THEME 4: CONNECTIONS AND COMMUNICATION

4.1 ROADS

Maori routes: Early Maori tracks around the Dunedin area are recorded in general terms, but many have subsequently become more formal roads and tracks. Early settlers when they first arrived would have simply followed the old Maori tracks. Probably the best known example of this in Otago (although outside Dunedin City) is the natural bridge over the Kawarau River near the Roaring Meg. This was on the traditional Maori route up to the Wakatipu, and was used by the gold miners during the rush to the same area before ferry crossings were established over the river.

Cherry Farm bullock track: Hamel (2001: 104) has described the bullock track from Johnny Jones' Cherry Farm near Waikouaiti to Dunedin via Swampy and Flagstaff as "Otago's first road of any consequence". Parts of it still exist as a walking and off-road vehicle track (Hamel 2001: 112). As Hamel has also noted, bogs and mud were far more of an impediment to travel than steep slopes (Hamel 2001: 108), so many early roads kept to the high ground. Informal early roads and tracks have often become formal modern roads through time by a process of constant widening and sealing, but some very early road lines were abandoned and have survived relatively unmodified.

Routes in and out of Dunedin: The first road north from Dunedin lay up the bullock track, over Flagstaff and Swampy, staying in the snowline, above the obstacle bush. Kettle's plan provided streets extending to North East Valley where a dray road was formed as well as a bridle track climbing the flank of Mt. Cargill to reach Port Chalmers. By 1863, the gold rushes saw this route taken from Mount Cargill to Waitati and constructed into a main road north.

Kettle anticipated the southern exit from his plan would be along Princes Street, over the spur at Hillside, up the Caversham Valley and over the ridge at Lookout Point, there crossing the hills surrounding the harbour.

Despite opposition, this was built, becoming the old Main South Road. Another exit to the west was from Arthur Street, through the Town Belt by what is now City Road, to Kaikorai Valley and then uphill west to Halfway Bush. By the 1860s a tortuous harbour side road had also been formed from the north east corner of Kettle's grid to Port Chalmers. (Entwisle, Peter. (2005) *Saving the Romantic City*)

Old Dunstan Road: Probably Otago's best known historic road is the Old Dunstan Road (also known as the Dunstan Track or the Mountain Track), which took miners from Outram, near Dunedin, to the goldfields of the interior. From Outram to Rocklands (near Middlemarch) it is now a sealed road, but beyond there it is still a dirt road reminiscent of how it would have appeared in the nineteenth century. It runs through what is probably the most remote part of Dunedin City, the top of the Lammermoor Range.

Harbour Cone: Middleton (2009) has recorded eleven old roads and tracks on and around Harbour Cone on the Otago Peninsula, associated with early farms in the area. Many more sections of early abandoned roads are to be found throughout the Dunedin City area. These range from completely abandoned sections in the hills, to cut-off loops and meanders that are the result of road-straightening over the years. The coast road from Evansdale to Karitane has several such meanders that are clearly visible from a passing car.

Early Dunedin roads: Responsibility for Dunedin's roadways fell to the Town Board, a somewhat beleaguered organisation which struggled, with limited funds, to carry out Charles Kettle's ambitious street plan. The laying out of Princes Street provided the major axis from which further streets were slowly extended. The cutting away of Bell Hill, as previously described, allowed this axis to continue through the Octagon and beyond. Bringing the second major axis of High Street to a usable set of levels was a major challenge. While developed in its lower portion, the road turned into a track and was almost impassable as it entered the town belt. The early suburb of Mornington was more easily reached via the Serpentine Avenue gully which also provided access to

the southern exit from the town over Lookout Point and onwards to the Taieri Plain.

Kettle's 1847 survey (Fig. 9, Page 27), included this route as well as the later path of Highgate along the Maori Hill ridge, Kaikorai Valley Road and the alternative route to the northern Taieri through Half Way Bush. It would appear that some of these paths were known and used by Kai Tahu, particularly the Halfway Bush section.

