

A Trip To The Antipodes

Captain Cook didn't discover Australia. The aborigines did, some 40,000 years before, but when the seas rose in an earlier bout of climate change, they were completely cut off from the rest of humanity until the Europeans arrived.

Even then, the Dutch knew all about Australia long before the British did. From the early 1600's Dutch ships hung a left at Cape Point and then, using the calculations of Hendrick Brouwer, sailed due East for 3000 miles on the maritime speedway of the roaring forties before turning North to their trading posts in Java. Predictably, some ships like the *Batavia* failed to make the final turn in time and ended up on the West Coast of Australia. The first Australian convict settlers were not the British ones who arrived at Botany Bay in 1788, but two convicted Dutchmen who were cast away north of current day Perth in 1629.

Dutch Ships

Although later Dutch ships sailed round most of Australia, it was known as New Holland, the aborigines were not interested, as the Dutch were, in trade. As they already had, by this stage, an expensive provisioning post at Cape Town, the Dutch lost interest in Australia and concentrated on developing their trading factories in the East Indies. Captain Cook's "re-discovery" of the eastern coast in the mid 1700's might have passed unnoticed had it not been for the American War of Independence. Defeat abruptly removed Britain's favourite dumping ground for unwanted criminals and with steadily mounting numbers confined to rotting hulks in the Thames, something had to be done. The choice was between the mouth of the Orange River at Alexander Bay, also known as Das Voltas, and Botany Bay in Australia.

Botany Bay was chosen because it had the support of Joseph Banks, who sailed in the reflected glory of Captain Cook. The advocate of Alexander Bay Cmdr Thompson, inconveniently died at just the wrong time and in 1787 the first consignment of convicts was dispatched. The choice was a horrible mistake, and it was only the supplies given to the ship *Sirius* by the good people of Cape Town in 1789 that prevented the new colony at Botany Bay from dying of starvation. Were it not for such accidents of history, Australia might be the home of *boerewors* and *Walzing Matilda* the unofficial South African anthem.

Australia's isolation

It was Australia's isolation and distance from European markets that encouraged the development of commercial refrigeration. Although not the first

to transport chilled and frozen meat to European markets in the late 1880's, the active involvement of commercially orientated ship owners quickly made it a profitable business. In turn this led to the continuous development not only of refrigeration techniques but also of the Australian meat industry. Today distance is still important, as I discovered in Perth. Western Australia seems to consider itself a separate entity from the rest of Australia cut off as it is by the "Nullabor". It has its own electricity grid, with power generated mainly from local gas. A measure of complacency here was rudely jolted by an exploding gas pipeline some three years ago, and electricity is, like in South Africa, becoming increasingly expensive. The demise of cheap oil has led to gas being used to fuel long



Rand Transport's containers. These are railed weekly from Melbourne.

distance trucks, although refrigeration is still diesel powered. Refrigerated product is transported from the east coast via rail in integrated containers leaving Melbourne on a Friday and arriving in Perth the following Monday morning. Companies such as Rand Transport collect the containers from the station, unpack them, and then distribute the product to retailers like Coles and Woolworths. As all pallets are 1200mms high the containers are equipped with internal beams which prevent the top layer of pallets from damaging those beneath. While the distances involved are more than double those between Cape Town and Johannesburg, one wonders how high the oil price will have to go before refrigerated goods are once again carried in volume on the South African railways.

While the bulk of Australia's electricity is still coal based, the growing power of the green lobby will

probably result in limiting carbon emissions. While the threat of this is currently in political remission, the same does not hold for New Zealand where an emissions trading scheme has already been legislated in 2002 and is currently being amended. New Zealand also has its own climate change minister, Nick Smith, and between 70 and 80 percent of its electricity is generated from renewable sources. The current plan is to phase out the North Island's coal fired stations and overcome the transmission cable problems between the two islands by installing tidal generators in the Cook Strait. New Zealand's energy strategy is as green as the countryside, and its tourist industry is actively marketing New Zealand, with a little licence, as being "100 % pure". Such ecological fundamentalism has however come up

against the powerful dairy industry where agricultural gas emissions are due to join the emissions trading scheme in January 2015, and the mind boggles at just how such emissions will be measured. I thought this was all a joke until, driving across North Island, I was almost hypnotised by the sheer number of grazing herds. The cold storage industry, while not as big as the Australian one, is certainly more energy and emissions conscious with refrigeration systems being chosen on the basis of emissions over the system life and energy efficiency rather than just on capital cost. In speaking to Chris Boyle of Arneg in Auckland, New Zealand is making a determined effort to reduce climate change. Although it

only has a total population the size of greater Cape Town, New Zealand's progress so far makes South Africa's efforts undetectable in comparison.

