

CHAPTER 6

FROM COO-EE TO COMMUNICATIONS SATELLITE

David Baker

"We have this day, within two years, completed a line of communications two thousand miles long through the very centre of Australia, until a few years ago a terra incognita believed to be desert."

—(Sir) Charles Todd.

(This was the first message sent over the Overland Telegraph Line, Adelaide-Darwin, 1872.)

INTRODUCTION

A history of the Australian Post Office is for the greater part a history of communications in Australia. It is, at the same time, an integral part of our national history. In the following chapter, an attempt has been made to cover the Post Office story in, of necessity, a limited way; a way which must eliminate much of the romantic and exciting details that could be written on the early pioneering days and the new exciting technological advances of the nuclear and space age.

Reference here is almost solely confined to Post Office historical development and achievements. Regretfully, space does not permit enlargement of, and tribute to, the associated achievements of, for example, railway departments, private companies, individuals who began the first telephone exchanges in some of the colonies, individual radio pioneers and companies (particularly the private operators of the first radio broadcast stations in Australia) and Amalgamated Wireless of Australasia Ltd., which played such a major role in this field. (They, A.W.A., operated Australia's first overseas telephone and telegraph services until after the Second World War, when this part of their operations was taken over by a Federal Government Commission—The Overseas Telecommunications Commission (Aust.) Ltd.)

Nevertheless, it is fair to say that, overall, the greater part of the developments and achievements in providing Australia's communications are those of the Post Office. This is no small task in a continent of nearly three million square miles and with, to-day, a population of only 12 million, dispersed irregularly in unique climes and terrains throughout it.

From the days of the first post office in Sydney, it took the unflagging efforts of many brave and imaginative men to install the

telegraph lines across the continent and deliver the mails in the 1800's. There were few bridges or even roads and, in some instances, there was the active menace of hostile aborigines. But it was the communication links that those intrepid pioneers established that enabled Australia to be opened up and developed and to lay the ground roots for the Post Office communications services Australia enjoys to-day, with a standard and range matching the best in other advanced nations of the world.

To-day, the Australian Post Office, which is the Commonwealth Government Postmaster-General's Department, is responsible for the provision of the nation's postal and telecommunications services and for the supply and maintenance of the transmitter and programme relay facilities required for the National Broadcasting Service. Additionally, it performs a vast range of services for the Commonwealth Savings Bank and many other Commonwealth Departments, paying pensions and the like.

From a "one man" business in Sydney in 1809, the Post Office has become the nation's biggest business by any measure, playing a vital role in the every-day needs of every member of the community. It has fixed assets of nearly \$2,000 million and annual earnings of more than \$400 million. It employs a staff of 100,000 in the widest imaginable variety of occupations (cooks, technicians, bull-dozer operators, postmen, telegraphists, telephonists and dozens of others), operates the largest motor transport fleet in Australia (of 11,000 vehicles of every kind), and also distributes over 4,000 letters and switches 4,500 telephone calls every single minute of every day.

PART I: THE BIRTH OF THE POST OFFICE

A history of the Australian Post Office can best be told in two main parts. The first part is the birth and subsequent growth in the States (or colonies as they were then called) up till Federation. The second part is the development following establishment of the Commonwealth of Australia with its six States.

The nation-wide Post Office organization of to-day had its recognized birth on April 25, 1809, in Sydney. On that date, Isaac Nichols, who was Assistant to the Naval Officer, Sydney, was appointed as Australia's first official postmaster. Sydney was then, of course, a mere settlement in the then infant colony of New South Wales.

History does not record clearly the means of handling the occasional mails in the preceding 21 years since Captain Arthur Phillip had arrived at Sydney Cove with the First Fleet. The first official record relating to mail matter is a notice published in the Sydney "Gazette" of July 10, 1803, authorizing boatmen plying between Sydney

and Parramatta to make certain charges for mail, excluding Government mail, which they ordinarily carried. These regulations included a charge of twopence for each letter carried.

There do not appear to have been any further mail regulations until 1809 when, on April 25, the following notice appeared in the "Gazette":

"Complaints have been made to the Lieutenant-Governor that numerous frauds have been committed by individuals repairing on board ships on their arrival at this port and personating others, by which they have obtained possession of letters and parcels to the great injury of those for whom they were intended.

"The Lieutenant-Governor, in order to prevent the practice of such frauds in future, has been pleased to establish an office at which all parcels and letters addressed to the inhabitants of this Colony are to be deposited previous to their distribution, which office shall be under the direction of Mr. Isaac Nichols, Assistant to the Naval Officer, who has entered into security for the faithful discharge of the trust reposed in him."

This order went on to outline the method of handling the mail by Nichols and indicated the charges he could make for his services. Its effect was to establish the postal service in the colony of New South Wales, the first colony in this country.

Isaac Nichols' home, situated alongside the spot where, until a few years ago, George Street North turned into Barton Street at Circular Quay, became Australia's first post office.

Nichols died in 1819, aged 49, leaving a widow and three sons, and having become a very prominent citizen of Sydney. He was succeeded as Postmaster by Mr. George Panton.

Expansion of the Postal Service in New South Wales

Although the population of the colony passed the 30,000 mark in 1821, arrangement for the postal service does not appear to have altered until 1825, when "An Act to Regulate the Postage of Letters in New South Wales" was passed. Its purpose was to give the Governor power to establish further post offices in Sydney and other parts of the New South Wales colony.

Postmasters were appointed, mail routes established, postage rates fixed in detail for both internal and overseas mail in various categories. The first Postmasters outside Sydney were appointed at Bathurst, Campbelltown, Parramatta, Liverpool, Newcastle, Penrith and Windsor in March, 1828. Mr. Panton became known as Postmaster-General.

Tasmania

The first Postmaster in Tasmania (then titled Van Diemen's Land) was Mr. John Beamont, who was appointed by Governor Macquarie in 1812 to take charge of the Hobart Town post office. He was succeeded by Mr. James Mitchell in 1814 and Mr. John Thomas Collicott in 1822.

In that period, the postal service of this colony was quite primitive; the only organized mail route was a once weekly passage between Hobart Town, Coal River and Pittwater.

By 1824, post offices had been established in Launceston, Georgetown, Sorell, New Norfolk, Macquarie Plains, Hamilton, Bothwell and Green Ponds. Mails were carried on foot by convicts.

Post offices were run as cash business by each of the Postmasters in those days, but in 1833 they became salaried officers. In 1834, Mr. Collicott was appointed Postmaster-General for Van Diemen's Land.

Western Australia

Postal services began in Western Australia on December 4, 1829, with the appointment of a Postmaster at Fremantle. This was Commander M. J. Currie, R.N., who was Harbourmaster in that settlement. The sole postal facility at Perth was a box at the storehouse—"for the reception of letters for Fremantle or elsewhere".

