

factured for sale to the boot-factories, although the durability of the leathers produced from these barks was very good, especially so for "sole" leather. Owing to the existence of the deleterious substances mentioned, "upper" leather manufactured from these barks suffered to some extent in appearance, &c.; and where fine, clear, bright-grained leathers were required—say, for saddlers' work in brown harness, leggings, and bridle-hide—it was out of the question to produce a satisfactory and saleable article. Mr. Kingsland, who has so kindly placed his valuable experience at the author's disposal, points out that chrome (mineral) tannage is largely replacing organic (vegetable) tannage, perhaps one-half of the leather now made in New Zealand being produced by the former method. He also points out that the climatic conditions for harvesting bark may not be suitable in wet districts of New Zealand, nor the lowland soil conditions so suitable for growing it. He hints that should some method be found of combating the injurious effects of the substances called by him "acids and dyes" in the New Zealand barks they may yet be found to be satisfactory. The Woolston Tanneries (Limited), of Christchurch* (1916), who pay some £13,000 per annum for imported wattle-bark and other extracts, came to the conclusion that kamahibark was the most suitable to experiment with in the attempt to utilize native barks in tanning. Another firm, who wish the source of their information kept confidential, express the opinion that owing to the small percentage of tannin in New Zealand barks there is no possibility of utilizing them unless concentrated to the form of an extract.

Tetragonia trigyna (New Zealand Spinach).—Colenso† states that on the Maoris learning to write they used the fluid of this plant, which yields a purple juice, for ink. The fruit of *Schefflera digitata* and the juice of the root of *Phormium* were also used by them for a similar purpose.

Metrosideros spp.—Skey‡ gives the tannin-content of "rata" as 15.2 per cent. Kirk§ states that the bark of *Metrosideros robusta* (rata) contains 18.56 per cent. of tannin.

Coprosma spp.—It is somewhat remarkable that the possibilities of the *Coprosma* genus, which is restricted in habitat to Australasia, Pacific islands, New Guinea, and Borneo, should not have been chemically examined as a source of dyes, seeing that the genus is included in the family Rubiaceae, which contains the madder of commerce. Of all the New Zealand plants, theory would point to this

* Personal communication. † Trans. N.Z. Inst., Vol. i, 2nd ed. ‡ Twentieth Col. Lab. Report. § "Forest Flora of New Zealand."