RWTA conference

Arriving in Melbourne, where I was told "all the women wear black", I attended the annual Refrigerated Warehousing and Transport Association (RWTA) conference. Here I was introduced to the Australian passion for "footie". This is Australian Rules football and seems far more popular than Rugby Union. The first "footie" clubs predate those of the Premier football league in the UK. Don't ask me to explain how the game is played, but the ground is oval shaped with four poles at either end and larger than a rugby pitch. Indeed the oval shape

Continued on page 38

A Trip To The Antipodes

Continued from page 37

may trace its origins to being a winter substitute for cricket. I split my sides laughing at the jokes of Sam "Lamb chop" Kekovich. Sam, a very retired footie star, described to delegates at the conference how he had singlehandedly persuaded Australians to once again eat a "leggie" (leg of lamb) for lunch on Sundays, so saving the sheep farmers from ruin. Make no mistake, the Australians are proud to eat locally grown produce and it is clearly marked in the shops.

Melbourne is also the centre of the Australian cold storage industry and with less than half of South Africa's population, has more than double the m³ of cold storage space. This is due to the higher level of affluence in Australia but also illustrates the potential for South Africa should our emerging middle class continue to expand. Most Australian cold store companies are proudly second generation family owned operations, and many of them are involved in transport as well as cold storage.



View of Oxford's cold storage marshalling area

The largest cold store visited, Oxford Cold Storage, has a pallet storage capacity on one site of in excess of 100,000 pallets. Maximum Store height in Australia is approximately 12 metres and is governed by the height at which a 1200mm high pallet can be placed. In New Zealand seismic requirements have reduced the maximum store height to between 9 and 10 metres depending on local conditions and at least one cold store was damaged in the Christchurch quake. Standard racking systems include drive in and double deep for slower moving stock and either selective racking or double deep live racking for case picking.

The Australian pallet is based on American ones left in Australia after World War 2. These were later hired out by the Australian Government in what was called "the Commonwealth Hire Equipment Pool". Bought later by the Brambles Group, this arrangement was expanded globally and is now known as GKN Chep. The standard pallets are 1165mms square 2 way entry pallets with a cut out to allow the pallets to sit securely on the rack beams. Rack frame



Australian vertical high speed doors. These are now insulated and do not require solid night doors

widths are therefore commonly around 838mms outside to outside.

Health and safety is prominent in Australian cold stores. In one, the practice of moving 2 x 1200mm high pallets one on top of the other into a store with a reach truck was considered unsafe and only allowed after weeks of discussion. Case picking is generally not allowed from the second pallet level for health and safety reasons, and in one store there were lots of safety bollards in the airlock to prevent pedestrians from being hit by forklift trucks. On the other hand, cold store pickers are not required to wear hard hats, a basic requirement in European stores. Fatigue is considered to be almost as big a danger as alcohol or drug abuse and there are strict rules as to how long a truck driver may drive without a break. Should a cold store allow a truck to leave with a fatigued driver the management of the cold store is held criminally responsible in the event of an accident. For this reason, senior personnel are required to take courses in fatigue management.

Case picking

Case picking and order consolidation normally takes place inside the cold rooms with the larger stores moving towards pick by voice for greater productivity.

In the cold stores visited, I saw none with electric under floor heater mats. All had either air fans using hot air from the engine room or piped glycol heated in the condensers. Cold store lighting is definitely moving to LEDs in order to save on electricity. While currently more expensive than high pressure sodium lights, the prices of LEDs out of China are reducing..



Rain water tank installed at Oxford cold storage in Melbourne



Sands Fridge Lines. Their new trucks run on gas not diesel.

Already their lower energy usage and longer life make them very attractive in Australia. Variable speed drives are now commonplace on compressors and are beginning to be installed on evaporator and condenser fans. High speed vertical cold store doors are popular, especially insulated ones and solid night doors are, in some instances, being dispensed with. However, if ice forms on these doors it can cause problems when they roll up and one cold store was working on a solution using infra red lights.

Insulated panels and cold store fires

There has also been considerable debate around insulated panels and cold store fires. Cold stores understandably do not want in store sprinklers. In one store, the fire authority had insisted on a fire hydrant in the cold room. The pipe supplying the hydrant then burst with predictable results. To improve understanding around insulated panels and cold store fires, several companies have got together and drafted a code of practice for the use of EPS insulated panels. As the code addresses fire strategies and risks, this group could contribute greatly to the similar ongoing debate in South Africa. Detection systems are also popular, with Vesda being the market leaders.

Although Victoria's 13 year drought has now officially ended, water shortages have encouraged some stores to catch rain water in tanks which is then used after treatment in the condensers or to clean trucks and yards. Given South Africa's precarious water situation this is another innovation that could be considered here.

Historical connections

Besides our historical connections, there are many reasons why South African and Australian cold stores should share knowledge. The cold storage industries in both countries are expanding. Rising energy costs are a common problem. The greater transport distances in Australia and the solutions adopted there may give South Africa an inkling of what may be needed here tomorrow. While Australian labour costs are undoubtedly higher, so is their productivity, driven by warehouse management systems, trained employees and good PPE. Specifically, I think there is scope for both industries to co-operate in energy benchmarking initiatives. For all these reasons, I would be delighted to see more South African contact with Australian cold stores and my list of Australian contacts is available for this purpose.