A NOTE ON THE WIND-BORNE DUST COLLECTED IN THE MONTH OF MAY 1942

DUST STORMS had been particularly heavy in Delhi in May 1942 and a deposit during the last week, on a 20 cm. × 20 cm. glass plate weighed 12·45 gm. with an apparent volume of 11·3 c.c. The sample was collected and subjected to chemical and mechanical analyses. It was seen from the results that the dust had been mainly sand with a small amount of clay and had very little organic matter. The chemical composition suggested that the dust was soil from an extremely arid zone:—

Mechanical analysis: Coarse sand—31·92%, Very fine sand—53·00%, Silt—13·34%. Clay—2·74%.

Chemical analysis: Insoluble residue—84·83%. Fe_2O_3—4·21%, Al_2O_3—4·06%, CaO—1·43%, MgO—1·12%, K_2O—0·66%, Na_2O—1·20%, Organic matter—0·64%.

pH of the dust as determined colorimetrically was 8·2. Analysis of the water extract (1 : 5) suggested the following percentage composition for the mixture of soluble salts. Total salts—0·2000, $CaCO_3$—0·0025, $Ca(HCO_3)_2$—0·0689, $CaSO_4$—0·0238, $MgSO_4$—0·0142, NaCl—0·0846.

Dust collected at different periods during summer of 1942 had practically the same mechanical composition. Chemical analyses were not carried out. The sample of dust was very similar to the so-called "dust soils" of the arid regions of the United States of America and examined by Hilgard.* These soils have been described to be "so loose and fine as to rise in clouds at the merest puff of wind", during the dry season.

My thanks are due to Dr. S. V. Desai and Mr. A. C. Ukil for many valuable suggestions.

Imperial Agric. Res. Institute,
New Delhi, ABHISWAR SEN.
February 3, 1943.

* Bull. No. 3, Weather Bureau, U.S. Dept. of Agriculture, 1892, quoted in *A Treatise of Rocks, Rock Weathering* and *Soils*, 1897, 345, by G. P. Merrill.

*REPORT ON THE OCCURRENCE OF *SIREMBO IMBERBIS* TEM. AND SCHL.,[1] FROM INDIAN WATERS TOGETHER WITH A NOTE ON ITS PYLORIC CÆCA

WHILE working on the pyloric cæca of Indian fishes, I came across a Brotulid fish in the general collection of the Biological Station (Ennur), Madras Fisheries Department. As the fish was quite new to me and also as I was unable to identify it owing to lack of literature, it was sent to Dr. J. R. Norman of the British Museum, who identified it as *Sirembo imberbis* Tem. & Schl.[2] He also pointed out that it has been reported from Japan and once from Chinese waters, and is a deep sea fish; there was no report of its occurrence in the Indian waters. The last statement was corroborated by Dr. Hora also.

As is well known, Madras fishermen on the east coast (Bay of Bengal) use catamarans and do not go very far out for catching fish, the utmost limit being ten miles from the shore and depth twenty fathoms; thus they fish in comparatively shallow waters only. For the Biological Station at Ennur, the fishes are collected from the catches of the fishermen and preserved. The fish under report must have belonged to such a general collection and was, therefore, not caught from deep waters. From the number of specimens examined by me in the collection of the Biological Station, the fish does not appear to be very rare in these waters.

I have examined and dissected a dozen fishes and note below the colouration of specimens preserved in formalin:—

Dorsal surface and sides brown, with four to five dark-brown longitudinal bands on the sides running more or less parallel to one another. Ventral side slightly brown. Dorsal fin with two black and three brownish-black spots on the margin not reaching the base; rest of the dorsal and anal have a blackish margin. Pectoral brownish, without black fringe.

The number of pyloric cæca varies from 13 to 15, but usually the number is fifteen. They are bilaterally arranged in linear series, *i.e.*, on the right and left of the proximal part of the duodenum immediately after the pylorus, and have independent and separate openings into the former, usually six cæca being present on the right and nine on the left side. They are tubular structures somewhat tapering towards their free ends (Text-Fig. 1).

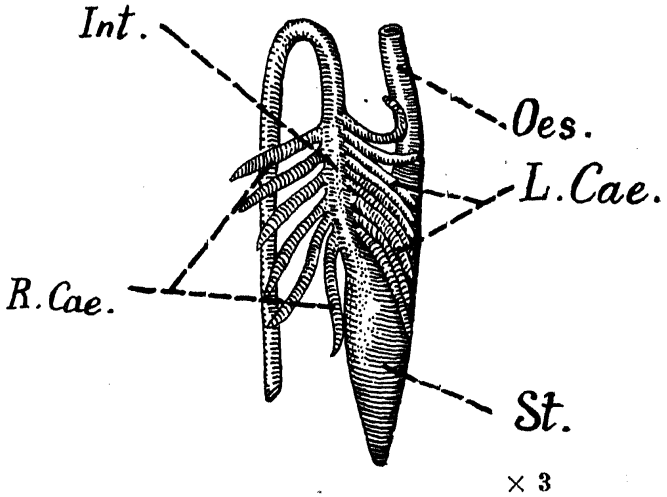

FIG. 1

Viscera of *Sirembo imberbis* Tem. and Schl., showing the disposition of the cæca

Oes.—Oesophagus; *L.Cæ.*—Cæca of the left side; *St.*—Stomach; *R.Cæ.*—Cæca of the reght side; *Int.*—Intestine.

I am greatly indebted to Dr. B. Sundra Raj and Dr. D. W. Devanesan for affording me an opportunity of working on this fish. For the

* A detailed note on the systematic position and its distribution will be published by Dr. B. Sundra Raj.