Norman Ledgerwood's recent study of the Octagon recounts the first bullock traverse of Princes Street to North East Valley in 1849 with the muddy state of the steep terrain being a major barrier to early wheeled traffic. The draining and metalling of roadways undertaken by the Town Board took the place of temporary measures such as corduroy paths laid with manuka. The recent discovery of a timber causeway at the Deka/Wall Street site in central Dunedin has clearly illustrated this (Petchey, in preparation). This timber corduroy path was probably built in the 1850s as Dunedin's first European settlers struggled to deal with the legendary quagmire of the local roads in wet weather (for example, see Wood 2005). It was built from timbers cut by axe from the bush on the surrounding hillsides; there was not a sawn timber or a nail in the structure. Sunken into the very mud that it was built to contend with, the wet and airless conditions preserved it for nearly 160 years.

Engineering: Many Dunedin roads required extensive engineering. This was often achieved using basalt rock cut into regular blocks and formed into carefully constructed retaining walls. A number of such structures can be seen in Port Chalmers, notably above the reserve at the entrance to the town where Borlases Road rises on the way to Sawyers Bay. This is part of the original roadway linking the port with the city that is accessible today behind State Highway 88 which is, in turn, largely constructed on stone embankments from the 1873 Dunedin Port Chalmers Railway. Large concrete retaining walls are evident throughout the city, particularly in the London Street area where a steep cut gully interrupts the path of the street near Scotland St. Roadways were extended outward from Dunedin following the shoreline, reaching to near the tip of the Peninsula and to Aramoana. The dry stone

retaining walls supporting the road [**B642**] is the largest single stone-built object in Dunedin. Around 34 kilometres is under Council management, supporting either roads or reserves, and 8.5 kilometres supports railway causeways. The walls are considered archaeological sites and have a Category I listing with the New Zealand Historic Places Trust. The walls on the eastern side of the harbour from Vauxhall to Harrington Point were built between 1865 and 1880.

Changes to Kettle's street plan: The new network of streets laid out on the Otago Harbour Board reclamations initially followed Kettle's intentions with the line of Castle Street being continued across the mud flats to join with a set of parallel streets formed to the south of Queens Gardens, an area left behind from the site of the first Dunedin railway station. This line is evidenced by the siting of the Stewarts Transport Building on Thomas Burns St at 90 degrees to the extension of Rattray Street. After this, however, the Harbour Board proceeded on its own way with little heed to the old plan. The arcing curve of the original railway line marks the division between these boundaries, now defined by Anzac Avenue, formed in the 1920s as a new axis and motor road to Logan Park and the 1925-6 New Zealand and South Seas Exhibition.

Motor traffic: The advent of motorised traffic from around 1910 onwards brought tarmac sealed roads to the inner city and the eventual adaptations to Kettle's street plan that have proved somewhat inimical to his vision. These changes include the imposition of a one way system to accommodate State Highway 1 and the sectioning of both the Dunedin Botanic Garden and Queens Garden to improve traffic flow.

In 1934 an engineer, Eric Williams, proposed a road tunnel at Sawyers Bay under Mount Cargill to make a new exit north. This was not adopted but instead the 1930s saw work begin on a new road north, crossing Mount Cargill on its inland shoulder. This was to be an exclusively motor vehicle thoroughfare, unimpeded by crossroads, with wider curves and steeper grades than a draught vehicle route. It was completed in 1957 with a flyover taking it from the Pine Hill Road to George Street, linking it to Kettle's Plan and affording spectacular views of the city on its

southern descent. The first motorway in New Zealand, it soon came to seem quaint with its provision of only two lanes.

Meanwhile, in 1949, a new throughway, the Stuart Street extension, became the new route west. It crossed the inland ridge at Highgate under a bridge at Roslyn and was later developed westward with road widening down to Kaikorai Valley and up the Taieri Road. Eastward its four lane ramp descended steeply through the Town Belt joining the inner grid at Stuart Street. It too provided dramatic views of the harbour city.