In May, 1830, Mr. James Purkis was appointed Postmaster at Perth, and Mr. Lionel Samson at Fremantle. Both acted in an honorary capacity, but were able to reimburse themselves for expenses from postage levied. The expenses were an equal share of the sum of one guinea weekly which was paid to the Perth-Fremantle letter carrier who travelled the route three times weekly.

In 1835, by proclamation, a post office at Perth was made the G.P.O. for the colony, and with the post offices at Fremantle and Albany, the postal service in that State took formal shape. Captain E. Pickering was appointed Postmaster-General of the colony in 1841.

South Australia

Four months after the establishment of the colony of South Australia in 1837, Mr. Thomas Gilbert, the general storekeeper, was appointed its first Postmaster. He carried on business in a hut in parkland near the Torrens River in the Adelaide area.

In 1838, Mr. Henry Watts was appointed Postmaster-General. The first local Post Office Act was passed in 1839 when offices were opened at Port Adelaide, Port Lincoln, Willunga and Encounter Bay. The Act also fixed the rate of inland postage at threepence per letter or packet, but the charge on ship letters was only one penny.

Victoria

The first Postmaster in Victoria, Mr. E. J. Foster, was appointed in 1837. For a year prior to that, John Batman, generally recognized as the founder of Melbourne, had looked after the mails of the early settlers, at their request.

An overland mail service between Melbourne and Sydney was established in 1838. In 1840, the first post office outside Melbourne was established at Portland, with Mr. George Crouch as Postmaster. Geelong followed, and by 1849 there were 36 post offices in Victoria.

Queensland

Queensland was not proclaimed a separate colony until December, 1859, and its early postal history is part of that of New South Wales.

The first settlement being a penal establishment at Moreton Bay in 1824, the postal arrangements, such as they were, were handled by the military authorities for many years. However, in 1833, a Mr. Allman was appointed as Deputy Postmaster at Moreton Bay. In 1842, with the disbandment of the penal settlement, the first non-military Postmaster, Mr. William Whyte, was appointed.

At the time of separation, in 1859, there were 15 New South Wales post offices within the borders of the new colony, Queensland. They were taken over and became the nucleus of the postal department of Queensland.

Significant Postal Milestones in the 1800's

As early as 1849, uniform rates of postage were agreed upon by the colonies existing then, and these were established for Australia as a whole.

In 1852, compulsory prepayment of postage by adhesive stamps was introduced. Australia was among the earliest countries in the world to do so, following shortly after the first, Great Britain.

Mail between settlements in those formative years was generally carried by pack-horse, and the first postman was actually appointed in Sydney as early as 1828. He delivered and collected letters for posting while on his round.

The great gold discoveries boom which emerged in the middle of the 19th century in many parts of Australia brought the era of the famed Cobb and Co. coaches and, in 1862, these highly organized coaching services became the official carriers of the nation's mail. It is interesting to note that the last Cobb and Co. coaching service, in the Surat area in Queensland, did not finish until 1924.

A few years prior to the Cobb and Co. coaching era, however, a more significant form of mail transport had begun in a limited way.

This was the railway. Mails were first carried by rail in 1855, between Sydney and Parramatta. Gradually, as the railways systems were established more widely in New South Wales, and the other colonies, the mails were transported on them more and more, in addition to the other means.

In 1856, however, there had emerged another big advance in mail transportation. It was the establishment of a regular monthly steamship service to England. The importance of this service to the early settlers, who were mostly from that country or Scotland and Ireland, can be easily imagined. In those days, communication with "home", the United Kingdom, was also of supreme importance to the colonial governments.

Yet one more notable milestone in the history of our postal services in the 1800's was marked when, in 1891, the Australian colonies joined the Universal Postal Union. This admirable and far-sighted move in the infancy of the Union's establishment helped provide Australia with a very efficient service for the exchange of international mails.

Not only do the agreements of member countries of the Union ensure the smooth flow and delivery of mails at all times across international boundaries without tariffs added, but there is the further benefit that they exchange information with one another on new ideas and developments to improve services. For example, in 1966, a meeting of Universal Postal Union members originally scheduled to be held in Moscow was transferred to Sydney so that, as part of the proceedings, visiting delegates from overseas could study, at first hand, the giant new multi-million dollar Sydney Mail Exchange, which has the most advanced and extensive electronic mail processing equipment in the world.

The Telegraphs in the 1800's

Remarkably early in the development of the colonies and their limited postal services, another Post Office communication service emerged, greatly speeding the exchange of messages over the vast distances of the Australian continent. It was the telegraph system.

The first telegraph service in the Australian colonies was opened over a line between Melbourne and the associated port of Williamstown, several miles away around Port Phillip Bay in 1854. (Williamstown is now a suburb of Melbourne.) It followed only ten years after the installation of the first morse telegraph system in the world in the U.S.A. Morse code, named after its inventor, Samuel Morse, was used.

The telegraph service was a most dramatic addition to the postal communication services provided by the colonial Post Office administrations. It was to spread like wildfire. Poles with single iron wire lines strung between them were to stretch out quickly across the

continent. By 1858, Sydney, Melbourne and Adelaide were linked by the new-found telegraph service.

Only one year later, Tasmania was linked into this network by means of a submarine cable laid under Bass Strait from the Victorian coastline down to Launceston. For those days, it represented a tremendous achievement.

In 1861, the inter-capital network was extended north from Sydney to Brisbane. Crossing the continent from Adelaide to Perth took some more years. It was not until 1877 that a telegraph line was installed and opened between those two cities.

The arrival of the telegraph service gave a precious comfort to the pioneers. Mails between cities and towns frequently took days and even weeks to be exchanged, but, in a revolutionary manner, the telegraph could provide a means of exchanging messages between the far-flung cities and towns of Australia in a matter of minutes. Moreover, before Western Australia had been linked into the colonial network, an even more dramatic link had been established between the five colonies in the eastern half of Australia, and the United Kingdom and Europe.

This was achieved in 1872, with the completion and opening of the famed Overland Telegraph Line, from Adelaide north to Darwin. It linked with a submarine cable which had simultaneously been extended south from Java, now part of Indonesia. An England-Java cable system had been established some years earlier, and this gave a link with England which enabled messages to be exchanged within hours, as against the months it took for mails sent by ship.

Establishment of the Overland Telegraph Line is regarded by the Post Office to-day as probably the most remarkable and noteworthy achievement in the history of the development of communications in this country. It is also regarded as one of the most notable milestones in our national history.

Its concept in its time, only ten years after the intrepid explorer John Macdouall Stuart had blazed the route from south to north, was remarkable.

