

TABLE II

Bone weight and protein level of the control and denervated tibiofibulae of *Rana hexadactyla*

	Control	Denervated	't' test
Bone weight (dry weight in gms)	0.262 ± 0.032	0.207 ± 0.037	P < 0.05
Protein content (mg/gm wet weight)	6.042 ± 2.331	11.292 ± 4.818	P < 0.05

* Each value is mean ± S.D. of 6 individual observations.

protein level, the SDH activity has decreased in the denervated limb bone (Table I). It may be due to greater synthesis of the nonspecific proteins and proteins of glycolysis with a retarded synthesis of specific proteins like SDH, etc., as it happens in the denervated muscle¹⁸.

The results of the present experiment on the tibiofibulae of denervated frog indicate that the interruption of sciatic nerve significantly alters the bone weight, protein content and the oxidative enzyme activity (Tables I and II), which shows that the intact nerve exercises a control over the enzyme activity in bone and also regulates bone weight. We believe that this is the first evidence of the neural regulation of SDH activity in bone tissue. It may be mentioned that the immobilization of the denervated limb may be one of the causative factors in developing the denervation changes since similar changes were found to be important factors in the establishment of denervation muscle atrophy¹⁹. It is interesting to note that similar induced atrophy in muscle by the sciatic nerve section results in a decrement in SDH activity¹¹, indicating a neural regulation of the oxidative enzyme in muscle and bone.

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PREHISTORIC REMAINS OF THE GREY SEAL, *HELICHOERUS GRYPUS* FABRICIUS 1791, FROM HARAPPA, PAKISTAN

WITH the object of reviewing the old collection of animal remains from Harappa (Prashad¹), we examined a number of undetermined specimens of very fragile nature. Among them was a tooth belonging to the Grey Seal *Helichoerus grypus* Fabricius which is very interesting from the point of view of its present restricted distribution in the arctic and temperate seas far away from Harappa. The animal inhabits in the Arctic region and in the colder seas in and around Europe, U.S.S.R., and North America (Ellerman and Morrison-Scott²).

Its presence in the collection is quite astonishing and interesting. It is reminiscent of the fact that the Harappan people had some sort of relationship or trade connection with far-off foreign countries.

Material. No. 10212; Mound F; Trench 1.

Square M 12/9; depth 9' 10"-10' 6".

One upper molar; a few fragments of the skull.

The tooth, an upper molar with characteristic simple and low crown, two linear, antero-posteriorly placed and closely adherent connate roots (Owen³), shows that it belongs to a specimen of the Grey Seal. Its occurrence in Mound F indicates that it is chronologically the oldest, among the various exhibits and remains studied so far, from the site and is more than 5000 years old.

The typical habitat of this seal and its restricted distribution within the temperate and arctic seas suggest it to be exotic, but its appearance in the site is inexplicit. It is conceivable that one or a few preserved specimens or portions of the skeleton were either imported by traders or that the Harappan people came as immigrants from some coastal areas of Europe or U.S.S.R. and brought with them a few preserved specimens of the seal, for some use in ritual, as a talisman in occult operation. Of course it is also not very unlikely that the people of Harappa used to extract fat from the blubber of such animals to use as a fuel to illuminate their lamps.

Whatever be the reason behind, this finding constitutes the first record of this kind, from the pre-historic sites in India and adjoining countries, unearthed so far.

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ACID AND ALKALINE PHOSPHATASE AND AMYLASE CONCENTRATION IN THE SEMEN OF MALABARI BUCKS

VARIATIONS in the enzymic activity in the semen has been reported in different species in past. Increased alkaline and lower acid phosphatase activity has been reported in bull and ram semen by Mann *et al.*⁴. Amylase enzyme has been found in mammalian spermatozoa by Hultin and Lundbald² and in the prostatic secretions by Pova⁵. As there was no literature available on enzymes of goat semen, this study was taken up.

Material and Methods

A group of seven Malabari bucks of 1-4½ years of age maintained at the Goat Farm, Kerala Veterinary College, Trichur, was used for this study. Animals of

sound health, good serving capacity and normal sexual behaviour were selected for the study. They were reared under identical conditions and were fed with concentrates and jack leaves as per the normal feeding schedule. The semen samples were collected using artificial vagina from each buck with an average interval of four days in between two collections. The biochemical analysis was carried out immediately after collection.

Acid phosphatase, alkaline phosphatase and amylase activity were assessed by King and Wootton³ method, and acid and alkaline phosphatase activities were expressed in K.A.U. per 100 ml and amylase activity in Somogyi units per 100 ml.

Results

The observed results have been given in tabular form (Table I).

TABLE I
Showing enzymic concentration in the semen of Malabaribucks

Sl. No.	Alkaline ₁ Phosphatase K.A.U.	Acid Phosphatase in K.A.U.	Amylase in Somogyi units
1.	62.50	0.25	96.00
2.	247.50	3.60	98.30
3.	82.50	Nil	128.00
4.	200.00	Nil	109.90
5.	100.00	Nil	133.33
6.	30.00	Nil	100.00
7.	37.50	Nil	147.20
Mean	107.14	Nil	116.40
S.E.	31.84	Nil	7.58

Discussion

Phosphatase activity varies with feed (Reid *et al.*⁶), and species (Mann *et al.*⁴ and Epen *et al.*¹). There are no values of these enzymes available for comparison in ram and buck semen. The acid phosphatase activity was low and insignificant. The results obtained in the present study confirm the earlier reports that, concentration of alkaline phosphatase is more than that of the acid phosphatase in the semen of domestic animals. The amylase activity of goat semen in the present study was found to vary from 96.00 to 147.20 with a mean of 116.10 ± 7.58 Somogyi units.