In 1963 a new southern motorway was projected, broadly following the route of the old Main South Road, but carried beside and above it on embankments and flyovers, skirting the Oval to join the inner grid at the southern end of Cumberland Street. By 2009 this has been mostly completed but with only two lanes bypassing Caversham and lacking projected twin tunnels under Lookout Point.

In 1964 a new road from Ravensbourne to Port Chalmers was opened, now State Highway 88, broader and less serpentine, on new causeways and cuttings along the bays.

The 1960s also saw the broadening of the Kaikorai Valley Road from two lanes to four, from Burnside north to the Taieri Road. This was the development of a new route taking some traffic part of the way past the old city inland, utilising the next westward practicable route. It was anticipated that this might be developed to the north, crossing the Taieri Road, the Balmacewen golf links and then Leith Valley on a viaduct to join the north motorway. This would enable north/south traffic to entirely bypass Kettle's city. It represented the first complete north/south road to be officially adopted for Dunedin, which had not been projected by him. The route was designated in the 1960s but in the 1990s the designation was removed. (Entwisle, Peter (2005), *Saving the Romantic City.*)

4.2 TRAMWAYS

Horse and Steam trams: The Dunedin City Corporation Public Works Committee first called for horse and steam tram tenders in December 1875 (Fig 38). The tender was awarded to David Proudfoot with the first full tram service, between Castle and Dundas Streets, began in 1879. The steam trams proved unpopular with horse drawn cab proprietors and the vehicles were both noisy and polluting. The Dunedin engine

Figure 38: Looking up High St from the Princes Street intersection,Dunedin. *circa* **1890**

was nicknamed *Howling Gordon* and the service was soon replaced by horses, which were both reliable and profitable. The system was expanded during the 1880s and Dunedin could claim to have more tramlines per head of population than any city in the world. The City Corporation Tramsheds stand near the Market Reserve as a reminder of the extensive system that once operated in Dunedin.

Cable cars: In 1879 Reid and Duncan built a tramway to the hill suburb of Roslyn, an attractive area of the city but a steep climb for the pedestrian. The promoters were 'undecided' about the method of traction, which could have been Centre Rail (Fell system), Compressed Air, or Endless Wire-rope. The development of cable traction technologies in San Francisco was quickly adapted for the similarly hilly

Dunedin and is an example of the rapid spread of technology and engineering from North America to the Pacific. Dunedin engineer, George Duncan, adapted and improved the Dunedin system from its American model, designing a pull curve to negotiate street corners. The first use of this system was on the Dunedin & Roslyn Tramway Company's Rattray Street line as it passed St Joseph's Cathedral [**B504**]. The first Dunedin cable tramway opened in 1881 and Duncan's