The Overland Telegraph Line is a monument to one of Australia's greatest men, Charles (later Sir Charles) Todd. As head of the postal and telegraph administration in South Australia, he conceived, planned and virtually built it himself. Todd personally went out and supervised the job.

The whole project was marked by an epic two years of privations, hardship and, at times, unkind misfortune. The loneliness, the harsh climatic conditions, the cruel terrain, together with the menace of

hostile natives in some parts, were overcome only by inspired leadership and the bravest and most determined men. Some lost their lives, others their health at least, and some gave up and deserted the project.

When the honour deservedly fell to Todd to send the first message over the 2,000-mile line, typically, he tapped out the words which began the chapter.

In the year in which the last inter-capital telegraph link, Perth-Adelaide, was established (1877) the South Australian administration joined the International Telegraph Union, the first Australian colony to do so.

The Telephone in the 1800's

Just one year after the final inter-capital telegraph link was established, another dramatic milestone was marked. The telephone arrived on the scene.

In 1878, only two years after Alexander Graham Bell first demonstrated the telephone he had invented in the U.S.A., the first trunk telephone calls had been demonstrated in Australia. The longest was over a distance of 240 miles between Semaphore and Port Augusta, in South Australia.

By 1880 the telephone had become an operative service in Brisbane, Sydney and Melbourne. The exchanges were established as private businesses. In 1882, a Government-owned exchange was established in Sydney.

Exchanges were opened in Adelaide and Hobart in 1883, and in Perth in 1888.

Although some of them had started up as privately owned and operated business concerns, in each case they were shortly afterwards taken over by the colonial governments and operated under the control of their respective Posts and Telegraphs departments.

This, then, was the picture generally until the 20th century. Each colony had by that time developed quite sound postal and tele-communications services, with practical operating agreements and arrangements for the interchange of postal and telegraph traffic. The telephone service had not then reached the stage of inter-capital or inter-colony working.

PART II: PROGRESS SINCE FEDERATION

On March 1, 1901, the administration of all postal and tele-communication services passed to the Commonwealth Government of Australia. This move followed the Commonwealth of Australia Constitution Act of 1900, which gave power to the Commonwealth

Government to take over, control and administer the Posts and Telegraphs Department of each State of the new Commonwealth. (The States, of course, were formerly the six colonies.)

The move was not resisted. The need for a federal system of control, with uniform rates and regulations, was felt strongly by the heads of the colonial Posts and Telegraphs Departments and, as early as 1867, an inter-colonial postal conference was held in Melbourne to discuss problems connected with the overseas mails. Similar conferences were held at more or less regular intervals in the years preceding Federation, and attempts were made to ensure some degree of co-operation between the separate administrations.

The final inter-colonial postal conference was held in Melbourne in November and December, 1900. By that date, Federation of the Australian colonies as States was imminent, and it was apparent that the colonial administrations would be transferred to Federal control in 1901, before the framing of a uniform Postal Act and Regulations.

The conference discussed the future organization of the Department, postage and telegraph rates, postage stamps and the position of the Savings Bank under Federation. After discussion and considerable compromise, uniform recommendations were made, which were later embodied in the Post and Telegraph Act of 1901.

On February 9, 1901, the Prime Minister, Sir Edmund Barton, recommended to the Federal Executive Council that the Department of Posts, Telegraphs and Telephones in each State be transferred to the Commonwealth of Australia on March 1, 1901. On that date, the Commonwealth Postmaster-General's Department came into being.

Sir John Forrest was appointed the first Postmaster-General, or Ministerial Head. He held office only from January 1, 1901, to January 17, that year. He was succeeded by the Hon. J. G. Drake.

On July 1, 1901, with the creation of a central office administration, Robert Townley Scott was appointed as the permanent head of the Postmaster-General's Department. He was formerly the head of the Post and Telegraph Department in Queensland. He was knighted in 1901 and retired in 1910.

When the Federal Department took over from the colonial administrations, the assets were valued at £6 million (\$12 million), and the total permanent staff was 10,000 officers.

Takeover from the States was not immediate in many ways. It was in principle, but the Act of 1901 kept in force State Regulations, "until revoked in whole or in part by the Governor-General", and State rates and charges remained.

The Post and Telegraph Rates Act of 1902 fixed uniform rates for telegrams and newspapers, but it was not until eight years later that the Postal Rates Act (1910) repealed all State rates and regulations which had hitherto been kept in force, and provided for uniform and reduced rates for letters, letter-cards, printed papers, books and magazines. The letter rate was fixed at 1d. per half ounce throughout the Commonwealth.

The Wireless Telegraphy Act of 1905 gave the Postmaster-General the exclusive privilege of establishing, erecting, maintaining and using stations and appliances for the purpose of transmitting and receiving messages by wireless telegraphy. The Act also empowered him to issue licences, inflict penalties, confiscate appliances unlawfully used, and take proceedings in courts of summary jurisdiction for offences under the Act.

By the end of 1910, when Sir Robert Scott retired as permanent head of the Department, it was employing 13,223 permanent officers and its annual expenditure on salaries had reached £1,707,333 (\$3,414,666).

Sir Robert was followed in this position by Mr. J. (Justinian) Oxenham, who held the office until 1923.

In this period came the First World War, and the Department's development in these years was seriously hampered by staff shortages, restriction of funds and the difficulty of obtaining materials from overseas sources. It must be remembered that there was little local industry at that time.

Some idea of the hampering effect can be gauged from the fact that Post Office annual expenditure on new telephone and telegraph works between the financial years 1912-1913 and 1918-1919 fell from £1,193,025 (\$2,386,050) to £312,000 (\$624,000).

By 1919, the Department was unable to meet all the demands of potential subscribers for telephone service. Over 4,000 applicants were waiting. This number had grown to 11,000 by 1920, despite a record net growth, for those days, of 19,000 in 1919-1920.

By 1923, the position had become acute, and the Government acquired the services of Mr. H. P. Brown, an engineer in the British Post Office, to assist in formulating a new development programme to help overcome the arrears caused by a world-wide shortage of equipment and lack of funds. Mr. Brown had been an officer of the British Post Office for 25 years and was responsible during the First World War for the telephone plant and emergency defence communications for the United Kingdom.

Mr. Brown's period as head of the Post Office in Australia was extraordinary, with exceptional development achieved. He held the position as permanent head of the Australian Post Office until his retirement on December 31, 1939. He was awarded the C.M.G. in 1934 and was knighted in 1938. During that term, his original title of Secretary was changed to that of Director-General, as the position is titled to-day.

