

MACADAMIA EXPLORATION IN AUSTRALIA

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For several years, the California Macadamia Society has been urging the University of California to send a horticulturist to Australia to study the Macadamia there and see if superior varieties might be found. The rain-forests of the coastal slopes of South Queensland and northern New South Wales are the natural habitat of this tree and it was thought quite possible that selections could be found with outstanding qualities. In fact, this project was originally proposed by the late Dr. H. J. Beaumont, Horticulturist of the University of Hawaii, after he had made a preliminary survey in 1956.

In March of 1960, this matter came to a head and the University agreed to finance an expedition jointly with the Society to send Dr. Wm. B. Storey, Horticulturist of the Citrus Experiment Station. His mission was to search for superior Macadamia varieties in the area where this tree occurs naturally. The decision was made quite suddenly and Dr. Storey had to expedite his plans in order to complete all arrangements and arrive in the field early in April, the peak of the fruiting season. Wells Miller, President of the Society, requested to join expedition, at his own expense, and this was agreed. Miller also took his 15-year-old son, Read, and Dr. Storey took his wife, Marian, both at personal expense. The Millers and Storeys met in Hawaii and departed for Australia on the 17th of April.

We traveled via Pan Am 707 jet, tourist, and arrived at Sydney, NSW, Monday the 18th. Official calls were made on the staff of the New South Wales Department of Agriculture. Arrangements were made to tour that area in May.

We next hopped north to Brisbane, capital of Queensland, via jet prop plane and made contact with the Department of Agriculture and Stock. Department heads quickly worked out an itinerary and assigned officers to see that we got about. The plan was for a staff horticulturist to drive us to the various areas and communities and introduce us to the farmers. This system expedited things greatly. We would have had difficulty finding the places we wanted to see and these Agriculture and Stock officers certainly gained us friendly entree to the orchards.

We traveled Queensland for six weeks, from Maryborough on the north to Coolangatta on the south. We visited all the planted orchards known to the Department and made several prospecting trips into the rainforest or "scrub" as it was called locally. We soon found that jungle hunting was extremely slow and unprofitable work. Without expert forestry people as guides we'd have been lost in a hurry. This forest is a mass of great tall trees, vines, ferns and dense underbrush that is almost impenetrable. In many cases the first branch of a tree would be thirty feet up. Our principal method of finding a Macadamia was to spot little volunteer seedlings on the ground and hunt for the parent

tree. We did find a few promising specimens of wild Macadamia and we collected some graft wood but we were not too sanguine as to its quality.

The Australian country that we covered, a coastal strip about 50 miles wide and 400 miles long, is notable for its rolling rugged terrain, with many beautiful streams and heavy rainfall . . . sixty to seventy inches per year. A wide variety of tropical and subtropical fruits are grown: sugar cane, pineapple, banana, papaya, mango, cherimoya, etc. There is very little frost, obviously, and none of the plantings require irrigation.

We did find many fine nut and tree specimens in the various orchards we visited. Our procedure, in general, was to call on two to four orchards in a day, meet the owner, carry on a general discussion and then walk the tree rows, testing the nuts. Where we found the combination of excellent nut quality and high production we cut scion wood, trimming it and wrapping it in polyethylene at once.

At night, we would clean up the wood, cut it into 8" lengths, mark it with metal identification tags and divide it up for mailing to various locations. Next day we air mailed it back to the States.

Our treatment by the State Agricultural people, hotel men, cab drivers, barbers, Rotarians, whoever we had contact with, was outstanding in its cordiality, helpfulness, and friendliness. We often remarked that we hoped our people at home gave as fine treatment to foreign visitors.

We spent about a week in northern New South Wales, travelling from Murwillumbah on the north to Lismore on the south. This is the range of natural occurrence of Macadamia. The Department of Agriculture of this state was so involved in important, previously arranged field meetings that it was not possible to devote more time to us. However, the officers who did show us around were very kind, well-informed and helpful.

In Murwillumbah, we visited the only Macadamia processing plant in Australia. It is operated by Angus Brothers who have a large, retail fresh fruit market as well as the nut factory nearby. From a very small start, they have built up this clean, efficient little plant which turns out a top quality roasted nut and sells all they can produce. They buy all the good quality nuts the farmers in Queensland and New South Wales can ship them. The volume is growing quite rapidly. Angus pays prices almost identical to those current in Hawaii. There is a good combination of factors in this set-up which is building a well-founded and expanding industry . . . a smart, ingenious processor who is turning out a quality product and who is treating the growers fairly plus a very helpful Department of Agriculture which is advising the grower and assisting the processor.

We mailed back 45 separate selections or clones and each mailing went to several locations, so that propagation would be done in different climatic areas and by different technicians. The purpose was to get the maximum percent of varieties. At present over half of the clones are growing. Very shortly we will carefully tally up the takes and misses and write to our contacts in Australia requesting additional material. I believe that we can get as much as 90 percent of our selections.

All material had to pass through the Plant Quarantine Department and undergo

fumigation. In addition, it has to be grown under "post entry quarantine," i. e., it must be grown in approved locations, inspected periodically and may not be distributed for two years.

This was certainly a very interesting experience and we believe it should be of material commercial value. Many of the selections are of exceptional quality; a few have shells thin enough, actually, to break with one's teeth; and some came from trees which have produced a measured annual crop over 250 lbs. Macadamia, as is widely known, has two species: *integrifolia* and *tetraphylla*. Hawaii has developed a wide group of excellent *integrifolia* varieties. Up to now there has been no selection of *tetraphylla* varieties either in Hawaii or here. Our collections have cured this defect. We will have over thirty top quality *tetraphylla* clones to choose from.

The expedition would never have gotten off the ground had it not been for the confidence, ingenuity and support of Dr. Al Boyce, Director of the Citrus Experiment Station, and of Dr. Walt Reuther, Chairman of the Department of Agriculture. I think that all members of our embryo industry should be quite appreciative of that help. I thought that Dr. Storey did an exceptionally fine job as leader of the operation. He laid out the program, made the actual selections in the field, supervised the preparation of material for mailing and exercised such tact in dealing with the agricultural people that we got exceptional treatment.

The trouble with these horticultural projects is that they require TIME and PATIENCE. Results can't be had overnight . . . and this is no exception.