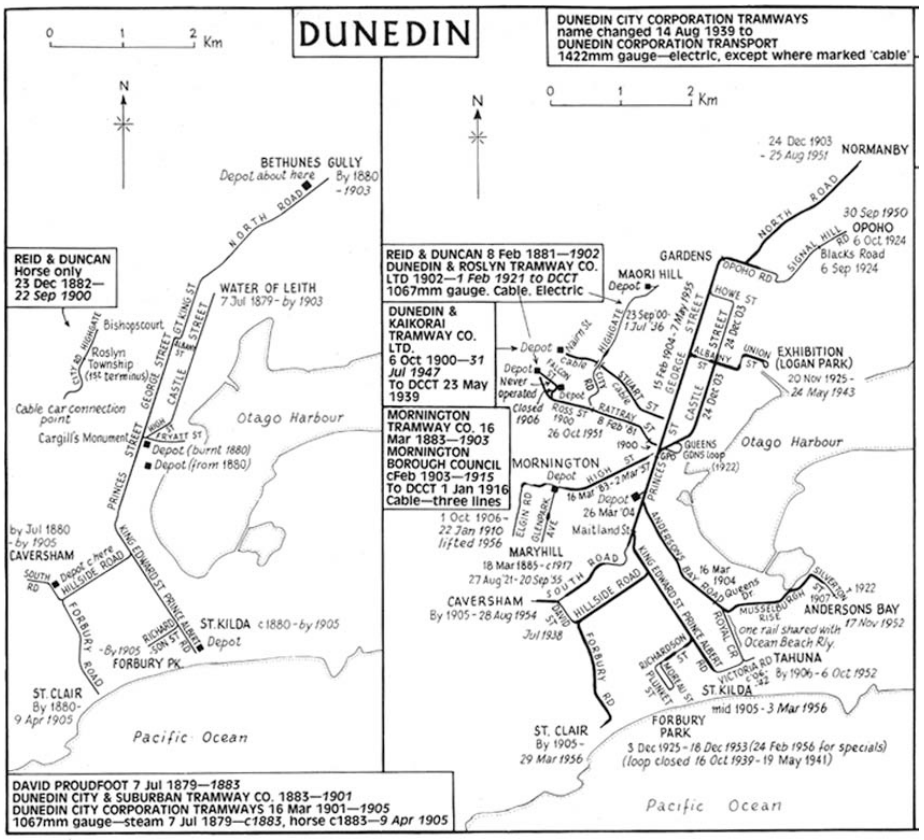

Figure 39. Map of Dunedin's cable car and tram routes.

system was later widely used in North America. The Mornington Tramway Company's line to Mornington along High Street opened in 1883, the Maryhill Extension in 1885, Stuart Street in 1900 and the Elgin Road extension in 1906, although this was closed after only four years. Buses replaced the remaining cable car routes in the post-war period, with Mornington being the last to close in 1957. The Mornington cable car engine house remains standing in Mailer Street and is in use as a plumber's workshop.

Electric trams: The first electric tramway in New Zealand was constructed along Highgate and served Maori Hill and Roslyn (Fig. 40), linking with the existing cable car routes. The line opened in 1900 using American J. G. Brill and Company cars built in Philadelphia, replacing horse drawn trams. The privately operated Roslyn Maori Hill trams predated the Dunedin City Corporation's electric system by three years. The lines followed the route of the earlier horse tramway from Scarba Street and City Road and along Highgate to a terminus at Drivers Road. Sheds were located in Spylaw Street. The line closed in 1936 and was

Figure 40: The first electric tram service in New Zealand on the Roslyn to Maori Hill line, Dunedin. *circa* **1900**

replaced with diesel buses. A Maori Hill tram belonging to the Otago Settlers Museum is in the process of restoration at Ferrymead Historic Park in Christchurch.

The Dunedin City Council system opened in 1903 and, in combination with the cable car services, was extended to cover much of the city reaching Nomanby, Opoho, Andersons Bay, Tahuna, St Clair, Caversham and Kaikorai Valley. The system was replaced in stages by electric trolley buses and diesel buses, beginning with the Opoho service in 1950.

4.3 RAILWAYS

Dunedin-Port Chalmers Railway: The Dunedin Port Chalmers Railway was another ambitious project stimulated by the Vogel scheme (Fig. 41). Commissioned by the Otago Provincial Council and developed by a private company, the Dunedin and Port Chalmers Railway Company Ltd, the line was constructed on the newly adopted 3 foot 6 inch gauge and opened on 1 January 1873. A sterling silver cup made by Dunedin silversmith, George Young, was presented to Sir George Bowen who opened the line as the Queen's representative. This important object is now in the collection of the Otago Settlers Museum. The first locomotive to use the line was the E class *Josephine*, a double Fairlie steam locomotive which is also on display at the Otago Settlers Museum. *Josephine*'s companion engine, *Rose*, was scrapped.