Telecommunications Development 1901-1939

A brief record of the administrative development of the Post Office has been made in preceding pages, from the time of the Commonwealth take-over in 1901 up till 1939. Reference has also been made to the exceptional difficulties arising from the 1914-1918 World War I period and immediate post-war years. Within that span, from 1901 to the start of the Second World War, dramatic new developments had taken place in Post Office responsibilities, new horizons had emerged and unforeseen needs had become demands. The Australian Post Office was well to the forefront in meeting them.

On the telecommunications side there was a chain of significant development highlights.

In 1902, a submarine cable providing telegraph services across the Pacific Ocean was brought into service. In the same year, the first interstate telephone trunk line service was opened between Mt. Gambier, in South Australia, and Nelson, Victoria. In 1907, the Sydney-Melbourne telephone trunk line service was completed and brought into operation between our two biggest cities.

In 1912, Sydney Radio, the first coastal radio station, commenced operation. In the same year radio telegraph services were started and the first automatic telephone exchange in Australia (second only in the British Empire) was opened at Geelong, Victoria.

The year 1923 saw the beginning of conversion of morse to machine operation on main telegraph routes and the first radio broadcasting stations in Australia, 2FC and 2BL, commenced operation. In the same year the Post Office's research laboratories, with a staff of one, was established. To-day the laboratories have a staff of more than 300, including 100 professionally qualified engineers and scientists, who handle many phases of telecommunications development.

The following year, Post Office trunk-telephone operators in Victoria were able, for the first time, to dial some other distant exchanges directly, the prelude to the direct trunk calling by subscribers to-day.

In 1925, the Inland Wireless System was born, leading to the establishment of the now world-renowned Royal Flying Doctor Service.

In 1926, two-way mobile radio telephone services were introduced.

In 1929, the first picturegram service was introduced, between Sydney and Melbourne, and that year the National Broadcasting Service was established. The Post Office was given responsibility for buildings, transmitter equipment and provision of programme relay lines for its emerging radio network. This arrangement continued until 1932, with the Australian Broadcasting Company, under contract to the Government, supplying the programmes. Then, in 1932, the Australian Broadcasting Commission was constituted to control the programmes of the National Service.

In the interim, in 1930, the overseas radio-telephone service was commenced.

Although late in the twenties the world-wide economic depression of the 1930's had begun to rear its head, the Post Office was continuing to make significant progress. During April, 1929, the number of telephones connected reached the half million mark. By that year, too, Australia, with an average of 7.93 telephones per 100 population, had the sixth highest telephone density. It has remained generally in that position since. In the eight years from 1921 to 1929, the number of telephones doubled.

But the great economic depression of the 1930's brought about a striking effect on demand for communications within almost a year.

In 1930-1931, for the first time on record, cancellations of telephone services exceeded new connections and the number of instruments in service fell by 22,000. The volume of calls fell dramatically at the same time. Local calls fell by nearly 23 million from the preceding 1930-1931 turnover and trunk line calls by over 5 million.

Nevertheless, the 1930's saw many significant developments in Post Office telecommunications services. In 1933, the handset telephone and the private wire teleprinter services were introduced, and in 1936 the Tasmania-Mainland telephone service was opened through a submarine cable under Bass Strait. At the time, it was the longest submarine telephone communications cable in the world.

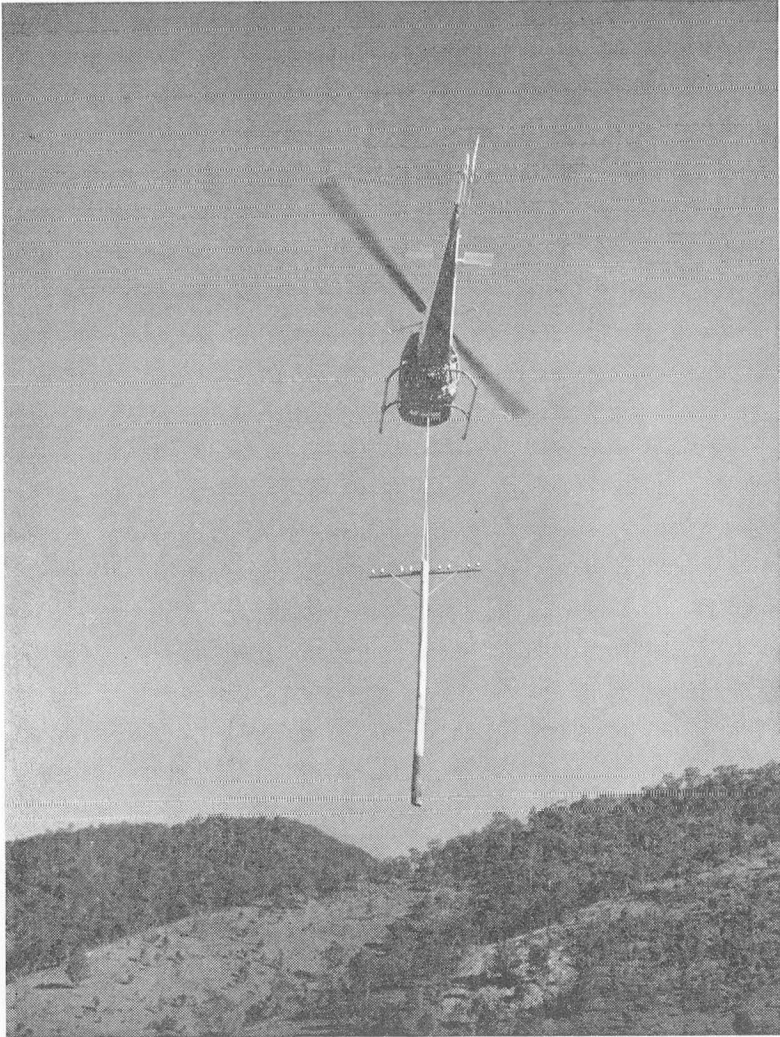
Just prior to the outbreak of the Second World War, in the year ended June 30, 1939, Post Office business was again buoyant. There were nearly 500,000 telephone subscribers services.

Postal Development, 1901-1939

While the telecommunications side of the Post Office operations had developed significantly in those first 39 years of Commonwealth organization, the Department's postal services had likewise been improved, and spread extensively.

Most significant in the first twenty years was the arrival of the aeroplane.

Australia's first airmail was carried in 1914 between Melbourne and Sydney in a flight which set two other records—it was the first



Erection of telephone poles in rugged remote areas by the aid of helicopter.

Photograph: Postmaster-General's Department.

flight between the two cities and also the longest airmail flight in the world. The flight took Frenchman, Maurice Gillaux, two and a half days in his 660-lb. Bleriot monoplane. Actual flying time, though, was 9 hr. 15 min.

In 1919, the first overseas airmail was carried between England and Australia.

