Motion put before the Monthly Meeting of the Auckland Botanical Society 6th. June 1973.

That the Secretary write to the Waitemata County Council re the planned use of Duck's Quarry and adjoining land as a rubbish tip, and ask the Council to reverse its decision to use the area for this purpose. This Society submits that the Council should seek for more suitable areas or, in collaboration with the A.R.A. and/or other local bodies, investigate the feasibility of using more modern methods of rubbish disposal which are less wasteful of space and cause less pollution of the environment.

The reasons supporting our request can be summarised as follows:-

1) As a society concerned particularly with botany of the Auckland region we believe that an area such as the Waitakere Stream marshlands with its particularly interesting plant life should be preserved in a state as little modified as possible. Among the interesting plants present are the bladderwort (Utricularia), raupo (Typha), reeds (Scirpus) as well as the tall jointed twig rush (Baumea) and the large club rush: also the tall rush (Juncus) and grasses such as sweet millet (Isachne) and sweet grass (Glyceria). Other plants present also are water milfoils (Myriophyllum), primrose willow (Ludwigia), swamp lily (Otellia), swamp forget-me-not (Myosotis) and the water speedwell (Veronica).

In the opinion of botanists the proposed tip will jeopardise and probably destroy the essential character of the marshlands of the Waitakere Stream.

2) The tip is to be located on top of a major tributary of the Waitakere Stream. Although much of the stream water will be carried in pipes underneath the tip and some of the rain falling directly on the tip will be drained to the sides, it is unavoidable that the tip will produce a toxic and dangerous liquor. Treatment of this liquor in oxidation ponds may remove the potential hazard to human health from it, but such treatment will not remove much of the material poisonous to animal and plant life. As all the drainage from the tip is, according to the plan, to eventually lead into the extensive marshland below Black Bridge, it is unavoidable that accumulation of these toxic materials will occur and we believe that progressive destruction of the essential character of this area will follow.

BETHELL'S SWAMP

Miss. M. CROOKES.

On March 17th. the Society visited Bethell's swamp. On leaving the bus, we walked a short distance to the swamp edge, where the first thing that engaged our attention was the little free floating

bladderwort Utricularia delicatula. Having fished various specimens out from below the surface, we learned that this harmless looking little plant is actually carnivorous. We noticed the little bladders produced on the cylindrical leaves and noted that the sides of some were concave and of others convex - why? The little structures are actually traps. When the plant sets its trap it absorbs the water inside so that the pressure of the without is greater than the pressure of the water within. When a tiny water creature comes nosing round, attracted by a pleasant secretion, it touches certain sensitive hairs and the trap door swings inward resulting in a rush of water into the trap which bears the luckless creature in with it. The trap, which opens only inward, swings to hermetically sealing the bladder, and the plant is now able to digest the dainty morsel at its leisure. Why has the plant developed these elaborate adaptations? It lives in areas where it suffers from a nitrogen shortage. The little plant sends its flowers above the surface of the water. These are small and white, sometimes tinged with pale lilac.

The swamp, needless to say, has its full share of rushes and reeds. How do these groups differ? Well, remember that the fruit of the reed is a hard nut, while the rush has a dry, splitting fruit. The largest rush seen was Juncus pallidus, which grows up to about six feet. In this rush the pith has no divisions. We saw clumps of the large reed Baumea articulata (previously known as Cladium articulatum) with its great tresses of brown flowers or fruit and its darkish green stems. These are septate, that is, divided by horizontal partitions. If you run your finger down the stem, you can easily feel these transverse partitions. Another large reed was Eleocharis sphacelata. The genus Eleocharis invariably has its little flowers crowded together at the end of the stem. Ruth Mason, an expert on water plants, gives the popular name of the genus as spike-rush. I have also known Eleocharis referred to as twig rushes or club rushes. The main thing to remember is that strictly speaking they are reeds not rushes.

Other reeds we saw include the tall Scirpus lacustris with its round flowering stems reaching six feet and more, terminated by clusters of small spikes forming irregular umbels. S. medianus is somewhat similar, but its stem is three-angled (trigonous). Scirpus fluviatilis is also up to six feet high, with a three-angled stem. Cook's Scirpus perviridis, is now included in S. fluviatilis.

In the swamp among the rushes and reeds, or along the stream bank, we noted the grass, Isachne australis, the swamp millet, and Glyceria maxima, the great sweet grass. An introduced weed, the primrose willow (Ludwigia peploides) with its attractive yellow flowers was abundant. Also Otellia ovalifolia, known as swamp lily - unfortunately not in flower so we missed its pleasant papery white flowers. Myriophyllum robustum was abundant with some of its leaves above and some below water.

Following the stream along its sandy bed, we noted along the banks bushy plants of the water peppermint in flower. Mentha piperita is a member of the mint family and its spikes of little mauve

flowers reminded one of the flowers of garden mint but were much shorter. Along the stream bed were large patches of Lilaeopsis orbicularis, plentifully starred with its tiny white flowers. The inevitable batchelor's buttons (Cotula coronopifolia) was abundant and we found patches of the sand Gunnera (G. arenaria). We only found two or three stems bearing its buttercup yellow fruits - large for the size of the plant. I remember seeing a whole extensive mass of them in flower once on that stream bank, and they certainly made a show.

Some members amused themselves picking the rich brown heads of the raupo, or bulrush (Typha orientalis). The bulrush is neither a rush nor a reed, as the fruits show. The flower head, which is cylindrical and a rich brown, consists of enourmous numbers of tightly packed flowers. The lower part of the spike, which is usually a darker brown and female, is often separated from the male part by a short length of bare stem. When the fruits ripen, they are adorned with silky hairs which enable them to be wind-born. So watch your dry arrangement, and at the least sign of ripening fruit remove the spike or you can spend a lot of time clearing up. When Typha grows in still waters its rhizomes will sometimes spread out gradually and form a floating mat on the surface.

We saw many other interesting plants, and indeed the swamp would be worth a second visit some other year.

CLEMATIS AFOLIATA.

Whilst on holiday in the South Island earlier this year, I was pleased to find Clematis afoliata in the Puhi Puhi valley near Kaikoura. Unfortunately the flowers were over but the feathery seeds were abundant. I collected some and sowed them on my return to Auckland. They were slow to germinate but I think that just about every seed made it in the end. The young seedlings are growing well now and if any member would like to try to grow this beautiful Clematis in Auckland I may have a few spare plants later on.

At this stage the plants are about $\frac{1}{2}$" high and have two or three small, dark green, ovate entire leaves. The flowers of this species are yellowish green and can be as large as $2\frac{1}{2}$" in diameter - they are strongly scented. The plant seems to be quite happy growing in rather dry sunny conditions. L.J. Metcalf, in his new book "The Cultivation of New Zealand Trees and Shrubs", suggests training the stems straight up a wall and then allowing them to grow over naturally and hang down, showing off their flowers to best advantage.

A.D. Palmer.
