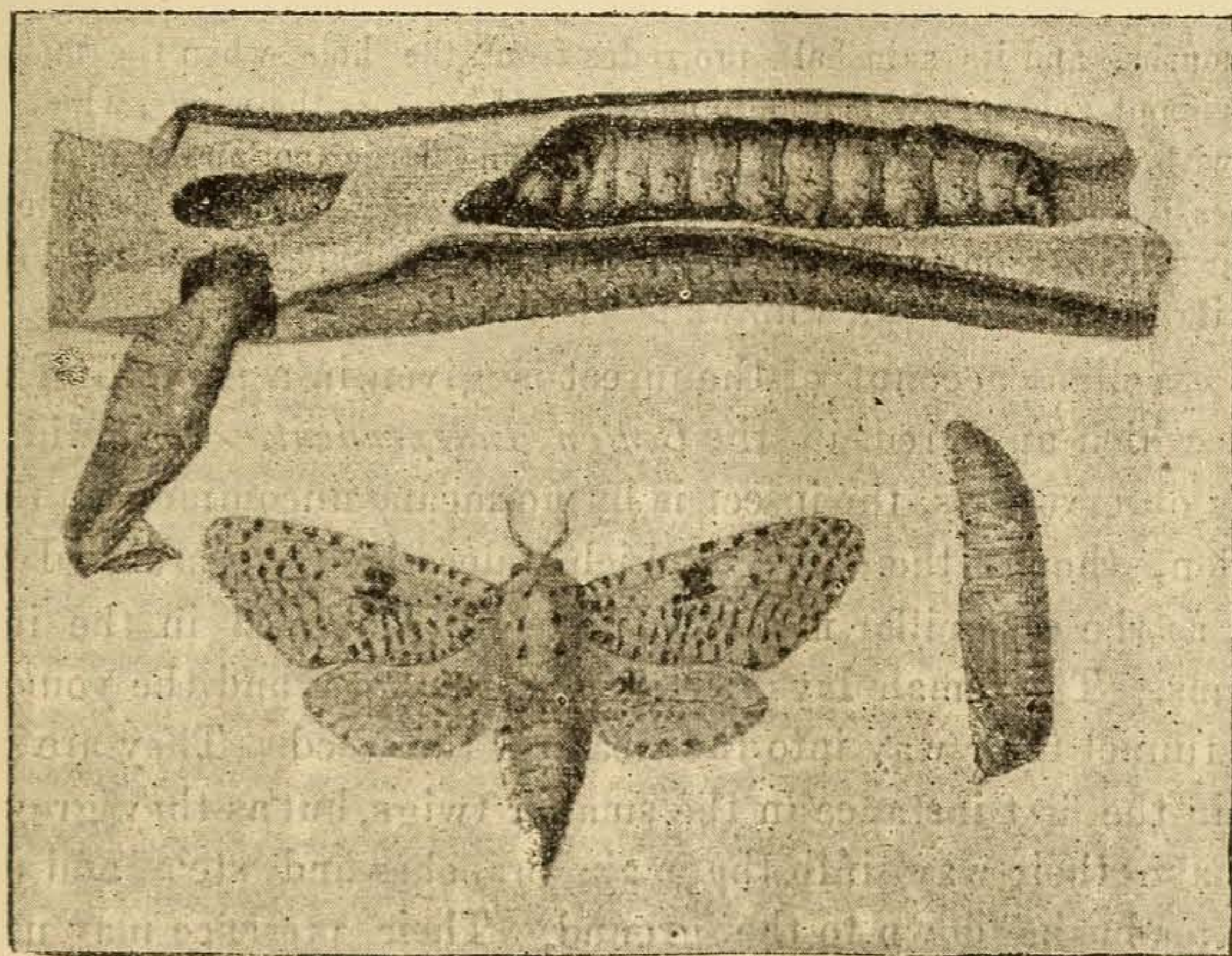


MISCELLANEOUS NOTES.