In 1922, the first regular airmail service was established in Australia between Geraldton, Carnarvon, Onslow, Roebourne, Port Hedland, Broome and Derby. The route distance was 1,160 miles. The first flight was marred by a crash in which the pilot of the plane was killed.

Later, in 1922, another similar service was set up between Charleville and Cloncurry. It was operated by Queensland and Northern Territory Aerial Services Ltd., now much better known as QANTAS, Australia's own international airline of world standing.

Over the years, the airmail service in Australia's more remote regions has become so comprehensive it has been the subject of special studies by many postal administrations overseas.

The first regular airmail service between Australia and London began in December, 1934. A direct link between New York and London was not established until 1939.

Experiments in improved mail processing were pushed along in the 1920's and 30's in Australia and in 1926, for the first time in the world, substantial mechanical mail handling equipment was introduced into the central mail exchange in Sydney.

By 1939, the mail turnover in all States had reached just over 1,000 million annually and post offices, official and non-official, and telephone exchanges, had reached into virtually every corner of the entire Commonwealth.

In that year, Sir Harry Brown retired as Director-General, and was succeeded by Mr. D. McVey, later to become Sir Daniel, in 1954.

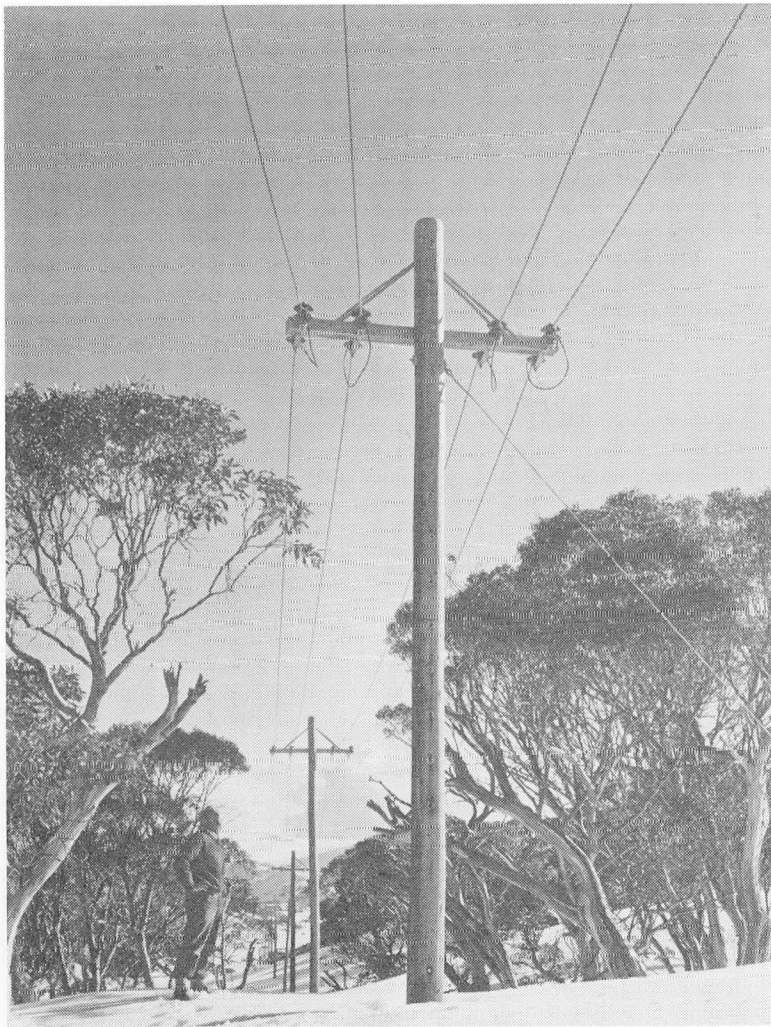
Second World War

In August, 1939, the Second World War had broken out and the Post Office accepted responsibility for a great deal of specialized work on behalf of the Defence Forces, involving the diversion of large numbers of highly skilled technicians and other officers from their normal duties.

This work was undertaken at a time when the normal activities of the Department were greater than ever. The establishment of large Defence Forces camps and training schools increased the demands on the Post Office resources and there was a heavy requirement for tele-communications equipment, which had to be met by drawing on reserves built up over previous years. In addition, large numbers of trained Post Office staff were released to join the Armed Services.

Post-Second World War

Post-war development for the Post Office has been one of continuing expansion, of dramatic increases in demand and supply and the availability of much more advanced equipment to provide the



Interesting snow country near Mt. Kosciusko along the "SHRIKE" route.

Photograph: Postmaster-General's Department.

most sophisticated services. Thus, at a time when population has grown and industrial activity increased on a scale never previously equalled in Australia, the Post Office has been called upon to more than match essential needs and growth generally.

In these years the Post Office has had to :

- endeavour to catch up on a serious back-log in its development due to extraordinary demands placed upon it in wartime; to
- endeavour to foster and support a "local" telecommunications industry to ensure, among other primary reasons, availability of ready supply in peace-time or war; to
- keep abreast of the extraordinary, rapidly growing demand from local industry and the population generally; to
- meet the accelerated demand from business and individuals generated by the greatest-ever national affluence (the telephone, for example, has moved from a "luxury for the few", into an accepted "must" for office and for every home) ; to
- endeavour to install the very latest and best equipment at a time when every few months, or at the most, years, technological development out-dates the previous best; to
- lay the foundations for the best possible postal and telecommunications services for tomorrow and even fifty years ahead in a huge continent in which climate variation, terrain, and population dispersal is unique in the world; and to
- cater for what is proving to be an insatiable demand for services and facilities in Australia—this being, at the same time, symptomatic of an almost unpredictable unsatisfiable demand in a world-wide communications explosion. Only the "biggest and best" is demanded.

