Note on the Californian Thistle.

May W. Archer. 7. 3. 8.

The genus Caudium, as established by Linnaeus, consists of what are called "true thistles," with hairy (hairs or calyx), and "false thistles," with a featherlike hairs or calyx.

Bentham, in his "Hand-Book of the British Flora," follows Linnaeus, but some botanists class the "true thistles" under the genus "Caudium," and the "false thistles" under the genus "Cnicus" or "Cirsium.

The "MilkJ Thistle" (Caudium Marianus) represents the "true thistles" in Tasmania, and the "false thistles" under the genus "Cnicus" or "Cirsium."
The "Scotch Thistle" (Cirsium vulgare) is not by any means peculiar to Scotland. The Scotch heraldic thistle is the_onopordum acanthium_, which is a native of central Europe and of Asia, but certainly not a native of Scotland, according to Bentham.

The "Spear Thistle" (Carduus or onicus) has a biennial root-stock, which sends up, for two years (after which it dies), annual stems, winged and prickly, with broadish, pinnatifid, prickly-toothed leaves, and large, egg-shaped flower-heads, enveloped in involucral bracts (flower-leaves) with stiff, lanceolate, prickly spines. 

The "Breeching Thistle" (Carduus
or *Onicos cuneatus*), has a perennial and creeping root-stock, with which sends up, perpetually, annual stems, with rather narrow, narrowish, very prickly-dicostylous leaves, and the flower-heads, dicostylous, (i.e. the males on one plant and the females on another), - the male flower-heads nearly globular, and the female flower-heads egg-shaped, enveloped in involucral or bract-shaped bracts, with small prickles.

Both the Spear Thistle and the Breeching Thistle are found in Europe and Asia. The Spear Thistle is, of course, the more easily destroyed of the two. The Breeching Thistle seems to be quite ineradicable.
The creeping "thistle" is mentioned by Professor Johnston as being called in the United States of America the "Canadian Thistle"—probably because it travelled thither from Canada, and so, I suppose, the same thistle is called here the "Californiaan Thistle" because it has come to us from California. It is nevertheless the creeping thistle of old Great Britain, and it never quite a country into which it is introduced.
1870

Destruction of Rabits in their Burrows—

Mr. F. Archer
Notes of an experiment with and other methods, 
The fumes of sulphur, for the destruction of rabbits in their burrows.


The increase in the number of common rabbits, in the midland districts of 
Tasmania, renders necessary the adoption of more effective means possible for their destruction. Already the quantity of stock which many 
runs were able to carry is reduced more than half; and still the rabbits are increasing, and advancing their burrows into runs hitherto untouched by them. Too in Victoria they have been
destructive in their operations, several squatters having been obliged to expend large sums reducing the getting of the next year means adopted were, for the most part, merely, namely, shooting, digging-out, and blocking-in. I have heard that sulphur has been tried on a small scale, but the statements of its in the form of rag-match and squibs made up with wood, but the statements of the results have been rather disappointing, and hence not induced more than one or two persons, I hear, to try that course.
Shooting is a very successful plan, and costs about 12d. a
rabbit. When combined with
the operations of a good ferret,
with netting,
and digging, it is eminently
successful, and the cost
would be probably 1d. each.
a man and a boy, with a
gun, a ferret, nets and spades,
would kill fully twice as
many as a shooter would,
if not more. This plan
may fairly be recommended
as the best yet tried.

Blocking-in, suffocating
in the burrows, has been
adopted on a very large
scale in Victoria, and is
being tried in the Midland
districts. The movements of the men employed, and the noise made by them, have the effect of driving the rabbits onwards to other ground; but it is exceedingly doubtful whether this plan really destroys many of them at least in ordinary ground.

It occurred to me that the fumes of sulphur, if forced with a pair of bellows into the burrows so as to fill them thoroughly, would be a very successful, as it would be an exceedingly economical mode of destruction.

Accordingly I had an iron 5-gallon can prepared, with holes for the admission of air at the...
bolts, and a larger hole fitted with a projecting rim at the top in the movable cover or lid, so as to receive a pair of ordinary kitchen bellows—the rims being fixed into the hole in the lower part of the bellows—placed on the lid of the can. A piece of indiarubber pipe was then fastened on the muzzle of the bellows and also on a piece of lead pipe, joining their ends together. The apparatus was then ready for use.