Figure 41: [Burkes] **Dunedin, showing the Dunedin to Port Chalmers railway.** *circa* **1880**

Hurunui to Bluff railway line: The South Island Line from Christchurch to Dunedin was completed as far as Waitati by December 1877 (Fig. 42) with the line parting at Sawyers Bay for the long climb over the coastal hills north of Dunedin. The construction of this section is a major engineering feat and large sections of retaining wall are visible from many parts of the coast, particularly from Doctors Point. The line was transferred to the New Zealand Railways Department in 1880 and the

private company was wound up. The first locomotive built in New Zealand, constructed by James Davidson and Company, Dunedin, was for use on the Hurunui-Bluff Line.

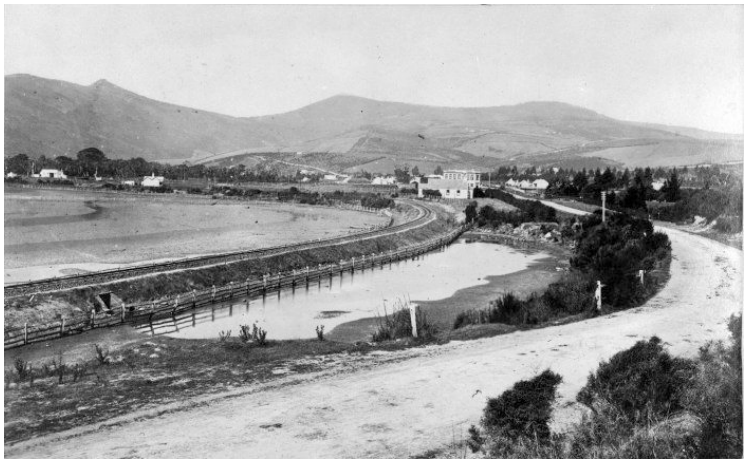

Figure 42: Waitati showing the Hurunui to Bluff railway line on its embankment before starting the climb around the coast towards Dunedin. *circa* **1880**

Figure 43: Train crossing the Wingatui Viaduct on the Otago Central Railway Line *circa* **1890**

Central Otago Railway: A rail route to Central Otago was proposed in 1877 in order to open up the vast extent of crown land in the region (Fig. 43). Economic development of the hinterlands was necessary following the collapse of gold revenues. Agricultural and pastoral development was seen as having stronger long-term prospects for the region. Communication by road along wagon tracks was dangerous and newspaper accounts regularly reported loss of life in the harsh winter conditions. Construction commenced in 1879 but was slowed by the long economic depression of the 1880s. Middlemarch was linked to Dunedin in 1891, Ranfurly in 1898, Omakau in 1904, Alexandra in 1906

Clyde in 1907 and, finally, Cromwell in 1921. Here the line stopped still some distance short of the Wakatipu Basin.

Road taxes protected New Zealand railways from competition by road users. Removal of these barriers in the economic reforms of the 1980s made the line unprofitable and it was closed in sections until 1990. The fortunes of the line were reversed by the Otago Excursion Train Trust, which began passenger trips from Dunedin in 1979. In 1987, the Trust's Taieri Gorge Limited entered service as part of a tourist train operation. Parts of the line form the Central Otago Rail Trail, a highly successful enterprise that is to be emulated elsewhere.

Railway stations and structures: Station buildings and structures exist throughout the city from the George Troup-designed Dunedin Railway Station [**B005**] of 1907 (Fig. 44) to wooden shelters along the Central Otago line. Many early stations were removed or demolished during the 1960s and 1970s including the stone station building at Port Chalmers,

Figure 44: Dunedin Railway Station. *circa* **1910**

Figure 45: Burkes railway station on the Dunedin to Port Chalmers line. 1926

which had preceded the construction of a permanent station in Dunedin city itself. Prominent structures also include the pedestrian footbridges in the city and at Ravensbourne. The railway workshops at Hillside in South Dunedin are also a major part of the nation's industrial heritage.