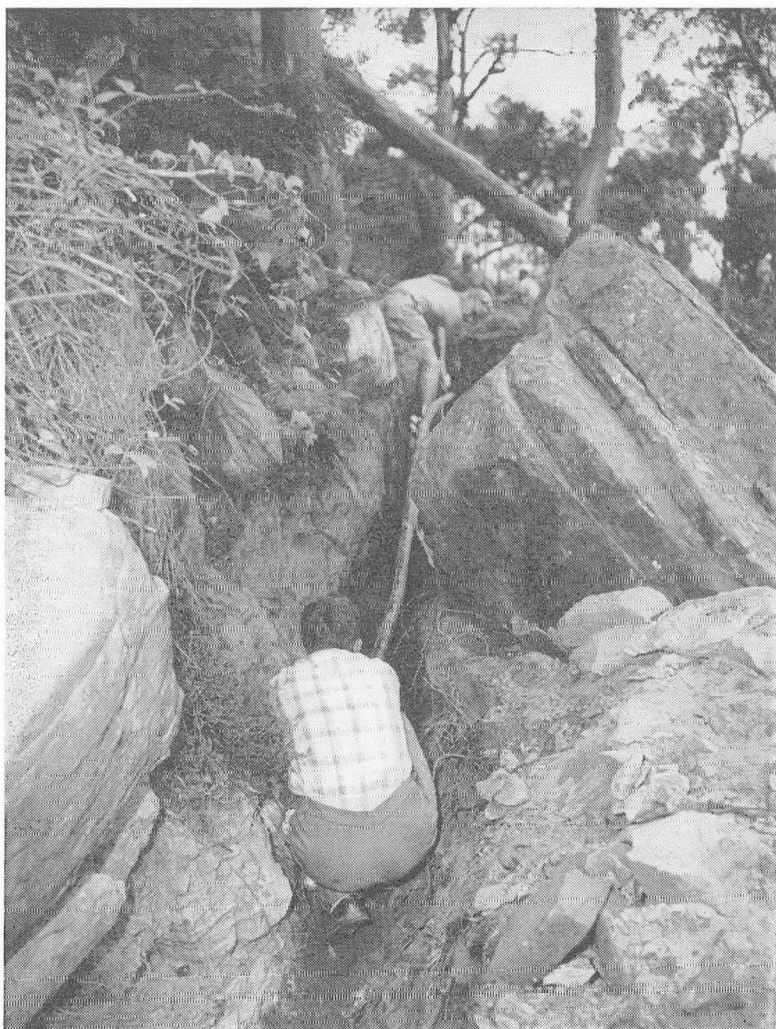
TELECOMMUNICATIONS, POST-SECOND WORLD WAR

The following statistics give some idea of demand and achievement in these 22 years. In 1945 there were 577,777 telephone subscribers services connected to the Post Office network throughout Australia. Within ten years the number had virtually doubled to reach 1,152,930. It nearly doubled itself again in the next ten years to June, 1965, when the total reached 2,010,124. While the highest annual rate of applications received for new services prior to the Second World War was in the vicinity of 62,000, this number had increased to nearly 148,000 by 1955-1956.

With this extraordinary demand came the problem of "deferred applications"—the installations that could not be made immediately. For some people it meant a wait of years.

Deferred applications reached a critical peak of 128,000 around 1950, but it had been reduced progressively to near the 10,000 mark by 1967. This is a far better situation than in most other countries.

Since 1945, the Post Office has made great strides, too, in lifting the percentage of telephone subscribers services to automatic operation. In 1945, just under 60 per cent of the approximately 580,000 services were connected to automatic exchanges. By 1967, the percentage was nearly 90 in a total of 2.3 million services.



Illustrating difficulties experienced in rugged country in the laying of modern co-axial cable.

Photograph: Postmaster-General's Department.

This automatization of the national telephone service gained impetus with the introduction of the Community Telephone Service Plan in May, 1960.

For a start, the areas for local call facilities were rearranged and extended, and the plan itself "springboarded" a concerted drive to make all telephone services in Australia automatic, with subscribers able to dial each other directly. At the same time, with the all-figure telephone numbering scheme, the plan caters for Australia's national telephone service to become an integrated part of a harmonious world telephone service, featuring direct subscriber dialling over international trunk links.

Prior to this, the Post Office had introduced direct trunk calling by subscribers in Australia—in 1956, between Dandenong and Melbourne and St. Mary's and Sydney. Known as S.T.D. (Subscriber Trunk Dialling), this was the prototype of much more to follow.

By 1967, nearly 50 per cent, or 1,000,000 of Australia's telephone subscribers had some measure of S.T.D. service. More than 20 per cent of all trunk calls were being made on that basis. The big advantage to the caller apart from speed and ease of operation is that these calls are only charged on a metered basis for the actual time of the call, as against the hitherto standard practice of calls being timed and charged on a basis of a minimum of three minutes.

Until 1967, S.T.D. development in Australia had been limited to point to point operation. For example, Melbourne to Sydney, Brisbane to Ipswich and so on. That year, however, the first automatic trunk switching centres were brought into operation in Sydney, Canberra, Newcastle, Geelong and Launceston. These enabled "through" S.T.D. calls; for example, a subscriber in Launceston is able to call a subscriber 1,200 miles away in Ipswich, the call being switched "through" without the need for a direct line.

Over the next ten years, 250 more of these advanced exchanges will be installed, which together with 120,000 trunk channels, will form a single automatic trunk network for the nation.

Development of telecommunications services and facilities was rapid from the early 1950's.

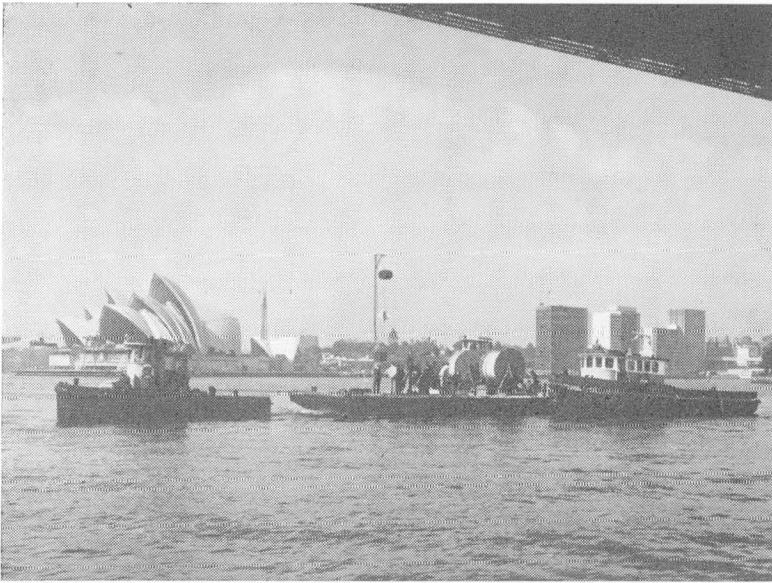
In 1950 the mobile radio-telephone service was first introduced by the Post Office in Australia. To-day, there are just over 60,000 mobile services authorized, covering taxi services, ambulances and many other organizations.

In 1953, the first 34-channel carrier system on trunk cable was introduced.

But it was in 1959 that the most significant advance was made in Australia in modern trunk line installations. That year, the first Post Office broadband trunk system was installed between Melbourne and Bendigo, in Victoria. It was a microwave radio system.

Broadband systems are either microwave radio or coaxial cable. They are operated on a broad band of radio frequencies and have revolutionized trunk line facilities here in Australia and overseas. They can provide thousands of trunk circuits for all manner of telecommunication transmissions, including, for the first time, TV programme relays.

