For some years I have been interested in the edible plants of the Andean Region and have grown a number of the more unusual ones found in New Zealand at home and nearby in our little community garden in Packe Street Park, St Albans, Christchurch (Fig. 1). My bible for Andean plants has been a very interesting book published in 1989 called *Lost crops of the Incas* written by several scientists of the National Research Council in Washington, DC\(^2\). Many plants described in it I have never seen and probably most of these are not or are rarely grown outside South America.

Anyone visiting Packe Street Park cannot fail to see the influence of the Mediterranean Region with our grape vines, olives, almonds, peaches and a fig tree because such plants grow well in our dry summer climate. But another part of the world that contributes significantly, although less obviously, to the diversity of edible plants in our park is the Andes of South America.

Some of the plants mentioned below were not only known to the ancient Inca people but were amongst their staple crops. Since I have been interested in these edible plants for a long time it seemed a good idea to plant some that were available in New Zealand in Packe Street Park so that volunteer workers and visitors could try them too.

The Andes of South America (and to a lesser extent the mountains to the east) have long been known as a source of food plants, not only for the indigenous people but also for other peoples in more modern times. One needs only mention potatoes and tomatoes to make this point clear. It is surprising that tomatoes don’t seem to have been used as a food crop by the Inca people but were instead taken to Mexico where the Aztec and other Indian peoples ate them. That happened well before the Spanish arrived on the scene.

In Packe Street Park amongst the usual potato type of *Solanum tuberosum*, we grow the less common *andigena* potato with its small irregular dark purple tubers (Fig. 2). This potato seems to have been the first type to have been introduced to New Zealand by early Europeans and it quickly became very popular amongst Māori people. Because the tubers are often formed on underground stems at a distance from the planted parent potato (unlike the ordinary potato) it is difficult to harvest them all properly. Thus we usually have a useful supply of emergency food for people who need something for the pot at short notice.

***Potatoes, Solanum tuberosum and S. tuberosum subsp. andigena***

In Packe Street Park amongst the usual potato type of *Solanum tuberosum*, we grow the less common *andigena* potato with its small irregular dark purple tubers (Fig. 2). This potato seems to have been the first type to have been introduced to New Zealand by early Europeans and it quickly became very popular amongst Māori people. Because the tubers are often formed on underground stems at a distance from the planted parent potato (unlike the ordinary potato) it is difficult to harvest them all properly. Thus we usually have a useful supply of emergency food for people who need something for the pot at short notice.

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to become a commercial vegetable. Also, as many of us know, there are now several forms available with different coloured tubers (Fig. 3).

Mashua, on the other hand, is a plant hardly known in New Zealand although it was also one of the most important crops of the Incas (Fig. 4A–B). This is a climbing or scrambling plant – as are most members of the genus **Tropaeolum** (Tropaeolaceae), including another Andean plant the garden nasturtium, **Tropaeolum majus**, which is a common and all too freely-seeding scrambling plant. The white tubers of mashua with their transverse grooves are so like those of oca that it is perhaps surprising that they belong in two separate families of plants although botanically these are not too distant. Furthermore they are cooked in the same way and the taste is somewhat similar. Another feature in common is that the above ground parts are very frost-tender and thus often the leaves and flowers get killed in the Park by the first air frost. Despite their popularity in the High Andes this cold damage must occur there as well. Certainly it would boost production if long-day varieties could be developed like the potato.

**Yacon, Smallanthus sonchifolius**

In New Zealand probably the rarest of the Andean plants to be mentioned here is yacon, **Smallanthus sonchifolius** (syn. **Polymnia sonchifolia**; Fig. 6), although it is well known in parts of the Andes. It is a relation of the sunflowers and also belongs to the Asteraceae (Compositae). Like many sunflowers yacon is a tall herbaceous plant resembling Jerusalem artichoke, **Helianthus tuberosus** (this being a species of sunflower from North America and at Packe Street Park is another community garden emergency food). Also like it, the edible parts of yacon are the underground tubers, these being rich in fructose. Yacon tubers are thus quite sweet, as well as being crunchy, and can be eaten raw or cooked. A point to remember is that the outside skin is unpalatable. Another fact in common with these other tuberous plants is that the above ground parts are very sensitive to frost...
in Christchurch. I have grown yacon at home for several years but haven’t yet had enough stock produced to plant it out in the Park and also I have not seen it flower, presumably because it doesn’t get time before the onset of cold weather in late autumn. Yacon is another plant almost unknown outside South America, but despite its rarity in New Zealand this is still the most likely country to find it in outside its homeland.