Operations were commenced by opening off the lid of the can, and lighting half of the flow of sulphur (such as is used...
x Placing the lead pipe about
eighteen inches in the mouth
of a burrow, and carefully
stopping the ingress of air; then
bury x.
for steep-dipping) which had been placed on the bottom of the case; then the lid was replaced; the bellows secured by cords at the nozzle and lower handles to the top of the case, and the bellows steadily worked.

The result was that in a few minutes the sulphurous fumes began to issue from the mouths of holes (bolt-holes) connected with that into which the lead pipe was inserted, often at a distance of 15 to 20 feet from the apparatus. All these holes were carefully stopped with sand; and the blowing of the sulphurous
fumes into the burrow was continued for about 20 minutes—until the whole of the sulphur was consumed.

After allowing a quarter of an hour to elapse after the consumption of the sulphur, the burrow was opened, in full confidence that suffocated rabbits would be found in it. But, to my chagrin, I discovered that I had not considered the condensation of the sulphurous vapours which would be caused by the cold earth of the burrow. When the burrow was opened, there was scarcely a trace of the fumes—and live rabbits were found within! It is possible, though not
probable, I think, that a more powerful and perfect apparatus might have been successful.

I chronicled this experiment for the Royal Society, both on account of the importance of the subject, and that it may serve as a guide or warning to others who may be induced to try further experiments with the fumes of sulphur, or with any other weapons, for the destruction of rabbits in their burrows.
Notes of an excursion to
Bunming's Head and the Falls
of the Meander, on the Western
Mountains, Tasmania.

Rev. W. Archers F. S. S.

Accompanied by a friend
and two servants I started on
the morning of May 10th 1848
for an excursion to Bunming's
Head, a spur of the Western
Mountains near Bheslum, with
the intention of visiting
the Falls of the Meander
River, which I had seen
before in the summer, when
a mere-thread of water was
all of them that was visible.

We hoped at this season to
find a large stream flowing over the dark basaltic rocks of the mountain side. Our provisions consisted of 4 lbs. of cold meat, 12 lbs. of bread, 3 lbs. of rice, 5 lbs. of sugar, and $\frac{3}{4}$ lb. of tea; and we took with us an opossum-skin rug, a pair of blankets, and a light tent weighing 3 $\frac{3}{4}$ lbs. — besides the usual accompaniments of matches, knives, tobacco, &c.

At the foot of the mountains first — a gum-tree forest with we passed through — a thick undergrowth of "native hop" or "bitter leaf" (Daviealectifolia), mixed with the "native indigo-plant"
Indicóperas (Indicóperas victoriae), the "clover tree" (Eugódia botófólia), red and white Eparis (Eparíris impressa), "prickly beauty" (Pultenéa jupíneria), and the common" fern" (Eparíris aquílinus), and other less conspicuous plants, all destitute of flowers at this season; and then entered a dense thicket, composed of the most part of "mush-wood" (Euryônia argóphyllo), "dog-wood" (Pemaderéris apetalá), "daisy tree" (Euryônia lirata), "stink-wood" (Fegu-féss) (Dickísonia antartica), (Ziéríos lanceolátus) (the common "fern" 6 and 7 feet high, growing beneath gigantic trees of "stringy-bark" (Eucalýptus robustá), "white gum" (Eucalýptus viminalís), "blackwood" (Adélie melanozéylon),
"silver wattles" (*Acacia dealbata*), and rendered almost impenetrable by the huge trunks and branches of fallen gum-trees, and a web-work of nettles (*Urtica incisa*), with the rope-stemmed blematia (*Blematia coriacea*), and Deponsia (*Deponsia straminia*), here and there, stinging our hands and faces, and tripping us up as we scrambled and cut our way through the entangled mass of vegetation. To the right of our track were some many-crowned fern-trees (*Dichonemia antarctica*), one with about thirty crowns—one of the wonders of the vegetable world—and somewhat further on we came to a white gum-tree of enormous height, towering
far above the surrounding forest, and rising to an altitude of some 300 feet, with a trunk about 40 feet in circumference at a height of 4 feet from the ground, tapering very gradually up to the first branches, fully 150 feet from the base.