In 1962, a coaxial cable system was brought into operation between Melbourne and Sydney. Since then, the broadband systems have been spread far and wide over Australia at a cost of over \$150 million.



Cable laying across Sydney Harbour from Millers Point to Neutral Bay.

Photograph: Postmaster-General's Department.

At the end of 1967, interlinked coaxial cable and microwave radio trunk systems had linked all capital cities (with the exception of Perth-Adelaide) and the more important provincial centres throughout Australia. Route distance of the systems had passed the 7,000-mile mark.

The Perth-Adelaide link was being built then and is scheduled for completion before the end of 1969. Virtually the whole of Australia will then be linked into the broadband trunk network.

This network is linked in turn into the Compac and the Seacom submarine cables which are the main trunk links for all Australia's overseas telecommunications traffic. In 1967, too, a microwave link was established from Sydney out to Moree (N.S.W.) to feed traffic through the Overseas Telecommunication Commission's earth station there, to

and from all corners of the world per medium of the Intelsat Satellite system. This system can carry TV programme relays in addition to all other normal telecommunication traffic. At this stage, the submarine cables cannot relay live TV programmes.

The Post Office's broadband systems have also done much to make the spread of S.T.D. possible. They have the necessary large circuit capacity to cope with its peak demands. With S.T.D. the traffic demand cannot be regulated as it can by manual operation, and the trunk system must be able to cater for, say, hundreds of subscribers in Sydney and Melbourne making calls in either direction virtually at the same instant.

The sixties have seen significant advances in telephone instruments and in 1965, the two millionth subscribers service was connected to the Post Office network.

One big advance came in 1962 when, for the first time, the Post Office was able to make available a new advanced telephone, in a range of five attractive colours in addition to the traditional black. This telephone, the Colorfone (Model 801) carried the design endorsement of the Industrial Design Council of Australia and, apart from that merit, featured many technological improvements.

Shortly afterwards, the slim upright styled Ericofon was introduced.

In the ensuing years to 1967, springing from the development of the now standard Colorfone, a superb range of sophisticated office telephones and switchboards for business operations has been developed and made available.

In the sixties, too, the Post Office has licensed a much wider range of approved telephone attachments, such as answering phones. They are developed and sold by a number of private companies.

Private companies at the same time have been licensed to install and operate, by financial agreement with the Post Office, sophisticated new public telephones in shops, banks and similar premises.

In this period, also, the Post Office developed a greatly improved street public telephone cabinet. The bodywork is largely of aluminium and the unit features many other improvements in regard to doors, ventilation, sanitation and so on. In 1967, a completely new, combined coin mechanism and telephone apparatus unit was introduced into the street public telephones.

Prior to the Second World War, Australians had become at one time the greatest users of the public telegraph system. That is, they averaged sending more telegrams per head of population than in any other country in the world. However, following the war, there was a

drop in usage, despite a big increase in population, and spectacular business and industrial development. From a peak of nearly 30 million telegrams annually during the war, the annual rate has fallen, and stayed around the 20 million mark. This trend, however, has been fairly common in all advanced countries during the past two decades. One reason is that the telephone has developed from a luxury commodity in peoples' eyes to an everyday necessity. Thus it is more greatly used at the expense, in some degree, of the public telegram system.

Another factor is that there has been a change in needs in telegraph transmission facilities. Many big users since 1950 have adopted the Private Wire service. Using their own teleprinters and operators, they hire direct lines on a "permanent" basis from the Post Office to send and receive a constant flow of telegraph messages. Newspaper publishers are typical users of the Private Wire service.

Many big users have adopted the TELEX (Teleprinter Exchange) service, introduced for the first time in Australia by the Post Office in 1954, with 80 subscribers in Sydney and Melbourne. Subscribers in all States followed, typically motel organizations, banks, manufacturing companies, hotels and so on. In 1967, there were more than 3,500 subscribers all over Australia. They exchange millions of calls and messages annually, mostly within Australia but many with subscribers overseas. In 1966, Australia's Telex service was converted to automatic operation. That is, subscribers could push-button code numbers and immediately exchange calls with all other subscribers in Australia. At the same time, this facility was extended to 20 of the 100 countries overseas with which the Telex service was linked.

The public telegraph system had undergone an historic change a few years earlier. In 1959, the Post Office introduced TRESS (Teleprinter Reperforator Switching System) and within the next three years it had taken over entirely from the time-honoured morse telegraph system.

Teleprinters had gradually, over decades, been taking over from morse key and sound equipment in the busier Post Office telegraph offices, but TRESS made possible the automatic transmission of telegrams through intermediate transit points, without manual handling. In many cases it cut the transmission time for telegrams by hundreds per cent.

In the past two decades also there has been a large growth in the demand for facsimile transmissions of photographic and other data. In 1966, this was broadened to the provision of facsimile newspaper printing transmission between Sydney, Canberra and Melbourne. Provision of trunk line facilities for transmission of data for computer operations has likewise arisen in recent years.

The Post Office is responsible for the general supervision of civil radio-communication stations, and for the collection of fees for licences for radio listeners and television viewers.

Apart from this, since the inception of the National Broadcasting Service in 1929, the Post Office has been responsible for the provision and maintenance of the programme relay and transmitter station facilities it has required. This has involved a major commitment.

Since 1929, nearly 200 N.B.S. and commercial medium-frequency and high-frequency radio stations have been established throughout Australia. The latest for the domestic service were several in the vicinity of the emerging mineral development areas of the north-west corner of Western Australia.

Among this group is the external, or international, short-wave service known as "Radio Australia". It is provided with nine transmitters situated in Victoria and sends programmes to most parts of the world every day. It was first created in 1940 and, in 1967, a new booster station for it situated near Darwin was nearly ready for operation. This station will enable much stronger transmission signals to be sent out overseas, particularly to the north.

In 1956, television began in Australia, and with it came exceptionally expanded responsibilities for the Post Office. A Federal Government plan laid down a progressive implementation of television services, both National Service and commercial, throughout Australia, over the next ten years.

Over four planned phases, it has meant the establishment of 39 National Service stations in capital cities and major provincial centres in all States, with a similar number of neighbouring commercial stations. To the end of 1967 there was also a complementary group of approximately 20 translator stations. About ten of these have been established for the National Service. Translator stations are set up to take programmes from the nearest master transmitter station and "repeat" or reflect them down into more geographically remote populated locations, for example, a town pocketed away in a valley sheltered by rather high mountains.

While on one hand the commercial services have been set up and operated on a "local" studio and transmission basis, the National Broadcasting Service has been established and operated on a centralized basis. That is to say, the National Television stations in the provincial areas have almost wholly been established as purely repeating transmitter stations which take their programmes on relay from the "parent" National Service Station in each of the respective State capitals.