By E. C. COTES, *Offg. Deputy Superintendent, Indian Museum.*

A good deal of damage is said to have been done in 1891 to young sandal wood (*Santalum album*) trees in Mysore by a boring insect. According to a report, dated 13th July 1891, by the Assistant Conservator of Forests, Mysore, furnished through the Director of the Dehra Dun Forest School, this borer attacks both the stem and the roots, either killing the sapling outright or weakening it, so that it is liable to get blown over by the wind. Sandal wood yields an important revenue to the Mysore State, so that any damage done to the young trees is of consequence.

The insect that seems to be chiefly responsible for the damage is the caterpillar of the moth *Zeuzera coffeæ* Nietner, a species which occasionally attacks both coffee (*Coffea arabica*) and tea (*Camellia theifera*) bushes.



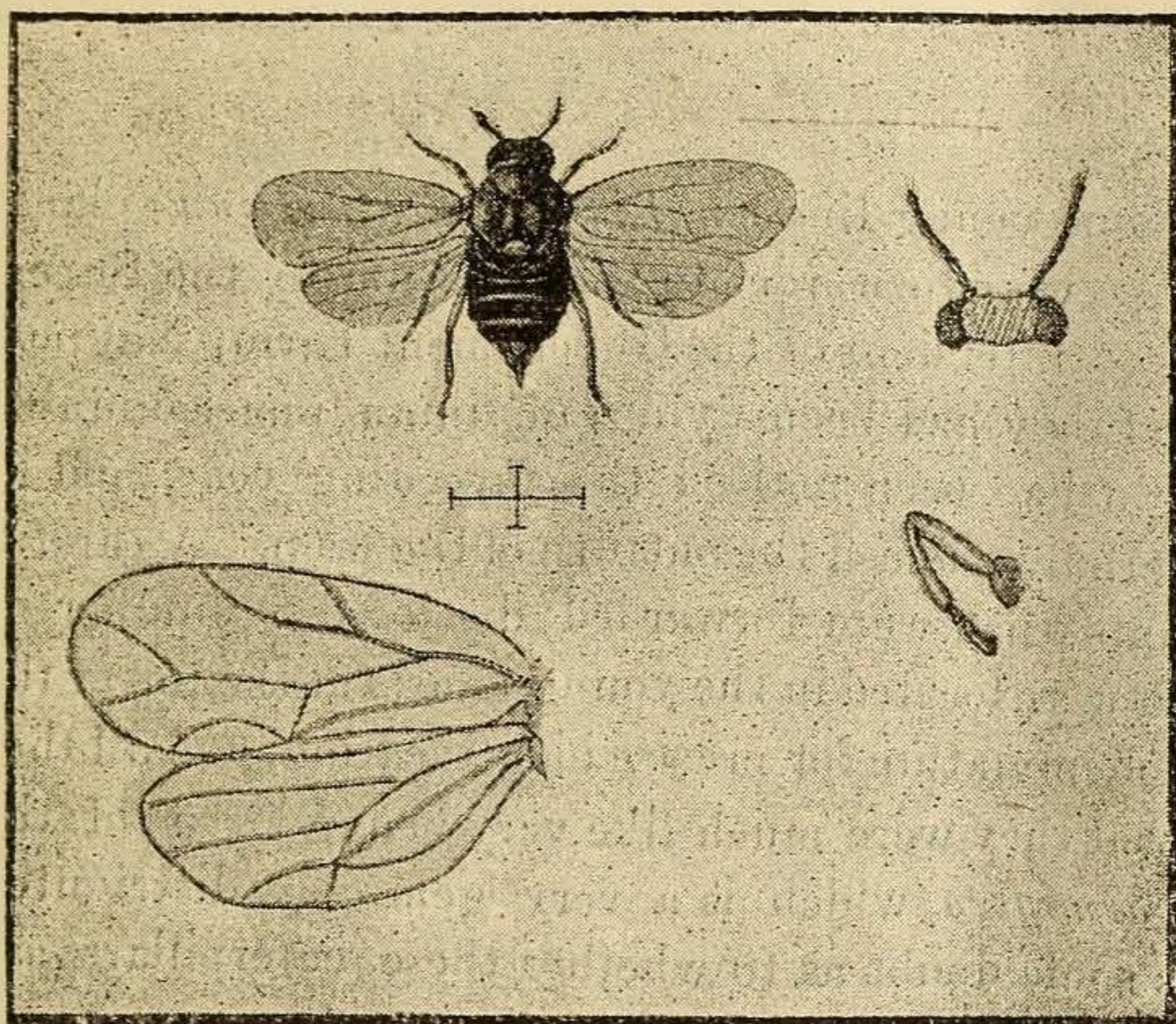
Some Coleopterous larvæ, however, which appear to be *Tenebrionidæ*, have also been received, but are not thought likely to have played more than a subordinate part in injuring the sandal wood saplings. The identity of the insect was made out from a moth which emerged in the Museum, on 9th February 1892, from some affected sandal wood stems that were kindly furnished by Mr. J. Cameron, Superintendent of the Government Gardens, Bangalore. The only suggestion that could be made for dealing with the insect was to cut out and burn the infested stems and thus prevent the spreading of the pest. The figure shows the various stages of the *Zeuzera* with a piece of wood bored by it, all natural size.