At the height of 500 feet above the plains—about 1400 feet above the level of the sea—plants which grow to a height of 30 feet on the lower ground are dwarfed down to shrubs. "Native box," for example, (Bursária spinosa), is here a thorny little shrub a foot to 18 inches high, and the small-leaved Cofrosma (Cofrosma
microphylla), is reduced from 12 feet to 2 feet in height.

At the same elevation of 2000 feet above the sea, the character of the vegetation altered considerably, and the gum-trees lose their straightness and slenderness of their branches, and their now spreading tops approach the ground more closely.

The "Waratah" (Telopea truncata), 3 feet high, and "wreath-cluster plant" (Gaultheria hispida) grow here among the rocks; and a little higher up the pretty little Tetragyna (T. tasmanica) makes its appearance. Huge masses of rock, thrown from the crags above, are now met with, and the shrubs and trees have a somewhat shattered and straggling form, until the summit
is reached, when they are found to assume a dwarfed and more compact appearance.

On reaching the summit, we rested for a while from our labours, and ate our dinner, water being found in a little hole which I had previously dug beneath a dripping rock. Before starting again my friend and I clambered to the very crest of Cummings's Head, where there is a little plateau of a few yards square. From this spot, situated at the brink of a terrific precipice, there is a wonderful view of the country lying to the west, north, and east, including the towns of Denbigh and Wrexham in the middle distance, and the northern line of coast as far as the eye...
could reach to the eastward, and for a considerable distance to the westward until shot out by intervening mountains. Wishing to get the bearings of some of the principal mountain peaks, and especially of Summit Bluff, rising in solitary grandeur on the east, I placed my compass on the rocks of the plateau, where, to my great surprise, the bearing indicated was due west instead of due east; and it turned out that the local attraction was so great that the points of the compass were all reversed as long as the compass remained in direct contact with the rock on removing it from the
rock, and raising it to the height of three feet from the rock above it, I found the bearings restored to their true positions. This fact shows how careful explorers should be in utilizing themselves and their routes of commanding positions for the purpose of fixing the positions of their camps or rest or observation, or the routes to be taken in order to reach other localities.

We now descended to a small plains lying between the heads or sources of two rivulets, one of which flowing to the east and entering the Meander just above Archee's Sugarloaf, and the other flowing to the north-west.
into Dale Brook near Gibbon's Sugar Loaf.

Upon this plain are found the large "Mountain Reminiscus" (Reminiscus gymnium), with its bright, varnished yellow flowers, purple underneath, and the curious little "Gentian" (Gentiana), much divided leaves, found also on the Victorian Alps by Dr. Mueller, — a little yellow-flowered "Stackhousia" (S. pulvinaris), — occurring also on the Gipps Land mountains, a most rare little Sulphurea (P. fasicularis), — gathered also on the Cobberas Mt. in Victoria, — the singular little Eparophyllum gymnii, belonging to the Gentian tribe, — found nowhere else in the world, — small large-flowered plants of the "Mountain Gentian" (Gentiana montana), — found also on the Mountains of Victoria,
New South Wales, and South Australia. - the little *Mitracinae* or* cheiro* - found nowhere else,* euphrasia alpina*, *striata*, and *euphrasia cespitosa* - the first found on Mt. Kosciusko in New South Wales, and on the Bobberras Mts. in Victoria, a most singular little plant - and the last grows here on the Western Mts., Mt. Sorell, and Mt. Taipences) in Tasmania; besides several other plants peculiar to mountainous localities, and some that are found also on the plains, - such as the common "tea-tree" (Leptospermum lanigerum) which grows in thickets to the height of 12 to 15 feet.

We erected our tent - made of unbleached linen, and enclosing a space of 6 feet by 6½ - and leaving the servants to procure
a large supply of dry wood; for consumption during the long
and cold nights, we made our
way down the eastern rivulet.
After descending about 200 feet to
a spot where the rocky sides of
the valley rose steeply from
each bank of the stream, we
came to fine specimens of
different species of the largest
kind of "mountain pine"—
as I generally call it—Ailanthus
cupressoides, selegerinoides and
laxifolia, and also the celery-topped
pine (Phyllocladus rhomboïdalis),
which occurs also on the Meander
near Bleshunt. Here were also
many beautiful and rare mosses,
clothing or fringing the rocky
margins of the brook; here
I found a wetly white
violet, found also in New Zealand, (Nicolia Cunninghamii); here straggling among the rocks, is Decaspora distintia, with its little clusters of purplish berries. Having gazed our fill at the rare and noble trees and curious alpine plants around us, and made a collection of botanical specimens, we returned to our tent.

