

The land round the District Officer's house has been used somewhat as an experimental ground to see how various plants grow; but the officers succeed one another at intervals too short for the purpose to be carried out to much effect. Cloves on this piece of land have grown satisfactorily.

Tamil labour is altogether prevalent in the Dindings, and the Tamils show some tendency to try crops of their own land; thus Sesamum, Ragi (*Eleusine Coracana*) and Chillies are to be seen in small patches near Lumut. This tendency seems to afford a possible opening for widening the very meagre list of crop plants of the peninsula.

Rice which was grown some years ago on the northern border, and which went out of cultivation, has been planted again to the extent of about one hundred acres.

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### **CROTON SPARSIFLORUS, Morong, an American Invader.**

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Close to the East Wharf in Singapore, near to the Lagoon Dock, and west of the Peninsula and Oriental Steamship Company's wharf, occurs in some quantity on waste ground an American plant by name *Croton sparsiflorus*, whose advent is of some interest. For several years it has been spreading in Bengal and Assam, from the coast inland, in a way which strikingly demonstrates its dependence on man, and also shows that without hooks or barbs on its seeds or stickiness or any other device for attaching them to objects, a plant with an abundant fertility, may get itself spread effectively through trade. Now that it has reached Singapore, and become established, we shall probably witness its steady spread from the new centre along trade routes in Malaya. Nothing eats it; its smell protects it from cattle; and apparently its natural enemies have been left behind in its migration. Fortunately it is not aggressive as a weed, but for the most part confines itself to waste places.

Its home is on the River Plate, and it was first described from Paraguay. Its appearance in the East was recorded in 1905, when Sir David Prain, in an account of the vegetation around Calcutta (Records of the Botanic Survey of India, vol. iii., page 276) stated that it was abundant in waste places to the south of the city, particularly about Diamond Harbour. From a paper published later by Professor P. J. Brühl, (Journal of the Asiatic Society of Bengal, new series, 1908, page 603) we learn that as early as 1901, one of these waste places was within six miles of the city (four miles from the docks), and that in 1903 or 1904, it advanced as far as the waste ground



between the Botanic Gardens and the Bengal-Nagpur Railway Company's goods sidings at Shalimar, whence there is a railway ferry service to the other side of the river Hughli, by which goods waggons are sent over to the docks.

At a later date than the first record, the plant was found to be abundant about Chittagong and to have been there at least since 1898, for Mr. D. Hooper, late Economic Botanist to the Botanic Survey of India, had preserved a specimen collected in October of that year; further Professor Brühl obtained information from one of his students that the plant had been seen ten years before 1907, on the railway line side between Chandpur and Akharara—two stations on the Assam-Bengal railway, which serves Chittagong. Examination of the line about Chandpur in 1908 showed that it had become abundant enough to indicate its establishment several years earlier.

After Calcutta, Chittagong is the second port at the head of the Bay of Bengal; Diamond Harbour and Chandpur are only river stations, where sea-going boats do not discharge cargo; Akharara is a little inland.

The abundance of the plant about Chittagong and Chandpur indicates the east side of the Bay of Bengal to be the one on which it obtained its first lodgement; and the way in which it was observed to approach Calcutta from Diamond Harbour forbids the belief that it was first established on the Hughli. Probably it found a home in the beginning at Chittagong; thence it reached Chandpur along the railway; from Chandpur it was brought to the Hughli by the Sundribans steamer traffic; and now it has reached Singapore, perhaps from Chittagong, but more probably from Calcutta.

Its further spread in India during the last few years has been recorded (Proceedings of the Asiatic Society of Bengal, 1910, page ci.; 1911, page cxxxii.; and 1912, page cxiii). It has appeared at intervals all along the Assam-Bengal Railway from Chittagong to one terminus at Gauhati and beyond the other terminus to Makum Junction, on the Dibru-Sadiya Railway, being always found at places where goods are unloaded: and it has reached Narayanganj near Dacca which is connected with Chandpur by a steamer service. It may be expected to travel along the railway from Narayanganj through Dacca to Jaganathganj slowly, because there is very little through traffic; it is sure soon to reach Goalundo and thereby the Eastern Bengal Railway system; from Calcutta it is likely to travel first towards Nagpur and Madras, and afterwards in other directions along the railways.

There is only one easy way of accounting for the travelling of its seeds; and that is by assuming that they get enmeshed in the gunny wrappings of packages. By reason of the greater use of gunny wrappings in India than in the Malay region, it is travelling faster there than it will in Malaya.



*Croton sparsiflorus* grows to a height of about two feet or sometimes to three feet. Its stems are woody and rather wiry, a single stem arises from the root, and at a height of about six inches branches into three or four, which again branch repeatedly candelabra-wise. The root system is not extensive; and the plant is easily dislodged. Its leaves are 1-2½ inches long, lanceolate, rounded below, with small blunt serrations, dark green, with stellate white hairs below. The smell of the plant is rather unpleasant.

The flowers are formed on upright open racemes, the females below, and the males above and much more numerous. The axis carries stellate hairs. The female flowers are 2-6 in number with five sepals and small orange-red glands within them, and a tri-carpellary ovary as is characteristic of its order—the Euphorbiaceae. The male flowers are along the axis in clusters of 3-4 or fewer, on short pedicels; they have five sepals, five small white petals, five glands and a bunch of about fifteen stamens rather conspicuous by reason of their white anthers. The seeds are about one sixth of an inch long, coloured and shaped rather like the seeds of the castor oil plant, with a white caruncle and a surface that is only microscopically rough.

I. H. BURKILL.

### KENARI SEEDS.

The following Correspondence is printed here for record:—

Imperial Institute, London, S.W.,  
16th October, 1913.

SIR,

The Imperial Institute has received a request from a firm of confectionery manufacturers in the United Kingdom for a sample of the fruits or kernels of *Canarium commune*, L., which are stated to be suitable for use as a substitute for almonds.

This tree is said to be grown in the Moluccas for the sake of its fruits, which are also stated to be commonly eaten in Java. It is possible that supplies of the fruits or kernels are obtainable in the Straits Settlements, and if so I shall be very much obliged if you will send me a sample of a few pounds.

I shall also be grateful if you can let me know whether any firm in the Straits Settlements can undertake to export the kernels or fruits, and if so at about what price the product would be quoted.

I am, Sir,

Your obedient Servant,

(Signed) WYNDHAM R. DUNSTAN.

The Director of Gardens, Singapore.