

*optera* have been noticed, including the Hive-bee. The common Red Ant is often seen crawling over the leaves, but I have not observed it to enter the flowers. I believe that several nocturnal *Lepidoptera* are constant visitors. I once saw a Butterfly sucking the nectar, while the handsome day-flying Moth, *Leptosoma annulatum*, has often been seen similarly engaged. *Coleoptera* are scarce; but one species of the *Staphylinidæ* is not uncommon about the flowers. A species of Bug is often exceedingly abundant amongst the leaves, but I have been unable to determine whether it visits the flowers or not.

It is impossible to examine the fertilization of this plant without being impressed by the fertility of contrivance, and beautiful adaptation of means to an end everywhere displayed. Passing over it in review we see first of all the open indusium, with the anthers slowly arching over and discharging their load of pollen; then the closing of the indusium, and its curious change of position, placing it in the most advantageous situation for the visits of insects; afterwards the thrusting out of the pollen by the upward growth of the stigma, and its partial detention by the hairs on the outside of the indusium; then the visits of insects, attracted by the delicate odour and the copious supply of nectar; and, lastly, their departure, but not without conveying with them, for transportation to other flowers, some portion of the fertilizing pollen. Taken singly, any one of these contrivances would appear to be of little importance, but linked together they form a chain upon the proper arrangement and entirety of which depends the very existence of the plant itself.

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ART. LXXX.—*On New Zealand Coffee.* By J. C. CRAWFORD.

[Read before the Wellington Philosophical Society, 24th February, 1877.]

It is desirable that we should not overlook, as regards our sources of industry and wealth, the indigenous products of the country.

The *Coprosmas* of New Zealand are allied to the Coffee plant, and I have seen it stated that coffee of fine flavour has been produced from the Karamu, *Coprosma lucida*.

I wish to call attention to another plant of the same family, viz., the Taupata, *Coprosma baueriana*. I have for some years past planted this shrub extensively in my garden, chiefly as a nurse for other trees, and as it loves the sea breeze and an exposed situation, I have found it most useful for the purpose. The question to be solved is, can the seeds of this plant be profitably utilized as a coffee, and as such enter into the products of commerce? There is much to be said in favour of the Taupata. It is extremely hardy,

and grows in the most exposed situations ; it bears a great quantity of fruit and is easily grown either from seed or cuttings, it grows with rapidity to a moderate height, one quite sufficient for the purpose of supplying berries, and it is hardier than its allied plant, the Karamu.

As it is greedily eaten by horses, cattle, or sheep, it would require to be grown in enclosures, and when the berries are ripe, turkeys must not have access to them, as they are very fond of them and soon strip the branches.

I do not pretend to go into what the cost would be of preparing these berries for the market, as I am ignorant of the process of preparing the true coffee berry or bean, and removing the outer fruit. Then there is the expense of gathering to be considered, which could be easily done by children. There are two berries in each fruit, lying side by side, as in the true coffee. Whether or not the Taupata would grow well inland I cannot say. It appears to like the sea air and perhaps may not thrive beyond its reach.

I find that slight bruising and washing will remove the outer pulp very rapidly, and possibly this may be the best mode of cleaning the seeds. The seeds are small compared with those of the true coffee, but the trees bear much fruit and appear to do so every year. As there are plenty of Taupata shrubs in the Wellington gardens it would be easy to make experiments. I have to add that I have collected a quantity of the berries, the beans of which when roasted and ground have a splendid coffee aroma, and when made into coffee the result seems to be thoroughly satisfactory. I send a sample of the ground coffee for the inspection of the meeting. If members will apply their olfactory nerves to it, I think they will be satisfied that we have in the Taupata berry a great source of wealth, requiring but little capital to develop, and capable of almost unlimited extension.

It is not for me to dictate to professional men on the mode of raising the Taupata, but the plan I have adopted is simply to sow a small circle of seeds slightly covered, and put a stick in the middle to indicate the position. A bunch of plants comes up, these I plant out when convenient, probably the second year is about the best time for transplanting.

After being transplanted they generally grow with great rapidity, and I think have plenty of seed in the second or third year. I will not be positive about this, as I have not paid attention to the subject previously.

The Taupata evidently requires very little nourishment from the soil, for it may be seen growing vigorously on bare rocks standing in the sea, where it can be supported only by sending its roots deep into the clefts and fissures of the rock.

This plant also grows readily from cuttings, but for raising a number of plants it is far better to rear it from seed.

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