

divided up to three quarter of its length; lobes $3.5-4 \times 1.3$ mm, triangular-lanceolate, acute at the apex, prominently 1-nerved and with lateral veins. *Corolla* elongate-tubular, tapering and distinctly curved at the tip, obscurely 5-angled, 1.5-2.8 cm long, 5-6 mm across, shortly divided near the top into 5 linear-lanceolate lobes, each 6-8 mm long, prominently 1-nerved and dorsally raised. *Stamens* 10, as long as corolla; filaments short, rather stout, ± 3 mm long; anthers yellow, narrowly oblong, ± 21 mm long, 2 spurred at the middle, opening by longitudinal slits. *Ovary* inferior, 5-celled, with many ovules in axile placentation; style linear, 2.3-2.5 cm long; stigma capitate, 2 mm long, glabrous. *Fruit* berry, $6-7 \times 4.5-5$ mm ovoid-oblong, with persistent calyx lobes. *Seeds* many, oblong lanceolate, obtuse to truncate at the apex with villous hairs, acute at the base, ventrally concave, dorsally shallow convex and with a ridge.

Note: C. B. Clarke (*l. c.*) erroneously described the corolla as straight. It is on the contrary, distinctly curved at the apex.

Specimens examined: BHUTAN: South-eastern part, 1849, T. J. Booth s. n. (TYPE, K); Shamkhara, 1400 m, 11.11.1964, D. B. Deb 85 (CAL); Gaylegphug, 270 m, 9.11.1964, D. B. Deb 215 (CAL); Ranicamp (Gulibrong), 1650 m, 13.11.1964, D. B. Deb 215A (CAL); ARUNACHAL PRADESH: Rupa,

1200-1500 m, 22 October, 1935, F. Kingdon Ward 12458 (BM).

ACKNOWLEDGEMENTS

The authors are grateful to Dr. S. K. Jain, Director, Botanical Survey of India for facilities offered, to the Directors of Royal Botanic Gardens, Kew and British Museum, London for permission to consult their herbaria, to Mr. H. K. Airy Shaw for confirming the identity and to Shri D. P. Saha, Artist for drawing the illustration.

D. B. DEB

Botanical Survey of India, Howrah

AND

R. S. RAGHAVAN

Botanical Survey of India, Pune

REFERENCES

- AIRY SHAW, H. K. Studies in the Ericales: 1. New and less known species. *Bull. Misc. Inf. Kew* 1935: 24-53. 1935.
- Studies in the Ericales: V. Further notes on *Agapetes*. *Kew Bull.* 3: 77-104. 1948.
- Studies in the Ericales: XI. Further new species and notes on the *Agapetes* of continental Asia. *Ibid.* 13: 468-514. 1959.
- A Dictionary of the Flowering Plants and Ferns by J. C. Willis 8th edition (revised). Cambridge. 1973.
- BURKILL, I. H. Chapters on the History of Botany in India. Calcutta. 1965.
- CLARKE, C. B. IN HOOKER, J. D. Flora of British India 3: London. 1881.
- SANTAPAU, H. AND A. N. HENRY. A Dictionary of the Flowering Plants in India. Calcutta. 1973.

AN INTERESTING CATTLE ALARM OF 'SAHARIYA' CULTIVATORS

Ever since man has settled himself through agriculture, by degrees he has improvised cultivation and its techniques. This is suggested by the study of cave paintings and other evidences revealing eight thousand to ten thousand year old agricultural history which originated somewhere between

Nile area, Egypt and the Indus river valley. Recognising the elements which promote cultivation he has adopted them and has simultaneously learnt means to ward off obnoxious elements which are harmful. From the selection of cultivation localities in near perfect natural conditions, where tilling the

land and sowing seeds sufficed—to modern agriculture, the sophistication has been carrying on.

Glimpses of these transitions can often be noticed, even today, amongst the tribals and aboriginals—the so called 'primitive' societies, in our country as well.

One such technique—a cattle alarm device has been observed amongst the 'Sahariya' tribals inhabiting the forests of Kota district in Rajasthan, who call this as **Halan**.