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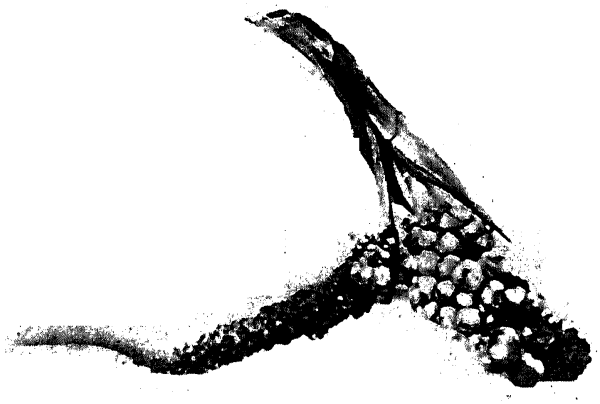
identification of the material, I am grateful to Dr. J. R. Norman of the British Museum and to Dr. S. L. Hora of the Department of Fisheries, Bengal, for the supply of literature.

Department of Fisheries,
H.E.H. the Nizam's Government,
Hyderabad (Dn.), M. RAHIMULLAH.
January 1, 1943.

1. Norman, J. R., "The John Murray Expedition, 1933-34" *Scientific Reports*, 1939, 7, No. 1. 2. Gunther, A., *Cat. Fish. Brit. Mus.*, 1862, 4, 373.

A NOTE ON *BORASSUS FLABELLIFER* LINN.

Borassus flabellifer Linn. is described as a tall dicecious palm in systematic accounts.[1] Blatter[2] describes it as a "very tall dicecious palm" and does not refer to any exceptions. But monœcious trees of *Borassus* seem to be common. The monœcious inflorescences are observed to be produced by some trees regularly year by year. The photograph published is that of



Monœcious spadix of *Borassus flabellifer* Linn.

such an inflorescence, observed by the writer, where one branch of the spadix (right) bears only female flowers and the other (left) bears female flowers at the base and male flowers towards the tip, where the branch shows a deflection.

The unisexual condition in this genus seems to be derived by reduction from hermaphrodite flowers, the female flowers containing 6-9 staminodes and the male flowers containing a pistillode represented by three bristles.

Botany Department,
P. R. College, Cocanada, V. VENKATESWARLU.
January 14, 1943.

1. Hooker, J. D. Sir, *The Flora of British India*, 1894, 6. 2. E. Blatter, S.J., "The Palms of British India and Ceylon, Indigenous and Introduced, Part VII," *The Journal of the Bombay Natural History Society*, 1912, **21**, No. 3.

EXCITATION AND ACCOMMODATION IN UNSTRIATED MUSCLE

WHEN unstriated muscle is stimulated with alternating current (A.C.), the tension soon subsides owing to accommodation (Singh, 1938).

This phenomenon is analogous to that described by Hill (1936) in nerve. Using his terminology the tension subsides when "U" rises above "V", their rise being visualised as in Fig. 1. When the muscle is stimulated with A.C., two factors produce their effects, one that retards relaxation, and the other that produces tension. These two factors are not the same, as shown by the fact that the muscle accommodates to the two at different times; the two factors are antagonistic. Using 8 volts, A.C., the relaxation is retarded if the duration of the contraction is approximately less than 3-4 seconds; accommodation to tension takes longer, about 5-7 seconds. The primary tension is probably produced by ions inside, and retardation of relaxation by ions outside (Singh, 1938,[3,4,5,6,7,8] Singh, 1939,[9,10] Singh

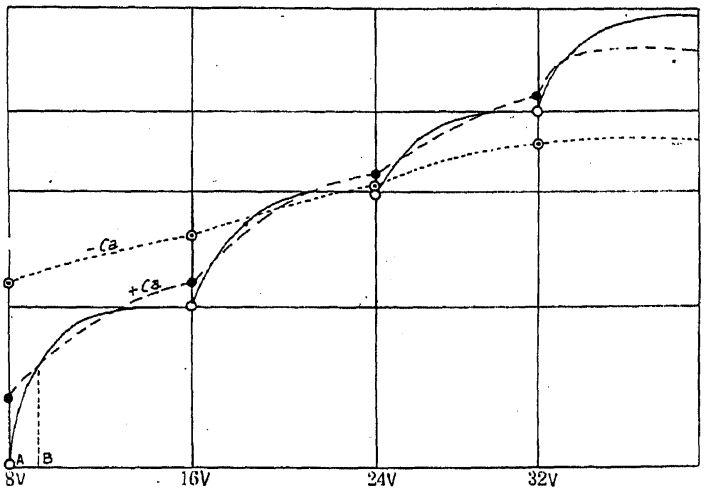


FIG. 1. Unstriated muscle. Rise of "V" (continuous line) and rise of "U" (discontinuous lines) In the absence of calcium the initial threshold rises but the rate of rise is less (Singh, 1938*d*). Ultimately "U" may begin to fall, owing to "adaptation to adaptation" or "accommodation to accommodation".

1940,[12,13] Singh, 1942, 1943,[14,5] Rao and Singh, 1940). The above results show that "U" rises more slowly than "V".

When the stimulus is over, fatigue persists to A.C., and potassium for sometime, and tone also is neutralised for 3-4 secs. This shows that the fall of "U" is slower than that of "V"; the primary tension is probably produced by ions inside and tone and the potassium contraction by ions outside.

The interval from A to B, that is, the latent period, is the time required by "V" to catch "U" as suggested by the fact that potassium and magnesium which increase accommodation in nerve, increase the latent period of certain contractions in Mytilus muscle.

Ultimately "V" rises higher than "U" as shown by the fact that with higher voltages continuous tension is produced, and the rate