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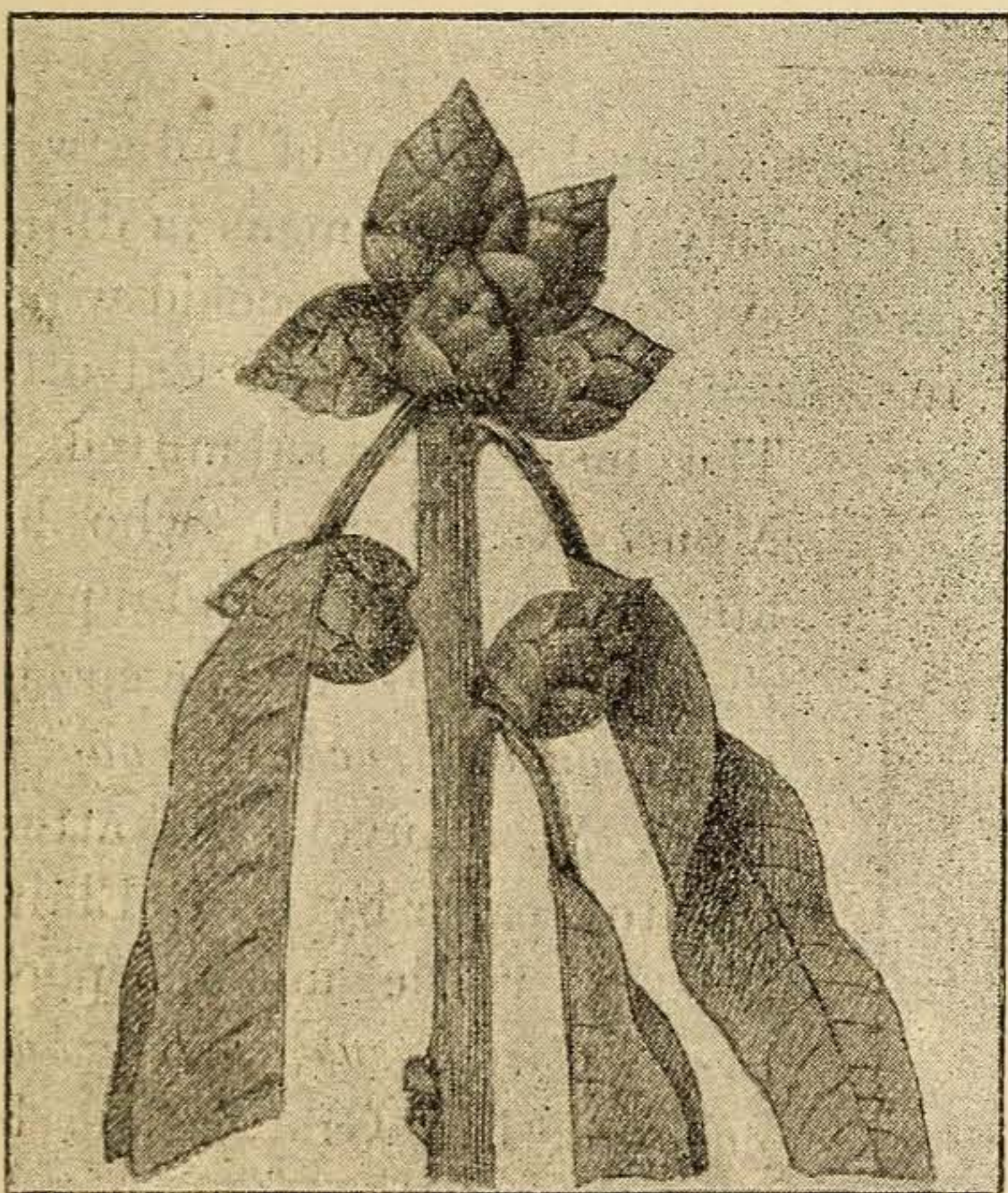
In April 1891 the Director of the Forest School, Dehra Dun, forwarded blighted shoots of mango (*Mangifera indica*), with the information that the whole of the mango trees in a large garden near Dehra were attacked,