4.4 AIR TRANSPORT

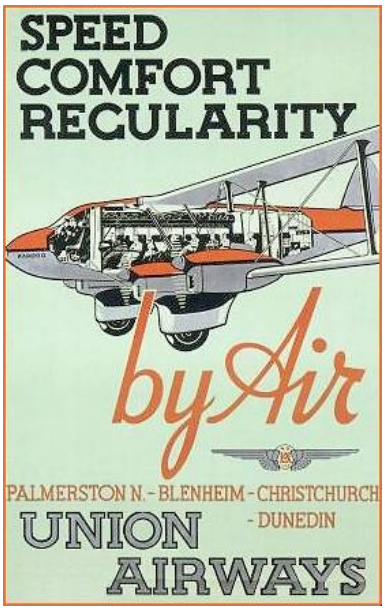

Figure 46: Union Airways poster advertising flights to Dunedin.

Air services: In contrast to Dunedin's advanced role in other forms of transport, commercial aviation had a slow start in the city. A service between Christchurch and Dunedin was started by F. Maurice Clarke, who approached the still massive Union Steam Ship Company of New Zealand for financial backing in 1934. The new company was to become National Airways and open up regular air travel between the North and South islands. Quickly renamed Union Airways, the company obtained licences to fly between Palmerston North and Dunedin, stopping at Blenheim and Christchurch. A rival company, Great Pacific Airways, also flew into Dunedin.

Union Airways: The Union Steam Ship Company also invested in Cook Strait Airways, Air Travel (NZ) Ltd and East Coast Airways, taking a controlling interest in the burgeoning New Zealand aviation industry (Fig. 46). The Taieri Aerodrome was established in the plains east of

Mosgiel in the late 1920s. It was superseded, but not replaced, by the new airport at Momona in 1962. Originally designed for short haul aircraft, the airport was upgraded in the 1990s and was serving a peak of 520,000 passengers annually, rising to 708,506 in 2006. The Airport underwent further redesign and expansion in 2005 and now operates as Dunedin International Airport. It is managed by a holding company and is an asset of the Dunedin City Corporation.

4.5 MAIL

Figure 47: Dunedin Chief Post Office, 1936.

Organised mail services were difficult to establish and administer in early Otago. Delivery outside the settlement was dependent on shipping and it could take weeks or months for letters to arrive at their destination within New Zealand, much less the 1,200 miles to Australia or 12,000 to Britain. The position of Postmaster was created for New Zealand by William Hobson in 1840, but overall control remained with the British Postmaster-General. The establishment of the southern colonies of Canterbury and Otago exacerbated existing difficulties and New Zealand's challenging topography and treacherous coastal waters made postal communication very hard. Post offices were established at both Port Chalmers and Dunedin in 1848 with the arrival of the Otago settlers and in the same year control of the New Zealand postal service was passed to the Legislative Council. The settlement could only muster

around 25 post offices by 1854 and regular overseas mail services did not begin until the 1860s. The *Local Posts Act* (1856) allowed the Otago Provincial Council to establish new post offices and mail services in conjunction with the central Government in Wellington. Annual letter circulation in the early 1850s was around 2,000 letters for the entire colony. This had grown to 53,168,336 letters, 2,546,713 postcards, 13,582,985 books and 19,271,590 newspapers by 1894. Amalgamation with the Electric Telegraph Department in 1881 brought together the country's two main methods of communication.

The central Government's influence in Otago was announced with great fanfare with the commissioning of a new Dunedin Post Office in 1867, a function which the building never fulfilled. After many transformations and eventual demolition, the building's replacement, John Wickliffe House, also housed government offices. The Provincial Buildings succumbed to progress earlier, being demolished in the mid-1920s. Long delays in the construction of the new Chief Post Office [**B482**] (Fig. 47) during the depression saw the deep excavation fill with water and there was considerable critical comment in the press about Dunedin's low priority with the Government. In 1937 the Chief Post Office, designed by the Government Architects Office under John T. Mair, finally opened.

