Art. XI.—*Liquid Kino.*

By J. H. Maiden, F.L.S., F.C.S.,

Curator of the Technological Museum, Sydney.

Communicated by Baron Ferdinand von Mueller, K.C.M.G., F.R.S., &c.

[Read Thursday, July 11, 1889.]

Angophora intermedia (D.C.), the narrow-leaved apple-tree is a tallish tree, which extends from Victoria to Queensland, and is the only species of the genus which is found in the southern colony. In the following respect, it is perhaps unique amongst Australian trees. Frequently, when an incision is made into the bark, and more particularly when the knobby excrescences sometimes found on this tree are cut, there exudes a watery liquid which occasionally is almost as clear and as colourless as water, and at other times of an orange-brown or reddish-brown colour, and of the consistency of a thin extract, or even as thick as treacle. This is doubtless the substance which was sent from New South Wales to the Paris Exhibition of 1867, labelled "apple-tree juice," with the statement that it is used as a varnish; but this is not correct, as the liquid is aqueous. It is used by fishermen for tanning their nets. Mr. Kirton informed Baron von Mueller that a single tree will yield as much as two gallons of liquid, which is generally called "liquid kino." This is a modest computation, for the tree which yielded the Bangley Creek sample *(infra)* yielded from eight to ten gallons. The quantity is, in any case, by no means small, and is dependent on a variety of circumstances.

Two samples of this "liquid kino" having recently been forwarded to the Technological Museum, the author has had an opportunity of examining it.

1. From Bangley Creek, Cambewarra, N.S.W., of a clear reddish-brown colour, and in order to give precision to the tint, it is very like raw linseed oil, Strasburg turpentine, or dark balsam of Copaiba, but redder than any of them.

It has a specific gravity of 1·008 at 60°F., and an acidulous smell (owing to the presence of acetic acid), accompanied by an odour not so pleasant, and reminding one somewhat of spent tan liquors. It deposits a quantity of sediment of a buff colour, consisting almost entirely of catechin. It contains tannic acid ·772 per cent., "non-tannin" ·508 per cent. (Löwenthal's process.) The water amounts to no less than 98·3 per cent. The catechin was not estimated in this sample.

2. This was obtained from Cambewarra, but from a different locality. It is darker in colour than the preceding sample, being of a rich ruby colour. Like No. 1, it deposits a small quantity of sediment (catechin). This liquid kino had a specific gravity of 1·022 at 60°F., when received in April 1888.

The following results were obtained in December to January 1889:—Tannic acid 3·048 per cent. (of the liquid kino, without evaporating), "non-tannin" 1·27 per cent. (a portion of liquid kino, kept in agitation so as to obtain a fair proportion of sediment, was added to water to make up the strength of one grain of liquid kino to the litre), water 96·7 per cent. (after filtration from deposited catechin). The catechin and a little phlobaphene filtered off, were found to be in the proportion of ·495 per cent. of the original liquid kino. Ether agitated with the filtrate took up ·15 per cent., of which one-third was estimated to be catechin, and the rest resin.

Mr. Kirton has recorded liquid kino from the Illawarra district of New South Wales, but since there appears to be no reason why it should be found in one colony more than another, it will doubtless also be obtainable in Victoria, most likely on application to fishermen.