Mango Psylla.



though, strangely enough, other trees close by had not suffered. The blighted shoots were aborted, so as to appear almost like a series of little green rosebuds upon the twigs. These false buds were found to contain mature *Psyllidæ* (i.e., minute fly-like Rhynchota allied to the Aphidæ). The insect has not previously been described from India, so

it has been sent to Mr G. B. Buckton in England for determination. It



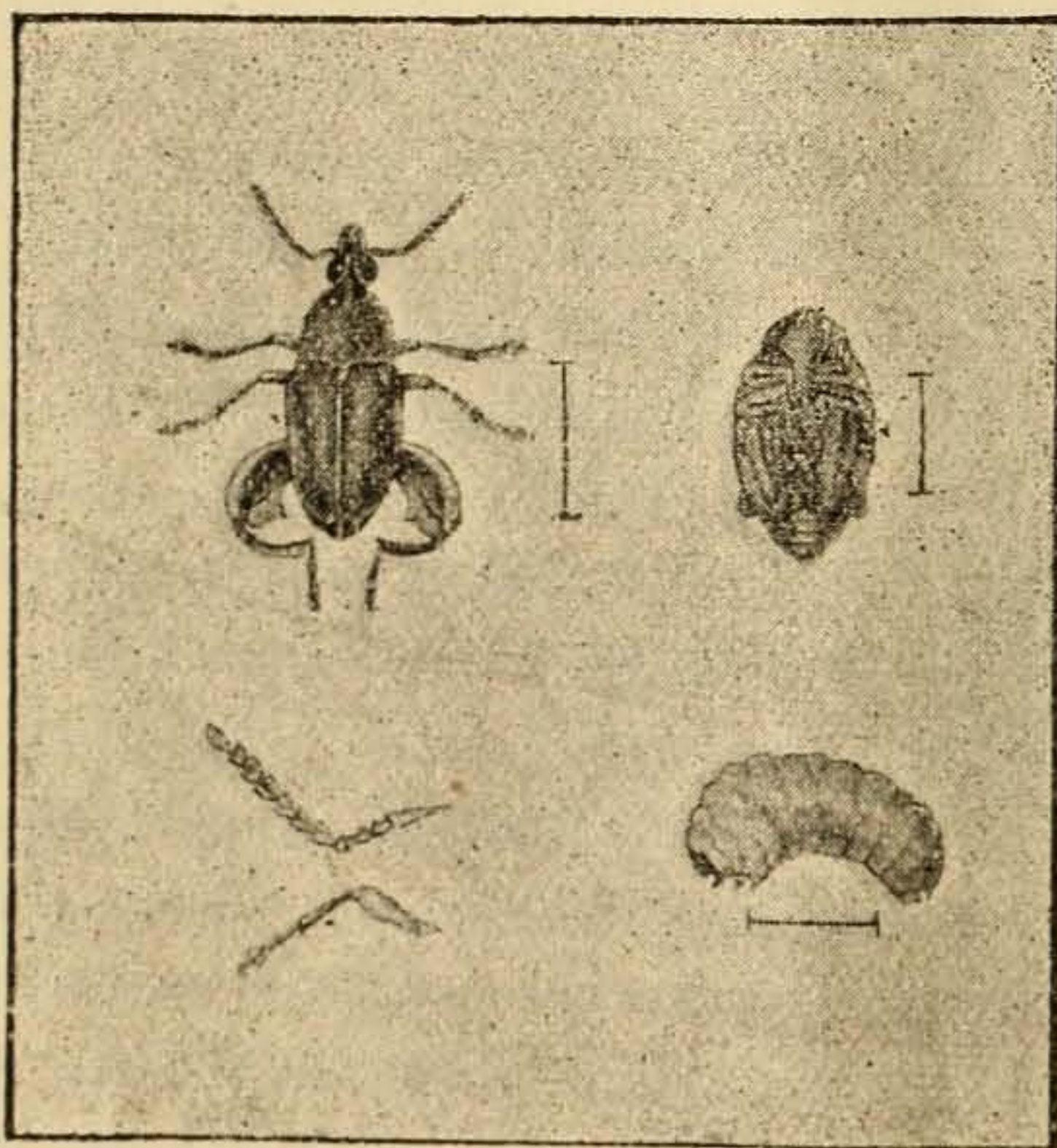
is no doubt allied to the *Psylla buri*, described in the year 1737 by Reaumur, as aborting the leaves of the box tree much in the way that this insect aborts the mango shoots (Reaumur Mem., p. 351, pl. 29). With regard to remedies for the pest, any of the kerosine washes which are coming into use in the United States and Europe for destroying plant lice on fruit trees would no doubt also kill this insect, if it could be got at, but the insect is so much protected inside the aborted bud-like shoots that