Post office buildings of an earlier era are represented at Port Chalmers and North Dunedin, both elegant Victorian bluestone buildings constructed shortly after the disestablishment of the Provincial Council System but before the role of design was taken on by the Government. Many Dunedin post office buildings survive from the later period under the Government Architect, including excellent examples at Mornington, Roslyn, Ravensbourne [**B609**] and North East Valley.

4.6 TELECOMMUNICATIONS

A telegraph line linking New Zealand with Australia was proposed as early as 1859. It was to run from Sydney to Cape Farewell, join Wellington to Nelson across Cook Strait and then extend to Dunedin. The cost was estimated at £60,000. [TELEGRAPH FOR NEW ZEALAND:

Otago Witness, Issue 404, 27 August 1859, Page 6]. Battery-powered telegraph systems using Morse code were introduced to New Zealand in 1862 with lines connecting Christchurch to Lyttleton and Dunedin with Port Chalmers. Funded by the Otago Provincial Council and constructed by Victorian contractor, Richard Woolley, the line was constructed across difficult terrain and wooden insulators for the system were manufactured locally due to the poor quality of imported items.

Figure 48: High St with the Dunedin Telegraph Office to the left.
Wires dominated Dunedin inner city until the 1980s, when services were placed underground.

The Electric Telegraph Department was formed in 1863 and merged with the Post Office in 1881. Its Dunedin operations were centred on the Dunedin Telegraph Office (Fig. 48) which stood at the junction of High and Rattray Streets, opposite Cargill's Monument [**B499**]. This impressive two-storey porticoed building was completed in 1876, and later housed the telephone exchange. Telegraph lines were extended throughout the Otago region and by 1891 connected most small rural towns.

Telephone communication: Experimentation with telephone communication in New Zealand began with the East Otago runholder, Alfred Dillon Bell, who connected two farmhouses with the new technology. Telephone communication was also being pioneered in Dunedin with the first call being made, in 1871, between Mr Muir at the Dunedin Telegraph Office and his assistant, Mr Lubecki, at North

Dunedin. Successful links were soon made between Dunedin and Mosgiel. The handsets were made by Charles Henry, an electrician with workshops in Maclaggan Street. Examples of these are held in the Otago Settlers Museum collection. [THE TELEPHONE: *Otago Witness*, Issue 1368, 16 February 1878, Page 21]

Radio: Short wave radio signals carrying Morse signals had been transmitted wirelessly in New Zealand for some time prior to the experiments carried out by Robert Jack at Otago University, but there had been no transmissions of voice or music. Jack's research in the Physics Department made this possible and he acquired equipment from Britain in 1921. Assisted by Jack Sutherland, Jack's team constructed a transmitter at the University and transmitted New Zealand's first radio programme in the same year. The programme operated two nights a week and contained live and gramophone music with spoken announcements. Isabella Jack, matron of Knox College, often provided music for these broadcasts. Jack's station, 4XD, continues as Radio Dunedin and is one of the oldest stations in the world. During the same period, Alfred Bell's son, Frank, achieved New Zealand's first two-way radio contact with Australia. By 1924 he was sending and receiving signals to and from North America and then held the first two-way radio conversation from one side of the world to the other from London to New Zealand. This major achievement was noted by the world's press. Bell was elected to the five-member executive committee of the International Amateur Radio Union at its formation in Paris in 1925. Brenda Bell, Frank's sister, took over the radio project and became New Zealand's first female amateur radio operator.

Television: Dunedin received its local broadcasting facilities after Auckland, Wellington and Christchurch when DNTV2 was launched on July 31, 1962. The studio, based in Garrison Hall Dowling Street [**B058**], had previously been used by the radio stations 4YA and 4YO.

Outside broadcasts began in 1963 with the Dunedin Festival procession. DNTV2 also produced the *Old Time Music Hall* light entertainment television show and Alison Holst's cooking show, the first in New Zealand. *Town and Around*, a local news and current events

programme, began the following year. *Spot On* - a long running children's television programme followed.