One side of the tent being left open towards the large fire, we passed a comfortable night, sleeping on a bed of tea-tree branches, with our feet towards the blaze, and only waking when the diminished heat warned some one of us to put on more wood. The coldest part of the night was—to use the words of a
well-known song—"2 o'clock in
the morning"—owing, partly,
I suppose, to the fire having
died down about that hour.

We started very early next
morning in a direction nearly
due south, in order to skirt
the rocky gully at the source
of Dale Brook, and then
crossed a plains in a south-
easterly direction. On one way
we passed through a large
quantity of the mountain
Bellendine (B. montana), a
handsome, glaucescent-leaved
colored small shrub, with spikes of
cream-coloured flowers, followed
by reddish-brown fronds, an
alpine form of that many graceful
branched fern, Gleichenia decipiens.
the pretty and rare *Grevillea* 
*acrodactyla*, only found on the 
Tasmanian mountains, with 
its wedge-shaped leaves, toothed 
at the apex, and *c*lassy-like 
flowers. The bright *green cushion* 
*Desert Fern* (with its disproportionately large 
berries of the tiny *Pernettya* 
* TASMANICA*), a plant of the  *Heath 
tribe*, found only on 
Tasmania on the Mount and the beautiful 
little *Gaultheria antipodes*, not 
found anywhere else in Australia, 
but occurring on lofty mountains 
of the Middle Island, New Zealand, 
The *eider-tree* (*Eucalyptus Gunnii*), and 
many other rare and 
interesting plants. On the 
plain just mentioned we 
found a small group of
The cypress-like "mountain pines" (Achmoteceis cupressoides), with a ragged and broken-down appearance, shortly after passing them we began to ascend the western end of the Ironstone Mountain, and came upon a kind of saddle between the trigonometrical station and "West Bastion Bluffs. Here we found that little curious coniferous plant, *Microdelphys tetragona*, lying, here and there, perfectly flat on the surface of the greenstone rocks whose surfaces were nearly level with the ground; and, keeping too much to the left, we helped through or over an underwood of a dwarf fir, almost bed high—which attains to the
height of 10 feet in very sheltered situations — called Diselma Archers, many with struggling branches close to the ground, so that if one put one's foot between them instead of on them, one's progress became slow and exceedingly laborious. My friend, who did not succeed well in making his way through them, on coming up to me, inquiring for him, requested me particularly to tell him the name of the plant, "in order," as he said, "that he might write it all his life."

Soaking from the top of West Boston Bluff we saw Sableoney Island — a somewhat appropriate name — extending
in a lengthened, narrow sheet of water to the westward, on the plain below. Ho! away to the south-west. Frenchman's Gap stands up against the horizon and to the south-west lay the Saches Augusta and Olde, and the other waters of the Nineteen Dagoons. Turning to the left after leaving the saddle, and sketching the upper part of Ironstone M't. we proceeded nearly in the direction of the Split Rock trigonometrical passing over ground covered with heath and then soon came to a small lake, which moved to be Lake Meander chief source of the Meander River.
Leaving Lake Meade, with its bright and polished water, and scrambling down the bed of a rivulet running towards the east, we soon found ourselves at the brink of a great precipice, over the face of which the waters of the rivulet was falling in a sheet about a long silvery thread, foaming at the edges into foam and liquid ravellings and washing nearly circular into a basin about 100 feet in diameter. Before us lay, in grand ruggedness and confusion of brigs and great bays patches covered with rocks fstones, interspersed with lines and clumps of small trees and struggling stumps fighting a head
battle of life for bare existence
the immense gorge at the
bottom of which the rapid
winding Meander rushes
along its sounding course
to the plains below—this
gorge extends beyond “The
Halls” for about a quarter of
a mile, and terminates in
where a stream rises from rocks
a short curve, not far from
a pretty little, shallow lake
(which I named “Serke
Pedlevenianos” for a reason
which can be as well imagined
as described. From the
cleft, to the westward of
the end of the gorge, the Halls
looked like a tiny thread
of silver, suspended from
The brink of the precipice above, and we could not hear the noise they produced, after our rough scramble down the rocks and through the shrubs at the end of the gorge, until we were within about fifty yards from the pool into which the water tumbled after its gigantic leap.

