THE AUSTRALIAN POST OFFICE

Progress — Policy — Plans

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By Authority of the Postmaster-General
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THE AUSTRALIAN POST OFFICE

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THE AUSTRALIAN POST OFFICE

PROGRESS—POLICY—PLANS

PART I.—SOME PROBLEMS OF COMMUNICATION IN AUSTRALIA.

From earliest days Australia has presented a number of unique problems in communications. A land of contrasts—desert and forest, plains and mountains, snow, ice and tropical heat, floods and bush fires—it possesses climatic and physical features which make difficult the development of rapid and reliable means of communication.

Problems posed by nature have been aggravated by others created by man. With a total surface area of just under three million square miles, 54 per cent. of the population of ten millions live in the six capital cities, with 38 per cent. in and around the metropolitan areas of Sydney and Melbourne alone. The capital cities are separated by distances ranging from 400 miles to almost 3,000 miles. The area to be served by communications is vast, the population sparse and widely scattered.

The Australian communication need is therefore completely different from that of countries of the old world such as the United Kingdom, where a population of 51 millions is dispersed reasonably evenly through an area of 93,000 square miles, located substantially in a temperate zone.

Australian conditions for any form of communication pose the basic problem of the "long haul". These same conditions, which render communications difficult and costly, make rapid and reliable service desirable if not essential. The adequate development of the country, the continuance of high production in its vital rural industries, some effective decentralization and development in rural areas, rest to a substantial degree on the adequacy of transport and of telecommunication and postal facilities.

The Australian Post Office has inherited these disabilities of distance, small, remote and scattered communities, large aggregates of population in seaboard capitals and infinite varieties of terrain and temperature. These are the conditions that make the erection of telephone and telegraph lines and the laying of underground cables over long distances and across physical barriers both arduous and costly. The length of line per head of population which must be installed to connect country and urban centres by telephone and telegraph is one of the greatest in the world. Technical problems, and those of capital resources, are aggravated by such concentrations of population as are found in Sydney and Melbourne—big by any standards but unique in a continent of 3 million square miles and 10 million people.

The distribution of mail along the established transport routes, combined with the uneven concentration of population, leads to unusually heavy volumes of mail circulating through capital cities, and to equipment and cost problems in its handling.

The need for delivery of letters, packets and parcels to outback areas has produced rural road mail services using every known means of land transport and covering all types of country over distances up to 1,200 miles.

The Australian Post Office has been vitally linked with the development of each and every country centre. The existence of a post office in each town, catering for a wide range of community needs and acting as a focal point for Government contact on a widely decentralized basis, is characteristic of our development. To provide this unique institution and the postal, telephone and telegraph facilities throughout the country must necessarily cost proportionately more in capital than in most other countries of the world. It also calls for the unceasing adaptation of the best available techniques in all forms of communication, the unremitting enthusiasm and loyalty of staff and their acceptance of that degree of responsibility which the average intelligent Australian seldom shirks.

PART II.—PROGRESS TO 1959.

For 150 years the postal, telegraph and telephone problems of Australia have been tackled vigorously and with the versatility demanded by Australian conditions.

Telephone Service.

The mainland has been spanned from north to south and east to west by telephone and telegraph lines. Tasmania is linked with the other States by underwater cable and by radio.

To-day there are some 10 million miles of telephone circuits linking more than 2 million telephones through more than 7,300 exchanges. With 20·5 telephones per hundred of population, Australia ranks fifth in the world in telephone density. During the last three years, 252,000 subscribers' services have been added, representing more than half the Commonwealth network immediately prior to the last war. Since 1939, telephone calls, both local and trunk, have increased two and a half times.

Telephone development in Australia may be summarized—

- 75 per cent. of telephone instruments are now connected to automatic exchanges, compared with 51 per cent. pre-war.
- 1,200 rural automatic exchanges provide continuous service in country areas, compared with 69 in 1939.
- Carrier wave telephone systems allowing, usually, up to 15 separate conversations on one pair of trunk line wires, have been exploited to the limit.

- Micro-wave radiotelephone systems, capable of providing up to 600 trunk channels are being installed between selected centres.

