

SOME OBSERVATIONS UPON THE PLANTS WHICH
ARE CHARACTERISTIC OF AGRICULTURAL,
FASTURABLE, AND BAD LANDS, RESPEC-
TIVELY, IN TASMANIA. BY W. ARCHER, F.L.S.

It is well known by gardeners that different kinds of plants must have different kinds of soil provided for them, in order that they may grow to the best advantage. It ought to be well known to agriculturists too, but they generally seem to pursue their operations without reflecting upon the matter,—as though they regarded, for the most part, all kinds of soil as being capable of nourishing whatever sorts of plants are inserted in them. Thus, potatoes, for example, will be found planted in soil deficient of lime, which they require in abundance, and abounding in silica, of which they need comparatively little; and wheat may be seen growing with difficulty on soil unnecessarily calcareous, and greatly wanting in the requisite quantity of silica. Barley is sown in the kind of soil that wheat is expected to flourish in; and yet it requires one-third more silica, more than twice as much lime, nine times as much potash, and three times as much sulphuric acid. And flax would certainly be expected, by most agriculturists, to grow luxuriantly in good wheat land; whereas it needs twenty-five times as much soda and potash, fifteen times as much magnesia, and only the one-hundred-and-fortieth part of as much silica as wheat does.

Seeing, therefore, that cultivated plants grow best in soils which contain the largest proportion of the food which they require, it may be inferred, as a matter of course, that different soils will produce naturally, in greatest abundance, those wild plants for which they furnish the largest proportion of their peculiar food.

Some kinds of soil yield abundantly certain kinds of wild plants, and yet are found by experience to be quite unsuited to the growth of agricultural produce; and we may infer that the soil upon which such wild plants thrive is always more or less of a similar character. The same may be said of the richest agricultural lands, and of land which is adapted for the growth of grasses fit for pasture; for upon each kind of land, wherever it occurs in an island like Tasmania, will be found growing naturally wild plants of the same or a similar description,—which wild plants may be regarded as characteristic of such soils.

Therefore, we may be able to tell, by inspection merely of the plants—or of specimens of the plants—growing upon any particular land, whether such land is fit for pasture or agriculture.

Now, it is this conclusion that I wish to turn to a profitable use as regards the exploration of new localities, with the view of preventing the great disappointment and loss which sometimes follow private, as well as public, expenditure, in connection with them.

Of course, it may be said that examination of the actual soil

is better than the inspection of plants growing upon it. This may be, however, a very fallacious method of ascertaining the capability of any soil,—unless, indeed, you actually analyse it,—which it would be a difficult and troublesome thing to do during the exploration of new country; and I should, therefore, strongly advise the adoption of the plan which I am recommending,—for this reason, among others, that the growth of certain wild plants upon any soil is equivalent, for practical purposes, to an analysis of such soil. It would, nevertheless, be most interesting and useful to obtain a thorough analysis of the most common and widely-diffused soils, together with a collection of specimens of the characteristic plants of each soil; for the conclusions drawn from experience could thus be corrected or confirmed, and we should have an excellent means of ascertaining the value of our lands.

The first thing to be done is to find out, as correctly as possible, what wild plants are characteristic of land fit for agriculture or pasture, or worthless for such purposes.

Of course, it does not follow that land is entirely worthless which is unfit for pasture or agriculture; for excellent timber both for splitting and sawing, is often found on such lands; and it may turn out that other plants which flourish upon it possess a value, for the arts or for manufacturing purposes, with which we are at present unacquainted.

It will be found, in practice, most easy to predicate of land that it is fit for agriculture or pasture, by the absence of plants peculiar to land of an inferior description. I will, therefore, point out, in the first place, the plants which appear to me to be characteristic of land which is unfit for agriculture or pasture, taking the better kinds of land afterwards.

BAD LAND.

NATIVE HOP OR BITTERLEAF (*Daviesia latifolia*, Br.) A dark-green shrub, 3 to 6 feet high, with rather wide, pointed, very bitter leaves, 1 to 3 inches long, and racemes of small reddish-orange pea-flowers.

DWARF CHERRY TREE (*Exocarpus stricta*, Br.) With leaves like those of the Native Cherry Tree, but never growing larger than a shrub. The fruit is usually white, or of a light color.

WIRE SCRUB (*Bauera rubioides*, Andr.) A shrub 6 to 12 feet high, with wiry entangled branches, small leaves, and white or pink flowers, growing singly on stalks springing from the axils of the branchlets.

EPACRIS OR HEATH (*Epacris impressa*, Lab.) The varieties with red, white, or pink flowers, are well known.