Cape gooseberry, Physalis peruviana, and pepino, Solanum muricatum

We often grow these two well-known Andean species in Packe Street Park but they are short-lived herbaceous plants and usually don’t survive the winter. If seed is sown in the spring they can produce their edible fruits before the autumn frosts if kept in the warmest possible place. Along with potatoes discussed previously, both cape gooseberry and pepino are in the very large solanum family (Solanaceae) that is so diverse in South America. Cape gooseberry, sometimes known as Inca berry, has a yellow-orange, cherry-sized, globular berry that is enclosed in a papery brown jacket (hence the cape is really the enlarged floral calyx), the main difficulty being to know when the berries are ripe without opening the jacket. There is no trouble in this way over the pepino (Fig. 7) because its large pendulous creamy-yellow and usually purple-streaked and more or less sub-globular fruits are very conspicuous and can grow to 15 cm long or more although are usually only about 8 to 10 cm in our garden. In the late 1970s and early 1980s there were efforts to commercialise pepino in New Zealand, and several cultivars were developed, but this venture did not succeed. Both fruits are mostly eaten fresh but those of cape gooseberry are sweeter than those of the pepino. Also, cape gooseberry makes very good jam.

Before leaving the Solanaceae family I must mention the well-known and popular capsicums and chilli peppers, Capsicum species, which we sometimes have in the Park in warm places. Capsicums are similar in respect to habit and cultivation condition needs to pepino. Again capsicums and chilli peppers have a long history in the Andes going back to the time of the Incas. The peppers at that time were small and very hot and by the time of Columbus they had been taken north at least as far as Mexico and were popular amongst the Aztecs too. Since then there have been extensive breeding programmes, especially in North America; the result being the great range of different peppers that are used across the world today with large and mild as well as hot peppers.

Ugni, Ugni molinae, and feijoa, Acca sellowiana

The main member of this duet of fruit crops to be discussed is ugni, Ugni molinae, because feijoa is not quite an Andean plant since it originates from the mountains of southern Brazil and was most likely unknown to the people of the Andes. Feijoa, Acca sellowiana (syn. Feijoa sellowiana; Fig. 8), is very well known throughout New Zealand although not much elsewhere overseas outside South America. Also it is hardy enough to grow freely outside in Canterbury. Both species belong to the very large myrtle family (Myrtaceae) that is so abundant in the southern hemisphere. Ugni (Fig. 9) is sometimes called strawberry myrtle elsewhere and this is an acceptable English alternative to the Chilean name. But in New Zealand, as with oca, we unfortunately persist in calling it by a totally wrong name. In this case cranberry or New Zealand cranberry is erroneously used, but although the berries are roughly the same size and shape as true cranberries their taste bears no resemblance, let alone the appearance of the plants. True cranberries are closely related to blueberries and thus are in the very different and unrelated family Ericaceae. I enjoy the ugni berries in autumn and can hardly pass a bush without eating a few of these deliciously fragrant fruits. Ugni is quite hardy and the little round leathery evergreen leaves can stand up to wind and cold. In New Zealand it is sometimes grown as a hedge because of its dense habit. I remember seeing it obviously naturalised on the Chatham Islands where in open and exposed, windswept boggy areas low ugni bushes are locally common. Again, ugni is scarcely known or grown outside its Andean homeland in Central Chile except for New Zealand.
grow in New Zealand has changed considerably from the species, *Cucurbita pepo*, that is originally from North or Central America.

A plant not usually associated with the Andes is the strawberry (Rosaceae). However there is an Andean strawberry, *Fragaria chiloensis*, and the result of crossing this with the North American scarlet strawberry, *Fragaria virginiana*, gave the world the modern strawberries of commerce. Thus all the large strawberries that we regularly eat are derived from this hybrid called botanically *Fragaria × ananassa*. The bringing together of these two species took place in France in the early 18th century. On the other hand that little alpine strawberry with its very small fruits that we also sometimes grow in our Park belongs to the European *F. vesca*.

I should make a brief mention of Andean plants that we cannot grow in Packe Street because it is too cold. Not surprisingly they come from lowland and thus subtropical and tropical parts of the central and northern Andes. Some are not well known beyond the Andean Region although again New Zealand has often been in the forefront of introducing them to the rest of the world. Some have an obvious economic potential, but one must go further north in New Zealand to see growing cherimoya, *Annona cherimola*, in the custard apple family (Annonaceae), and chamburo or mountain pawpaw, *Vasconcellea pubescens* (usually known as *Carica pubescens*). Incidentally, the usual pawpaw fruits sold here is the tropical species that is still botanically *Carica papaya* (Caricaceae). Some of the passion fruits, especially some of the banana ones, *Passiflora* species in the *Tasconia* group (Passifloraceae), are from the Andes and were known to the Incas. Although not very hardy in Christchurch itself these plants grow wild and can fruit prolifically on Banks Peninsula and in warm places on the Canterbury coast to the north, so much so that these vines can become a nuisance.

The second genus with at least one important seed-producing species is *Amaranthus* (Amaranthaceae). *A. caudatus*, kiwicha or love lies bleeding (Fig. 11), was also an important food crop for Andean people. Thus it seems to be indigenous to this region and not to Asia, although these days it is such a well-known crop plant in temperate climate areas like the Himalaya that it seems as if it must originate from there.

Community gardens and small patches of common land are useful places to trial these non-commercial but useful food plants. They add variety to our local food larder and a back-up for people needing to augment their diet. These are plants that have sustained humans for thousands of years in their homeland. I can do no better than quote from the *Lost crops of the Incas* where the authors state “...one country outside the Andes already has had considerable experience and success with them – New Zealand”.

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