there seems little chance of reaching it with an insecticide. Insecticides might perhaps be useful for spraying the trees when the parent insects are engaged in laying their eggs, but it has still to be ascertained at what time of the year this takes place—whether in the spring or autumn. Clearing up rubbish around the mango trees, where the insects are likely

to shelter themselves, picking off and burning the affected shoots, and white-washing the trunks, might also be of some use, but as yet too little is known about the insect to warrant any very definite suggestions for dealing with it. The figures show the winged insect, with much enlarged diagrams of the wings, head and one of the legs, also the end of a mango twig with aborted shoots. The size of the insect is indicated by the hair line.

In November 1891 some young linseed (*Linum usitatissimum*) plants were forwarded to the Museum by the Superintendent of the Government Farm, Nagpur, with the information that they had been dying off in an unaccountable manner. A similar blight had been noticed the preceding year, and in some fields had very materially reduced the outturn of the crop. A careful examination of the plants that were forwarded disclosed a number of minute caterpillars which were located in the young shoots at the top of the plants. They were far too immature for precise identification, and all that could be made out was that they were much like very young larvæ of the Noctues moth *Heliothis armigera*, which is a very generally distributed pest in India. There is some doubt as to whether these caterpillars are sufficient to account for the dying off of the plants. The insect could no doubt be easily destroyed by spraying the plants with almost any insecticide, though this is a form of treatment which has not yet been much adopted in India.

From the Secretary to the Agri.-Horticultural Society of India were received (6th July 1891) specimens in different stages of development of a Bruchid which attacks the seed of the Tamarind tree (*Tamarindus indica*) in Calcutta.



The insect was submitted to Mons. A. Fauvel, who has kindly examined it and reports that it belongs to the species *Caryoborus (Bruchus) gonagra*.¹ Fabr. M. Fauvel calls attention to a paper by H. L. Elditt, entitled "Die metamorphose des *Caryoborus (Bruchus) gonagra* F." Gratulationschr. der Phys. Œk. Gesellsch. H. Rathke, Königsberg, 1860, dealing with this insect. This paper is not to be found in

¹ This is probably the insect referred to by Dr. H. Cleghorn (Journ. Agri-Hort. Soc., India, Vol. XIV, p. 294, 1867), as infecting tamarind seed.

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