TE IKA A MAUI,

OR

NEW ZEALAND AND ITS INHABITANTS,

ILLUSTRATING THE
ORIGIN, MANNERS, CUSTOMS, MYTHOLOGY, RELIGION, RITES,
SONGS, PROVERBS, FABLES, AND LANGUAGE OF
THE NATIVES.

TOGETHER WITH THE
GEOLOGY, NATURAL HISTORY, PRODUCTIONS, AND CLIMATE
OF THE COUNTRY;
ITS STATE AS REGARDS CHRISTIANITY;
SKETCHES OF THE PRINCIPAL CHIEFS, AND THEIR PRESENT POSITION;
With a Map, and numerous Illustrations.

BY THE
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MANY YEARS A MISSIONARY IN NEW ZEALAND.

LONDON:
WERTHEIM AND MACINTOSH, 24, PATERNOSTER-ROW.
MDCCCLV.
far the finest is the Hepialus Rubroviridans, which measures nearly six inches from the tip of one wing to the other. Another smaller kind of the Hepialus is very abundant in summer evenings. The Hepialus Virescens is also a beautiful moth; so likewise the Pari kori taua. The Nyctemera is also found in New South Wales.

Coleoptera.—Mumutaua, a large beetle found on the sand hills. The elytra are remarkably soft. This beetle is frequently attacked by a fungus, which takes possession of the entire insect.

Papa papa, a small brown beetle, very abundant on a summer's evening.

Mumu, a large green beetle, found in the forest.

Kiri wa'i manuka, a small green beetle, abounding in the summer amongst the manuka trees (Leptospermum scoparium); it is striped with green and red.

Kapapa, (prionoplus reticularis,) a large cerambix, whose grub is very destructive to fruit trees. There are several beautiful varieties of the curculio. The nemocephalus barbi-cornis brentus is nearly three inches long. The anistropter us quadri spinosus is a very beautiful insect, and also several of the species ecolepterus.

Kokopurangi, (sanguis uga,) a small water leech. There are also several kinds of land leeches; a bright red one; another of a dark chocolate color, and a white one: they abound in damp humid localities.
THE BULRUSH CATERPILLAR.

Description of the Bulrush Caterpillar (Sphaeria Robertsia; Native name, Aweto-Holes).

This singular plant, which is a native of New Zealand, may be classed amongst the most remarkable productions of the vegetable kingdom.

There are birds which dispossess others of their nests, and marine animals which take up their abode in deserted shells; but this plant surpasses all, in killing and taking possession, making the body of an insect—and that, too, very probably, a living one—the foundation from whence it rears its stem, and the source from which it derives its support. It certainly forms one of the most surprising links between the animal and vegetable kingdom yet noticed, and, as such, merits as circumstantial a description as our present imperfect acquaintance with it will allow.

The aweto is chiefly found at the root of the rata (metro-sideros robusta). The plant, in every instance, exactly fills the body of the caterpillar, in the finest specimens it attains the length of three inches and a half; and the stem, which germinates from this metamorphosed body, is from six to ten inches high; its apex, when in a state of fructification, resembles the club-headed bulrush in miniature. There are no leaves—a solitary stem comprises the entire plant; if any accident breaks it off, a second arises from the same spot. The body is always found buried, and the greater portion of the stalk as well; when the plant has attained its maturity, it soon dies away.

These curious plants are far from being uncommon. When fresh, they have the flavor of a nut. The natives eat them, and likewise used them when burnt as coloring matter for their tattooing, rubbing the powder into the wounds, in which state it has a strong animal smell.

When newly dug up, the substance of the caterpillar is soft; and being divided longitudinally, the intestinal canal is distinctly seen. Most specimens possess the legs entire, with
the horny part of the head, the mandibles and claws. The vegetating process invariably proceeds from the nape of the neck, from which it may be inferred that the insect, in crawling to the place where it inhumes itself prior to its metamorphosis, whilst burrowing in the vegetable soil, gets some of the minute seeds of this fungus between the scales of its neck, from which, in its sickening state, it is unable to free itself, and, consequently, being nourished by the warmth and moisture of the insect's body, then lying in a motionless state, they vegetate, and not only impede the progress of change into the chrysalis, but likewise occasion the death of the insect. That this vegetating process thus commences during the lifetime of the insect, appears certain from the fact of the caterpillar, when converted into a plant, always preserving its perfect form: in no one instance has decomposition appeared to have commenced, or the skin to have contracted or expanded beyond its natural size.