Thus, apart from the establishment and operation of the National Service transmitter stations, the Post Office so far has specially built and maintained some 33 TV programme relay links to country transmitter stations. (The Post Office has also provided programme relay link facilities for commercial operators increasingly in recent years.)

These links, to carry a TV programme relay, have to provide a minimum transmission capacity equivalent to that required to provide 600 trunk telephone circuits. This, then, has involved the establishment of a vast network of broadband trunk systems reaching out into most major provincial centres in Australia. An advantage here is that



The huge complex of the Redfern Mail Exchange dominates the landscape. The most advanced electronic mail equipment in the world is used.

Photograph: Postmaster-General's Department.

while many of them have been installed primarily for National TV Service purposes they can, and frequently do, provide vast numbers of circuits for trunk telephone and other telecommunications purposes.

It is worth noting also that under agreed financial terms with the Post Office most of the commercial stations in provincial areas share a large part of the transmitter station equipment facilities required for the neighbouring National Service station. A similar situation has evolved with the more recently established translator stations. However, in some cases the National Service uses the equipment facilities of the neighbouring commercial operator.

By the end of 1967, National Service and commercial television stations in Australia were both providing programmes covering 90 per cent of the population. Only the most remote areas were not catered for but plans were firm to extend this to almost 100 per cent within the next few years, with stations planned for Darwin, Kalgoorlie and several other important regional centres in the more remote areas of Australia.

By 1967, the number of licences held by people having both radio and TV sets in their premises had reached two million; the number for radio sets only was 700,000, and TV only was 400,000.

While by comparison with telecommunications there had been little technological change in the postal services of the Post Office since World War II, demand and growth for them has accelerated rapidly in a similar way to telecommunications.

In 1945, the number of mail items handled (letters, packets, parcels and so on) was 1,155 million, and by 1967 this annual turnover had grown to about 2,600 million. Growth rate was then about 100 million annually.

In that period some existing special services were improved and some new ones had been introduced. Typical of new services were the Certified Mail Service, the discount services for some large posting categories, and the Special Mail inter-capital services.

One of the most courageous and outstanding developments with Australia's mail services generally was introduced in 1959—"Post Haste". This provided that all enveloped mail within standard-size envelope dimensions would be carried (without the airmail surcharge hitherto applying) by air throughout Australia and its Territories, where and whenever an air service was available, and its use would speed the delivery.

In 1950, when airmail surcharges were applicable, the total number of mail items carried by air on Australia's domestic airlines was 60 million annually. The number, in 1967, had risen to just over 400 million. It is true that some of this growth would have been part of the general growth in mail turnover, but the huge rise is largely due to the advent of "Post Haste".

The Post Office uses about 100 internal air services on domestic routes.

In 1945, the Post Office handled approximately 24 million airmail postal articles going to or received from overseas countries. In 1967 the annual total had reached the 160 million mark. Much of this growth has been due to the great influx of migrants to Australia and also the

accelerated growth of business and government communication needs with overseas.

In this 22-year period there has not been any great change in the operations of post offices themselves, although there has been a great growth in turnover and hundreds of new post offices have been built to replace the inadequate old ones or for newly developing areas. This trend has improved operating facilities for the post office staffs and the customers.



The Speaking Clock at the G.P.O., Sydney.

Photograph: Postmaster-General's Department.

There has also been an extension of coin-operated stamp vending equipment for convenience of the public. There are now 2,000 in use. In the five years to 1967 there had also been a significant development with the initial introduction of "automatic post offices", one or two having been installed in each of the capital cities by then.

These self-service installations comprise a bank of coin-operated vending units which can provide basic postage stamps and postal stationery needs on a 24-hours-a-day basis. More will probably be installed in cities as greater experience is gained with them and need arises. They also feature coin change units.

Until the early 1950's there were still some country and outback areas where mails to settlers and farms were delivered by contractors to the Post Office, using horses pulling buggies, or with the contractor riding one horse and packhorses carrying mail and provisions.

At that stage this form of mail transport passed over finally to motor vehicle transport. Thus to-day all mail transport is either by motor vehicle, rail, sea or air.

In the 1950's, too, the Post Office introduced a range of light vehicles, aimed at lightening the load of postmen in some areas and making for greater efficiency all round. They have been tried specifically in all cases to meet peculiar conditions of a number of postmen's delivery rounds. One of these which is now being used in hundreds of areas throughout Australia is the postman's buggy—a handpushed cart similar to a large golf buggy. Apart from this, in hundreds of



Electronic mail coding equipment, Redfern Mail Exchange.

Photograph: Postmaster-General's Department.

places now, in country centres and outer suburban areas, postmen are using motor scooters and light motor-bikes. Their use is expected to increase, in those locations which offer advantages for them.

In the past two decades, too, there has been a significant extension of mechanical and semi-automatic mail processing equipment in the large central mail distribution centres in the capital cities.

In the early 1950's an automatic parcels sorting machine was developed by Australian Post Office experts and units have subsequently been installed in the capital city mail exchange centres. This unit caused world interest and was copied in at least two advanced countries overseas.

By 1960, the problem of speedily distributing ever-growing volumes of mail each day was seriously confronted by the Australian Post Office. Thus, in 1967, a giant new \$6 million mail exchange building was opened in Sydney; and in it a huge complex of electronic letter processing equipment was brought into operation. The new exchange, with its electronic equipment, has created world interest. It was developed by the Australian Post Office, in conjunction with a local manufacturer, and is recognized as the most advanced operational equipment at that time installed and working in the world. It is already processing more than one million letters daily and will be able to cope with future growth for many years.

The equipment is designed for the code-sorting of letters and provides facilities whereby the operation of a keyboard by an operator causes code symbols to be impressed on letters which are then sorted electronically for despatch.

It is primarily for this equipment that the Postcode system was introduced to Australia in 1967. But because Postcode also offers advantages in manual sorting of mail—all categories—it was introduced nationally. Nevertheless, the electronic processing equipment gains greatest advantage from the use by senders of Postcodes on mail addresses and in the next few years this equipment will be introduced in other State capitals.

THE FUTURE

In both postal and telecommunications areas (including radio and TV), in this era of rapid space-age technological development, advances in the facilities and services provided by the Australian Post Office are certain to come even more quickly than even the spectacular advances of the past two decades.

The Post Office is therefore preparing with haste for its part in the world's communication explosion—an explosion which will, probably within 15 to 20 years, see more than half Australia's trunk lines transmitting computer data; will make direct subscriber dialling with overseas telephone subscribers commonplace; will see the regular transmission and reception of international telecasts and will bring the exchange of air mail with Britain to within 24 hours.