

PLANT TRANSPORTATION

Egyptian Pharoas brought back plants to egypt from conquests.

Assyrian King Assurbanipal 669 - 627 BC in verse records that he had brought trees from afar to grace his parks - trees that had not been seen in Assyria before.

? Trafficking of an improved variety of grain or fruit tree with the next village.. * Bronowski "The Ascent of Man" discusses crossing of wild wheat(14) chromosomes with natural goat grass (14 chromosomes) around 8,000 BC ; "the type of accident that must have happened many times in the springing vegetation that came up after the last ice age" -> Emmer (28 chromosomes) Then a 2nd genetic accident occurred when Emmer crossed with another natural goat grass -> bread wheat with 42 chromosomes. This had large head of grain not able to be spread by wind therefore required man to scatter the seeds.

Conquering Kings bringing back plants in the Army's baggage - on the other hand when living in a strange land transporting plants to be reminded of home.

Roman's introduced the chestnut, the grape vine, the garden rose and possibly the peony to England.

Muslims in 7th century AD transported Oranges and Lemons to Spain

St Dominic brought oranges to Italy in 1200

Within China plants were transported within the country little difficulty due to easy travel and across the sea to Japan in 1st century AD

The Potato and the Tomato originated in Ecuador and Peru , by 1492 they were growing all over the Americas where climate was suitable.

Columbus did not have a botanist on his first voyage but by 16th century Maize, potatoes and tobacco were established in Europe. Chillies and peanuts were sent from America to Spanish Colonies -> all over Asia.

Tulips from Turkey were transported to Netherlands, Britain and France then to America and followed European settlement all over except to China and Japan until middle of 18th century when 2 way trade developed (chrysanthemums, china roses and camellias.) They originated in Turkey Pamir-Alai / Tien Shan. in around 1451 being cultivated in the garden of Sultan Mohammed 2nd. (1451 - 1481)

In 1559 Jphannes Henoriel Herwart of Augsburg, Bavaria grew one from a seed in Constantinople. Tulips were not represented in pictures in Western Europe until 16th century. They were then grown in Botanical Gardens and appeared in Herbals.

Charles de L'Ecluse - Carrus Clusius, was the most important Botanist of the 16th Century. He was interested in bulbs and distributed plants. Born in France -> Vienna. Collected specimens from Spain and Portugal.

In 1545 First Botanic Gardens founded in Pisa and Padua. and in 1645 in Oxford.

The Australian experience :-

1606 1st documented European Landfall by the Dutch

1697 Willem de Vlamingh collected fragments of *Synaphea Spinulosa* & *Acacia truncata*.
(*Synaphea* still extant in the herbarium of *Conservatoire et Jardin Botanique, Geneva.*)

1699 William Dampier *Swainsona formosa* - Sturt's Desert Pea got this and twenty other specimens of Australian plants back to England, now in the Dept. of Plant Sciences, Oxford University

1770 Banks Specimens from Botany Bay. (? Sydney Herbarium)

1771 Banks and Solander "huge haul of plants" particularly from Australia. 97 plants drawn and coloured by Parkinson, 1300 or 1400 more drawn and accurately described. Bank's Florilegium with 743 plates illustrating the new plants he had discovered but never published by him.

1772 Furnaux collects seeds of *Eucalyptus obliqua* > Kew.

Joseph Banks, having returned from his voyage with Cook was strongly influenced by the work of Linnaeus. He developed a close friendship with George III and became unofficially in charge of Kew Gardens. He encouraged the East India Company to grow tea on British land in India and persuaded the King to arrange a plant gathering expedition to China. He bought Miller's Physic Garden herbarium on his death, a huge collection of plants from all over world, not just medicinal. The collection at Kew was grown for commercial, not just scientific, purposes. He arranged for the importation of flax and spinach from New Zealand and initiated a scheme to supply breadfruit plant to feed black slaves in the Caribbean by transporting plants from Tahiti. He was involved in establishing Botanic Gardens in Calcutta and Ceylon aiming to demonstrate plants that would grow in those countries.

In 1787 Bligh, David Nelson and assistant William Brown on the notorious voyage of the "Bounty" intended transport of Breadfruit tree seedlings Tahiti to West Indies. Extensive changes were made to the ship, the after-section below decks was ripped apart and became a huge floating greenhouse to hold more than a thousand saplings. The Great Cabin floor was leaved with water runways to conserve spillage and channel it below into reusable kegs.

Labillardiere collected thousands of specimens, some were grown in Josephine's private garden. She had previously raised eucalyptus from seed, also bottlebrushes, acacias and *Leptospermum*.

In 1800 Brown and White send back specimens to Kew with 170 plants introduced from NSW.

In 1801 Robert Brown with Flinders, collected 3,400 specimens, until then 2000 unknown. He complained on the voyage at lack of cooperation when wanting planting boxes erected on the decks but Flinders reckoned that they were too big and too heavy when filled with earth causing instability.