On viewing the Falls from the front they lacked the appearance of an unbroken descending water line; but on moving to the right or left, it became evident at once that they consisted of two parts, separated by the basin which we had
seen from the summit of the rocks. I measured the lower falls and found it 150 feet; and estimated the height of the upper fall at 200 feet, making 350 feet in all. When standing close to the foot of the lower fall the effect was very grand, as the brook, sheet of bright water, splashing, foaming, hissing, rent into a thousand fragments, then united, fell in a continuous torrent at our feet, just in a word, as "the water comes down at Godors."
Continuation of Notes of an Excursion etc.  
By W. Archer 4th Oct.

One of my companions mounted to the summit of the lower fall, and found a basin, somewhat of a circular outline, and about 100 feet across. From there he let fall a stone, attached to a ball of twine, until it reached the foot of the lower fall. On measuring the length of this line afterwards I found it to be 150 feet. Judging by this ascertained height, the upper fall must have been fully 200 feet high.

After refreshing ourselves, and dividing our provisions into equal shares, we readied for
for such emergencies as being lost, or of being the victim of hungry companions, we started on our way homewards.

A little way above the Nanda on the left bank, to which we had crossed immediately after leaving "The Falls," a fine specimen of the mountain pine called _Abrotaxis selaginoides_ met our view. It was covered with its small cones just ripe and afforded a rich harvest to one of my companions, who was on the lookout for such treasures. A little higher up the pretty _Pimelea sericea_ occurs, a small shrub, with very pale green leaves, smooth
above and covered beneath long, heaping (in December) shining, silvery trees, and rather large heads of flowers. Passing through a group of small gum-trees, (*Eucalyptus coeciperda*) and leaving the eastern cliffs of Trounce Mountain on the left, we had to scramble across a plateau of great rocks, like those near the summit of Mt. Wellington, with deep caverns beneath them into which there was much risk of falling, and then found ourselves on a plain sloping gently towards the river on our right, and dotted with small gum-trees and various shrubs. Here we pitched our tent near a bright little river.
many of which flowed across the plain.

Next morning, pursuing our way northwards we found a large patch of a plant of native currant, as it is absurdly called, merely on account of the colour of its fruit,—thickly covered with its shining berries. On the plateau of the mountain above us may be found another and much smaller species, (C. minima), which is found on the Bays-Bays and Babboons Mt. of Victoria. A much larger species C. hirtella with much larger berries and leaves, and C. Pillaschieris with berries and leaves smaller,—grow on the plains lower ground. The
latter being very common in some localities. The berries of all the species named have a similar and by no means pleasant flavour.

By the side of a murmuring rivulet which we now crossed were growing some beautiful plants of *Allopteraxis laxifolia*, with its graceful pyramidal form, and delicate branches covered with bright yellowish green leaves, only long and spreading enough to give the somewhat serrated appearance as they waved in the breeze.

The *Allopteraxis* previously mentioned (*A. selaginoides*) with longer more spreading fronds than this species, but I think...
This is the more elegant of the two. The third species, \textit{C. impressoides}, is a much stouter tree, with smaller and blunter leaves closely appressed to the branchlets. All the species are, I believe, peculiar to Tasmania.

Among the many shrubs through which we now walked and sometimes struggled, may be mentioned \textit{Persoonia gymmii}, with its olive-shaped leaves and black shoe-like berries, fruit, \textit{D. revoluta}, \textit{Decaspora thymeipollis}, \textit{Tetracarparka jamacian}, \textit{Eurybia spinifolia}, with its fingered leaves, \textit{Ozothamnus Hooker}, and \textit{Baeckea gymnanae}. Above us, at a height of about 400 feet, was
The summit of the mountain, to which we clambered by a sinuous course, over the loose stones, taking care not to move until we were all proceeding in the same direction, in order to avoid rolling down the stones on each other. Arrived at the tolerably level ground above, covered here and there with flat rocks, or with great stones among the smaller shrubs and grass, we could see Brunnings Heed to the northward, while the Ironstone Range, with its trigonometrical station and its "Beastie Bluffs", lay to the south-west, behind our left shoulder.