CONSTRUCTION OF A 'HALAN'

The whole system requires numerous poles,

of approximately 2 m in height, of any available wood, a long string of commonly occurring plant fibres, and *Butea monosperma* (Lam.) Taub leaves. The wooden poles are placed erect, all around the field under cultivation, inside the fencing. They are all connected by the long string at their top portions. An end of the string trails to the farmer's shelter. *Butea* leaves or leaflets are tied in a lace like fashion to the string throughout its length. Leaves are arranged either singly or in secondary laces, on smaller loosely hanging pieces of string.



A view of a Cattle alarm device among the 'Sahariya' tribals.

THE WORKING OF A HALAN

The *Butea* leaves or even the leaflets are large and on drying up make a noise either with a gust of wind or when the string is given jerks by the farmer. This noise is caused by their mutually colliding against each other and the effect is tremendous,

particularly in the silent night hours. At night, when the farmer, resting in his shelter in field, becomes conscious of an intrusion by a stray cattle or beasts, he simply tugs at the string for some time. The beasts get panicky by the unprecedented chaotic clamour of the alarm. This saves the far-

mer's labour in getting up and chasing out the intruders for a sufficient distance as noise works better—the cattle tend to run beyond audible limits.

During day hours, birds can be frightened off likewise.

The beauty of this alarm lies in its simplicity yet remarkable efficiency and further that all the ingredients are locally available, absolutely.

PRABHAKAR JOSHI

Department of Botany, University of Rajasthan, Jaipur

MANGIFERA CAMPTOSPERMA PIERRE—AN INTERESTING ADDITION TO THE INDIAN FLORA FROM GREAT NICOBAR ISLAND

During a joint scientific expedition to the Great Nicobar Island in 1966, the senior author collected a species of *Mangifera* with immature fruits and could not confirm its identity for lack of flowers and mature fruits. In 1977, more specimens of this species with mature fruits were collected by the junior author. A critical study revealed that the species in question is *Mangifera camptosperma* Pierre, a native of Vietnam and found also in Thailand and Burma. In India there are 3 species of *Mangifera* (*M. indica* L., *M. sylvatica* Roxb. and *M. andamanica* King). The present finding of *M. camptosperma* Pierre from the Great Nicobar Island constitutes an addition to the Indian Flora.

It is interesting to point out that the fruit of this species is flat and has the odour and taste of cultivated Mango except that the mesocarp is thin and fibrous, and the seed occupies the major portion of the fruit. The wild species may prove useful in improving our cultivated varieties and can be conserved in our germplasm collections, as mentioned in an earlier publication (Thothathri, 1973). A description together with an illustration of *M. camptosperma* is therefore presented in this paper.

Large trees; 30 m high, growing in the interior beach and low land forests in sandy loam. Leaves oblong, 14.45×4.8

cm, cuneate at base, acuminate to caudate entire, glabrous; lateral nerves 15-20 pairs; petioles 1.5-2.8 cm, glabrous pulvinate. Fruits flat, elliptic, $6-9 \times 6-8$ cm, green when unripe and yellow when ripe; epicarp thin, mesocarp fibrous, 0.8-3.0 cm thick, endocarp woody. Seeds reniform 5×3 cm, filling most of the cavity of the stone.

Flowering material has not been collected as yet.

Frts: March-July.

Distrib.: India (Andaman and Nicobar Islands); Vietnam, Thailand and Burma.

Specimens examined: NICOBARS: East coast forest, Campbell bay, Great Nicobar Island, 4.3.1966, Thothathri & Banerjee 11369 (CAL); Campbell bay to Chengappa bay, Great Nicobar Island, 11.6.1977, Balakrishnan 5705 (PBL); 30 km on road to Pygmalion point from Campbell bay, 19.7.1977, Balakrishnan 5858 (CAL, PBL). ANDAMANS: South Andaman, Jirkatang III, 13.4.1977, Balakrishnan 5508 (PBL).

K. THOTHATHRI

Botanical Survey of India, Howrah

AND

N. P. BALAKRISHNAN

Botanical Survey of India, Allahabad