HEATHY WHITEBEARD (*Leucopogon ericoides*, Br.) A small plant, with leaves about half an inch long, rounded at the top, with a projecting sharp point, and a profusion of spikes of small, white, feathery flowers.

MYRTLE-LEAVED ACACIA (*Acacia myrtifolia*, Willd.) A small Acacia, 2 to 3 feet high, with leaves (*phylloдия*) 1 to 2 inches long, in form like those of the Myrtle.

DAISY TREE (*Eurybia lirata*, D.C.) A shrub 8 to 12 feet high, with rather narrow leaves 3 to 6 inches long, and a profusion of clustered, daisy-like flowers.

HAIRY TETRATHECA (*Tetralthea pilosa*, Lab.) A hairy little plant, with pale or dark lilac cruciform flowers, growing from the axils of the leaves, on the upper part of the stems.

BUTTON GRASS (*Gymnoschoenus sphaerocephalus*, Hook. fil.)

There are other plants which might be enumerated, and which may be much more characteristic of bad land, in some localities, than those I have named.

INFERIOR PASTURE LANDS.

NATIVE LILY (*Diplarrhena Moraea*, Br.)

SHE OAK (*Casuarina quadrivalvis*, Lab.)

HE OAK (*Casuarina suberosa*, Otto et Dietr.)

NATIVE CHERRY TREE (*Ecocarpus cupressiformis*, Lab.)

PEPPERMINT TREE (*Eucalyptus amygdalina*, Lab.)

WHITE GUM TREE (*Eucalyptus viminalis*, Lab.).

BLACK WATTLE TREE (*Acacia mollissima*, Willd.)

INDIGO PLANT (*Indigofera Australis*, Willd.)

CLOVER TREE (*Goodia lotifolia*, Lab.).—A shrub 5 to 8 feet high, with pinnated leaves and yellow flowers—similar in appearance, especially when in flower, to a small Laburnum.

EPACRIS OR HEATH (*Epacris impressa*, Lab.)—Stunted and scattered plants.

LOMATIA (*Lomatia tinctoria*, Br.)—A yellowish-green shrub 2 to 4 feet high, with deeply-cut leaves, often crowded at the top of the stems, and rather large racemes of cream-colored flowers, followed by pods which turn black after bursting and remain thus a long time on their stalks.

GOOD PASTURE LAND.

HONEYSUCKLE TREE (*Banksia Australis* Br.)

SILVER WATTLE TREE (*Acacia dealbata*, Lind.)

CURLY WHITE GUM TREE (*Eucalyptus radiata*, Sieb.).—Known among sawyers, I believe, as a "bastard white gum." The trunk is often twisted, the timber curly, and the branches weeping. It may be distinguished from small specimens of the White Gum-tree—such as the Manna Gum-tree in the Domain, Hobart Town—by the number of seed vessels being 5 to 8, with the valves not projecting.

WILD RASPBERRY (*Rubus macropodus*, Ser.)

PRICKLY BEAUTY (*Pulteneia juniperina*, Lab.). A juniper-like plant, 3 to 7 feet high, with small, prickly leaves, and small yellow pea-flowers.

COMMON BUTTERCUP (*Ranunculus lappaceus*, Sm.)

COMMON BURR *Acena Sanguisorba*, Vahl.)

COMMON DAISY (*Brachycome decipiens*, Hook. fil.)

BACHELOR'S BUTTON (*Craspedia Richea*, Cass.)

NATIVE RIB GRASS (*Plantago varia*, Br.) This is the species with long, narrow, sometimes toothed leaves, and long spikes of flowers.

XEROTES (*Xerotes longifolia*, Br.) Commonly but erroneously called "Sedges," *vulgo* "Sags," and sometimes

“Cutting Grass.” Very like the Native Lily, when out of flower,—but the leaves are tipped with two unequal brown points, and the flowers are extremely small, straw colored, and clustered in flat spikes.

KANGAROO GRASS (*Anthistiria Australis*, Br.)

TUSSOCKS (*Poa Australis*, Br.). The common well-known tussocky grass.

COMMON FERN (*Pteris aquilina* L. var. *esculenta*).—When growing to the height of 2 to 3 feet.

AGRICULTURAL LAND.

DOGWOOD (*Pomaderris apetala*, Lab.)—When growing to the height of 20 to 30 feet. This species is the largest of the plants called “Dogwood.” It has leaves 3 to 5 inches long, and panicles of insignificant buffish flowers, destitute of petals.

BLACKWOOD (*Acacia melanoxylon*, Br.)—When growing to the size of trees with a diameter of 9 to 18 inches. A small stunted variety grows in very poor soil.

MUSK TREE (*Eurybia argophylla*, Cass.)

COMMON NETTLE (*Urtica incisa*, Poir.)