"The Cider-tree" (Eucalyptus Gunnii)
was plentiful on the stony rises, and various alpine shrubs grew beneath its shade, or on the open ground. Strengelia montana and Bystandra, Strengelioides, both of the Epaecris tribe, the latter closely resembling Strengelia incarnata, but unlike the peculiar genus calyxate flowers of Bystandra, are found here. Here are the green cushions, so well known to mountaineers, excursionsists, at first sight appearing to be composed of one plant only, but moving, on examination, to combine four or five; for instance, Sclerochima korshenoides and Pterygocephalus sternecii, both plants of the Composite tribe, Gephyroidea, families of the Myrtaceae tribe, and Pernettyae Tasmanicae, of the
Heath Tribe, and Aeonobulus Pumilio, a cyperaceous plant, are all found densely packed together in a green, rounded mass, dotted here and there with the flowers of the gosposum, or the berries of the hellebore, or powdered lightly with the tiny flowers of the various plants composing it. The little Rubus of the rose tribe, coloured greenish yellow, with cream-white bramble-like flowers, followed by blackberry-like fruit of good dry flavour, occurs in sandy spots; the common burr, (Aesculus of the same tribe), exhibits its fleshy of pretty green wrinkled leaves, and more wrinkled, smaller than those of the variety on the low ground; Sanguisorba persicaoides and S. alpina of the composite or daisy-flowered.
Tribe, thrown together into one species by Bentham, but differing in some important particulars, are seen, often close together, with their dark glossy leaves, dark green and glossy above, and covered with densely-packed hairs beneath. The flower-heads (daisy-like flowers so-called) of the former being several together on long slender stalks, while the latter bears single, larger heads of flowers, on short, stout stalks; *Boronia rhomboidea* and *B. nilouca*, with their pretty, pinkish four-petalled flowers, and leaves swelling like Rue; the little Mountain Sundew (*Drosera brevifolia*) with its largest white flower, and the blanched *Australasica* of the Peristome Tribe of the Verbea.
among small plants depressus of the Weedon tribes, found in Victoria on the Bass River, and on the banks of the Snowy River, Lippaephylleum, a little plant of the Gentian tribe, which occurs in Europe, etc. — Curisia integrifolia of the Fordglove tribe, a small plant, found likewise in New Zealand. — The little Bladder-wort (Utricularia lateriflora), and some other small plants are to be found in wet places; Cryptandra alpina, of the Buckhorn tribe. — The curious little Stackhousia pulvinata, with its stamens, abnormally, of nearly equal height. — The Handsome Mountain Daisy (Heluoria longifolia), the large Mountain Bachelor’s Button (Cosasphedia moureephalta), a variety of C. Richeda, found in south-eastern Australia. — Cosasphedia alpina, found on Mt Buller in Victoria.
Raoulia cataphyta, of the Daisy-flowered tribe, in white tufts, the Mountain Graphites (cf. collina), variety monocrephalum, the minute Neudora arachne, the singular little Pinellia hypogea, the remarkable little Ribgrass (Plantago arachni), with its leaves closely oppressed to the ground, and hairy on both surfaces, and its minute flowers, all these with numerous other plants occur here and there over the area between Cunningham's Head and Trossten Mountain. There is also the extraordinary little eye-bright (Gypsophila cuspidata) together with two other herbs of the same genus (G. alpina and G. striata) to be found on the summit of little Mains below Cunningham's Head to the southward.
noticed also, on the rocky rises further back, Mounts of Diselma, Amber, and Microcachrys tetragona, together with Podocarpus alpinus, all belonging to the Coniferous or Pine Tribe.

We returned to the summit of Bunning's Head, wading through a wood of dwarfed Beeches, called Myrtle trees, (Hausi's Bunninghamia), a little after noon; and, having eaten our dinner and refreshed ourselves with bush-tea, and enjoyed again the monstrous view over the low country lying to the westward, northward and eastward, we descended the mountains, and thus terminated a pleasant and most interesting excursion.