be pointed out that it is pressed between the chitinous skin and the enveloping red tumour.



FIG. 3. P. Unknown Cell-inclusion

Fig. 3 represents cross-section of the brown tumour stained in Heidenhain's haematoxylin. The cell-inclusions are not clearly defined like many others recorded in the literature on Symbiosis. Buchner and his school look upon these cell-inclusions as fungi of unknown classification. However, a smear from such a tumour when stained with Giemsa imparts the cell-inclusions the plasmatic blue colour,

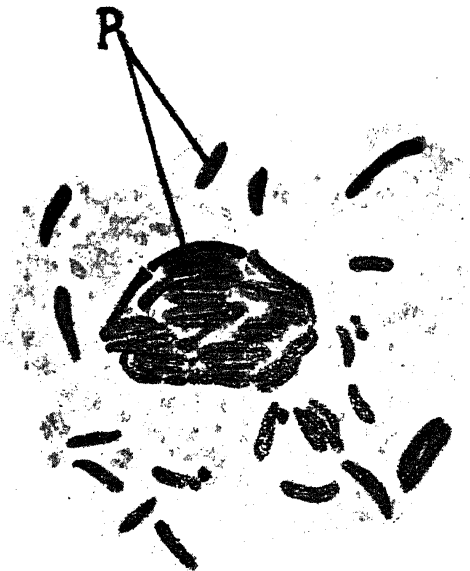


FIG. 4. P. Unknown Cell-inclusion.

which is distinct from the red nuclear stain given to bacteria. Fig. 4 represents such a

smear. The cell-inclusions are very near in shape to those figured by Buchner for *Aphrophora alni* (Fig. 9 c, p. 112, *Z. f. Morphologie und Ökologie*, 1925).

The work was done in the laboratory of Dr. S. Mahdihassan and my thanks are due to him and to Professor B. K. Das.

Osmania Medical College,
Hyderabad (Dn.),
October 18, 1945.

MOHANBABU NAIDU.

PALÆOLITHIC SITES IN THE NELLORE DISTRICT

In *Current Science* for February 1940 I had the privilege of making a preliminary statement about Palæolithic Sites in the Nellore District. I wish to report a site recently found which is of special interest because it seems to offer a geological clue to the age of stone-age tools in this part of India. The Madras trunk road, south of milestone 149, crosses an artificial drainage channel which serves to divert rain water into a tank east of the railway line which here parallels the highway at about a half-mile distance. The area between road and railway is reserved forest, a sparse jungle of thorny shrubs. From the channel the surface of the ground slopes very gently upward to the south toward a low ridge of laterite. Northward from the channel the surface is nearly level with, in places, drainage toward the channel. Material removed from the channel is heaped on either side. The excavation cuts across a deposit of stiff red clay which varies in thickness from a few inches to as much as eight feet. Beneath the clay is a thin layer of laterite overlying greatly decomposed granitic rock. In this channel we have found 140 stone-age implements of which the greater part are listed in Memoir No. 68 of the Archæological Survey of India.* A considerable number have been found *in situ* in the red clay at depths of 2 or 3 feet. But recently I found a fine quartz implement imbedded in this clay at no less than seven feet below the surface of the surrounding jungle floor. A geologist competent to study the terrain and discover the source of the clay and estimate its rate of deposit might have a valuable clue to the antiquity of stone-age man in this area. I have seen no place where an equal opportunity is offered and hope someone will be interested to look into it.

The implement is a *coup de poing* made by crude primary flaking on a quartz cobble stone. It is 11.3 cm. long, 8.3 cm. wide and 4.8 cm. thick. It has a heavy pebble butt and might be classed as Acheulean in type.

FRANK P. MANLEY.

Ramapuram,
Nellore Dist.,
October 17, 1945.

* *The Manley Collection of Stone Age Tools*, by A. Aiyappan and Frank P. Manley.