TUSSOCKS (*Poa Australis*, Br.)—When growing very large

COMMON FERN (*Pteris aquilina* L. var. *esculenta*).—When growing to the height of 5 to 7 feet.

SWAMPY LAND.

SWAMP TEA TREE (*Melaleuca ericeifolia* Sm.)

HAIRY TEA TREE (*Leptospermum lanigerum*, Sm.)

SWAMP EURYBIA (*Eurybia glandulosa*, D.C.)—A shrub 3 to 5 feet high, with sticky, needle-shaped leaves, 1 to 1½ inch long, and daisy-like flowers.

SWAMP DAISY (*Brachycome linearifolia*, D.C.)—A large daisy, with long, leek-like leaves.

SMOOTH-LEAVED BUTTERCUP (*Ranunculus glabrifolius*, Hook).—A bright yellow buttercup, with 7 to 10 petals, and deeply-cut leaves.

CRESS (*Cardamine*, &c., species).—All the plants of the Cress tribe in Tasmania indicate, more or less distinctly, the presence or proximity of water.

PRICKFOOT (*Eryngium vesiculosum*, Lab.)—A very small, trailing plant, with inconspicuous flowers, and leaves with toothed spiny margins.

PATERSONIA (*Patersonia glauca*, Br.)—A small plant, somewhat like a diminutive Native Lily, with extremely fragile, bluish flowers, on scapes 1 to 3 inches long.

SELF HEAL (*Prunella vulgaris*, L.)—A small plant, common in England, with several mint-like blue flowers at the end of the erect stems, and leaves 1 to 2 inches long.

RUSHES (*Juncus*, &c., species). Plants like those of the Lily tribe, but with dry, brownish flowers. Their seed vessels contain small seeds.

SEDGES (*Cyperus*, *Carex*, &c., species). Plants often resembling grasses, but easily distinguished from them by being stiffer and less succulent, and having solid stems,—and by their seed-like, flat or three-sided nuts, each containing a single seed.

PLANTS OFTEN GROWING NEAR RUNNING WATER.

SASSAFRAS (*Atherosperma moschata*, Lab.).

NATIVE MYRTLE (*Fagus Cunninghamii*, Hook.) When growing to a large size.

EUCRYPHIA (*Eueryphia Billardieri*, Spach.) A beautiful tree, 20 to 60 feet high, or more, with shining oblong leaves, $1\frac{1}{2}$ to 2 inches long, and large, white flowers, like those of the Pear Tree.

CELERY-TOPPED PINE (*Phyllocladus rhomboidalis*, Rich.)

HAIRY TEA TREE, (*Leptospermum lanigerum*, Sm.)

PRICKLY ACACIA (*Acacia verticillata*, Willd.)—This Acacia, sometimes erroneously called "Prickly Mimosa," has pungent leaves (*phyllodia*) arranged in whorls round the branches, and is 8 to 16 feet high.

WARATAH (*Telopea truncata*, Br.)

FERN TREE (*Dicksonia antarctica*, Br.)—This differs from the "Prickly Fern Tree" (*Alsophila Australis*, Br.) in having the trunk covered with matted rootlets, instead of the bases of the fallen fronds.

It may be stated, as a general rule, that the absence of rich agricultural land is denoted by the luxuriant growth of plants (with few exceptions) belonging to the following tribes, &c. :—

The Pea flower tribe (*Leguminosæ*).

Tea Tree (*Leptospermum Melaleuca*, &c.)

The Epacris tribe (*Epacrideæ*.)

Daisy-flowered shrubs (*Eurybia*, &c.)

Sedges (*Cyperacæ*.)

It will be seen that I have added to the list of plants characteristic, respectively, of agricultural, pasturable, and bad lands, a list of those found on swampy land, and of those found often near running water. My object, in making the enumeration more complete, is to call the attention of surveyors and explorers to the subjects touched upon, and to point out to them plants that would probably disclose the existence of streams which, otherwise they might overlook, or would enable them to fix stations for water-holes in tracts of country where streams do not occur.

I do not, by any means, intend to assume that I have noted the most characteristic plants under each head in every part of the colony. I have only made a beginning. It will now be the duty of those who are specially interested in this investigation, to verify or correct and enlarge my lists. If I have succeeded in giving prominence and interest to the subject of the foregoing observations, so as to induce others to follow in my track, or to strike out more important views in connection with it, I shall consider myself amply repaid for the trouble which I have taken.

MORTALITY AMONGST THE TROUT IN THE BREEDING PONDS OF THE PLENTY.

In the early part of last month (September), several trout were found dead in the box to which they were confined. These fish were apparently subjected to the same circum-