In the 17th. Century. Dutch exported bulbs and evergreens to England. France exported pleached Limes and expertise re. espaliered fruit trees. Imports exotic foreign plants.- John Tradescant (later gardener to James 2nd.) brought plants from Russia, Alicante and Algeria. His son brought more from North America.

"Quarterdecks of ships could be cluttered with uprooted plants in tubs or sawn off wine casks, but casualty rates amongst the plant passengers were high. Tubbs were washed overboard, some were secretly jettisoned by thirsty sailors competing for water rations. Others perished if sea spray was not washed off leaves. Rats and cockroaches ate them, the ship's dogs and cats urinated on them. Some were scorched by the equatorial sun or drowned by tropical storms. Seeds went mouldy or were eaten by weevils" (*The Flower Chain by Jill, the Duchess of Hamilton and Julia Bruce*) The chapter continues - "Ships' Captains had instructions from their wealthy sponsors to collect plants - dried or preserved in spirits - for botanical study and also seeds or living plants for gardens or cash crops. Even ordinary seamen would hide seeds and plants, knowing that such souvenirs might mean quick cash at the end of the voyage. Plants travelled in straw and mats, in wicker baskets with moss around the roots, in soil over broken shells and stones for drainage, in potatoes, or in an old woollen sock filled with dirt. Acres and acres were transplanted by pocket, stock or barrel"

Plants carried in ox bladders tied to saddles with regular sprinkling, or upturned hat. "The difficulty of carrying plants by sea is very great," said Banks "salt water, salt dew or a moderate gale will destroy if not washed off with fresh water. The cabin must be appropriated to make a kind of greenhouse, rats must be destroyed by poison, also cockroaches and the crew must not complain if some of them that die in the ceiling make an unpleasant smell."

In the 18th Century whole expeditions were launched to find and import trees, shrubs and plants. Missionaries in America were engaged and involved whilst French Priest d'Incarville and German Dutch

Doctor and botanist Von Siebold sent specimens from China and Japan. Many of the early botanists were doctors or had received some medical training, some, like Hugh Bell who accompanied Flinders on the investigator, had an interest in Botany as well. *? related to herbal/medicinal plant gardens. jg*

Many colonizers took plants (and animals) the other way seeding islands along the route and collected material on occasions was transferred to other vessels to get plants home earlier.

Spain, France, Holland, Britain and Portugal all vied for control of different regions and strove to create monopolies.

THE BALLARAT EXPERIENCE

During our study of the letters written by George Longley and Thomas Rooney in the 1890s it has been noted that there is a change from ordering seeds from England to the ordering of plants, but, Rooney insists, under certain conditions.

Until the Suez canal opened in 1869 ships from England needed to sail or steam around either the Cape of Good Hope or Cape Horn. The combination of the shortened sea route and the increasing and improved steamship service to Australia considerably shortened the journey for passengers, freight and plants.

So. in May 1899 Thomas Rooney wrote to Cr W.C.Finlayson with a list of plants selected from Kelway and Sons, Longport, Somerset, England 1899 Catalogue.

He ordered Clematis varieties, Gaillardias varieties, Delphiniums, peonies, Pyrethrums, ponstemons, New Violets, Chrysanthemums, Helenium Gandephalum Stratum and Helianthis Miss Mellish.

+ Cost of one Wardian Case

Cost 9 Pounds.

2 Pounds - 10 shillings

Total 11 pounds - 10 shillings

His accompanying letter dated 22/5/1899 says:-

Sir.

I enclose list for you to look over. I think it will prove a valuable addition. The price of the white delphinium is reduced to 5/- this year so I put it in. I leave it to you to explain to the Mayor and Mr Duthie (Acting Town Clerk) about how the cost of the Wardian Case is to be met. (! ! jg) Please ask Mr Duthie to forward explicit directions as to how they are to be consigned etc.

I also put a note at the head of the list that if anything ordered is not in stock they can substitute the variation of equal value excepting Clematis, Violets, Chrysanthemums, Helenium and Helianthus which must be sent as listed for fear of them sending something we already have.

Yr obedient servant....

And to Mr Duthie he wrote on 30/5/1899 :-

Sir

re. order to Kelway. I think it would be best to get them sent out by the same firm as the Dutch bulbs were consigned through. But, give explicit directions that the Wardian Case must come as DECK CARGO as the plants must have light to ensure success. When I was up at the Asylum just now I forgot to mention it.

You see a WARDIAN CASE is not a closed box, it is a strong built miniature greenhouse with heavy glass sashes to admit light and patent ventilators to admit air to the plants.

Yr obedient servant etc.

One gets the impression that Rooney was a very positive person with a few doubts as to Mr Duthie's appreciation of his requirements !

The Wardian Case introduced in 1839. *see deparate article jg*

J.Garner 7/07