Under the *Broadcasting Act* (1973), Television Service One (AANZ) was based in Wellington and Dunedin and commenced transmission on 1 April 1975.

Natural History New Zealand (NHNZ), which is one of the world's largest producers of natural history documentaries, began as part of DNTV2. It was purchased by Fox Television Studios and now produces over 60 hours of programming a year which is viewed in 200 countries.

Taylormade Media Ltd was formed in 1990 as a one-man operation making regional television commercials and corporate videos. Taylormade has established its current international reputation on 3D animations and web-delivered coverage of the America's Cup and other action sports.

4.7 COMPUTING

Dunedin's progressive business community saw the advantages in computing technology in the early 1950s. Dunedin accountant, James Burgess of the firm Barr, Burgess and Stewart, carried out a study trip to Britain and North America, returning to deliver lectures on the technology to the profession and the public. Early accounting systems installed in Dunedin were of British origin including punch card machines developed by Powers-Samas. This firm combined with the British Tabulating Machine Co. to form International Computers and Tabulators (ICT) (See Fig. 49). ICT was the maker of one of New Zealand's first main frame computers, an ICT 1300, which was installed in 1964 at the Dunedin office of Cadbury's. This is a model from the second year of production and is now the oldest intact computer system in New Zealand. It is part of the collection of the Otago Settlers Museum. A similar system was also installed by the Dunedin City Council.

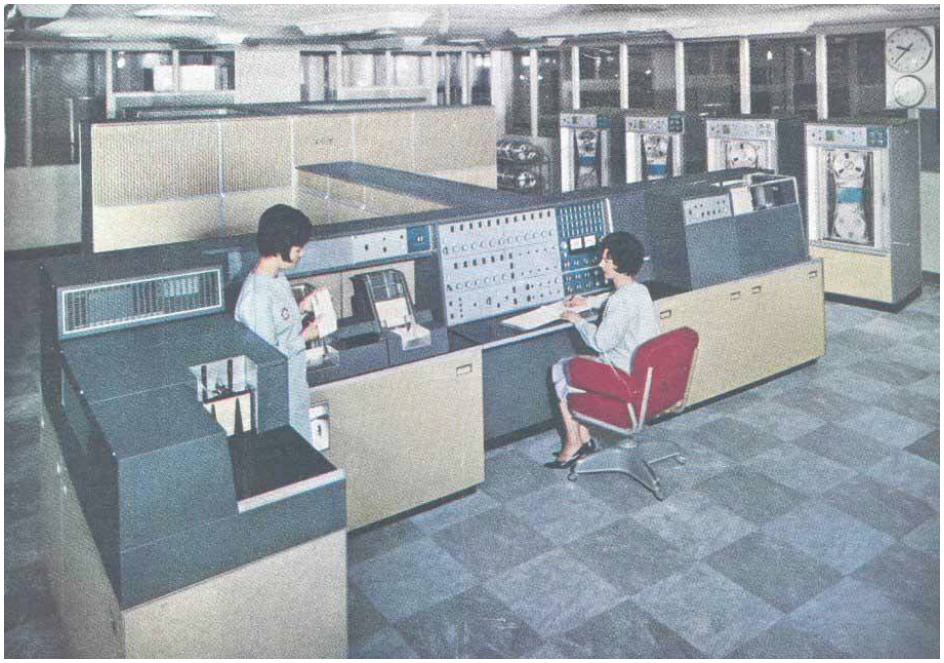

Figure 49: A publicity image of an ICT 1301 computer similar to the installation at Cadburys Dunedin branch in 1964.

Elsie (Electronic Selection Indicator Equipment) was a locally designed computer that drew the winners in the national bonus bonds investment scheme. It was designed by a Dunedin postal officer and was located in the Chief Post Office where the public could watch its operation from a theatrette.