A plant of a similar kind was presented to me in 1837, by a Mr. John Allan, who discovered it growing in abundance on the banks of the Murrumbidgee, in a rich black alluvial soil. The insect in some specimens was six inches long, and the plant about the same length, springing like the New Zealand one, from the nape of the neck. In form this plant is quite different from the other, having a thick stem, crowned at the top with a fringe, which, when expanded, assumes the appearance of a full blown flower upon the surface of the soil, the rest being buried in the ground: this top is of a brown velvety texture. Many similar ones were found in the same locality. Numerous empty shells and holes were observed in the vicinity; and, at night, the number of large brown moths was so great as more than once to extinghuish my friend's lamp. I sent it to Sir W. Hooker, who has named it Spharia Taylori.

I have also met with a large kind of beetle, the "mumutawa," abounding amongst the sandhills in the vicinity of the sea, which frequently undergoes the same vegetative change. The body is completely filled with this nutlike substance; but in no instance have I noticed any plant shooting from it.
A similar caterpillar to the *aweto* has been found at Taranaki, which perfectly changes into a vegetable substance, but likewise wants the bulrush. This was dug up in great numbers in the garden of J. Wicksteed, Esq., at New Plymouth.

One specimen of a locust was brought to me (*Spharia Bajai*), which I have named from its finder, had undergone this change, and had also a perfect plant growing from its neck, very much resembling a small white fungus found on decayed wood.

Insects having a vegetative process of a similar kind, have been discovered in other parts of the world; and, probably, when the flora of each country is more carefully examined, will be found existing in most of them.

Attwood, in his history of Dominica, gives the following account of a vegetable fly found in that island:—"It is of the appearance and size of a small cockchafer, and buries itself in the ground, where it dies: and from its body springs up a small plant, which resembles a young coffee-tree, only that its leaves are smaller. It is often over-looked from the supposition people have of its being none other than a coffee plant; but on examining it properly, the difference is easily distinguished—the head, body, and feet of the insect appearing at the root as perfect as when alive."

In the *American Philosophical Transactions*, the Rev. Nicholas Collins describes a certain zoophyton in the Ohio county, which he declares is both vegetable and animal; for having crawled about the woods in its animal state till it grows weary of that mode of existence, it fixes itself in the ground, and becomes a stately plant, with a stem issuing out of its mouth.

A small vegetating caterpillar is also found in Britain, the *spharia eniomorhiza*. The Chinese also have a similar plant, (*spharia sinensis*) called by them *hea tsau ou tungchung*, or the summer vegetable winter insect. In Van Diemen's Land there is a vegetating caterpillar (*spharia gunnii*); it somewhat resembles the New Zealand one, from which it chiefly differs in having the stem of its vegetating process thicker than the insect from which it arises.
A Polistes attacked by many specimens of a filamentous sphæria was described by Felton in the Philosophical Transactions under the name of vespa crinita, which he regarded as a new species of hairy wasp, not being aware that it was a sphæria.

Several species of moths, both English and foreign, especially from the Brasils, are found thus attacked; ants also and curculionides from St. Vincent's, and the papa of the cicada (sphæria sobolifera).

At the Bristol Association for the Cultivation of Science, held in August, 1836, a paper was read by J. B. Yates, Esq., on the vegetating wasp in the West Indies, in which the author was likewise of opinion, that the vegetating process commenced during the life of the insect; and, certainly, a careful examination of these singular caterpillars favors the hypothesis. If this should be the case, it is an instance of a retrograde step in nature, when the insect, instead of rising to the higher order of the butterfly, and soaring to the skies, sinks into a plant, and remains attached to the soil in which it has buried itself.