- Duplex services connect two subscribers, with secrecy, on one pair of wires and have permitted many people to have telephones connected without having to wait for additional line construction.

- Trunk line channels have trebled since 1939. Increases on the main routes out of Sydney, for example, have been—

Sydney–Melbourne	18 to 132
Sydney–Brisbane	10 to 61
Sydney–Canberra	4 to 39

- Subscriber to subscriber dialling over trunk lines has been introduced in selected areas, with automatic registration of the charge.

- Radiotelephony is being used to provide services not practicable by other means.

- Co-axial cable, capable of carrying hundreds of telephone and telegraph messages plus sound broadcast and television programmes simultaneously, is being laid over selected routes. The most important installation is that between Sydney, Canberra and Melbourne.

- Special automatic facilities, such as the Time and Weather Services, are being introduced.

Telegraph Service.

Telegraph service is available over the public network, over lines privately leased by subscribers and through the teleprinter exchange service. Although, with the growth of the telephone and teleprinter services, public telegraph traffic has declined, the Australian still uses telegrams more than most other people.

Some special features of the telegraph service—

- Over 1,000 private wire services are in operation, each with direct point to point communication. Connections of new services have averaged 70 per year over the past twelve years.

- More than 500 subscribers are using the teleprinter exchange service which caters for business houses with intra-State, inter-State and international connections.

- Some 30 overseas countries are available through the International Teleprinter Exchange.

Postal Service.

Postal articles handled are approaching 2,000 millions per annum—approximately double the pre-war level. Public transport, private contractors and the Post Office fleet combine to move the mails as speedily as possible.

- 8,100 post offices are distributed throughout the country, at least one in every town or village.
- 2,000 stamp vending machines render after hours' service.
- 12,000 letter receivers provide convenient means of posting mail.
- Mail is delivered to the vast majority of homes and farms, however remote.
- £2·75 million is spent yearly on 6,000 rural mail services.
- 90 air mail services carry 71 million articles over 67,000 route miles, compared with 34 services carrying 5,500,000 articles over 23,000 route miles in 1939.
- Mechanical handling plant is providing a unique mail-flow system and eliminating manual movement of mails. This plant has been designed in the Australian Post Office and is being installed at the larger sorting centres.
- A new service—Certified Mail—has been introduced as a cheap alternative to the Registered Post when a record of posting and delivery is required for articles of no special monetary value.

Higher efficiency the Post Office aim.

The Post Office seeks to provide a high grade of service and to provide it as efficiently and cheaply as possible.

Two simple tests are applied:

How does growth in staff compare with growth in business?

How do Post Office charges compare with costs?

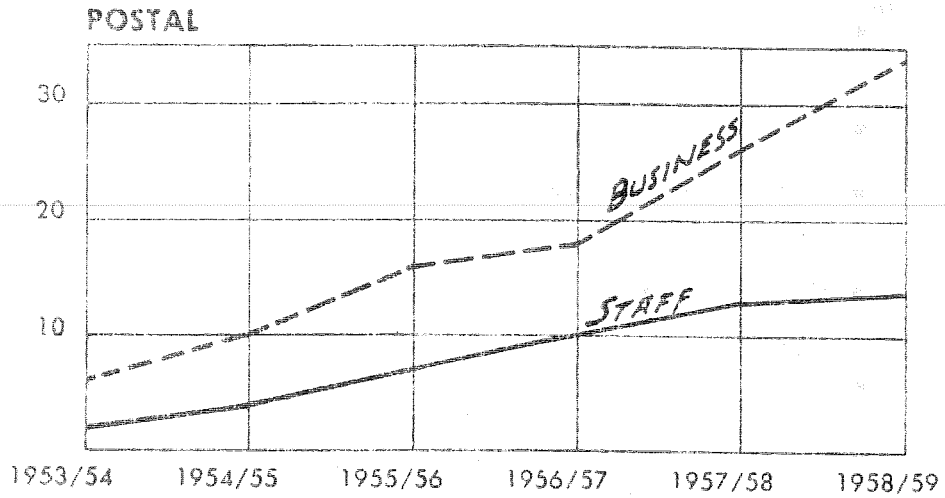
Staff in relation to business.

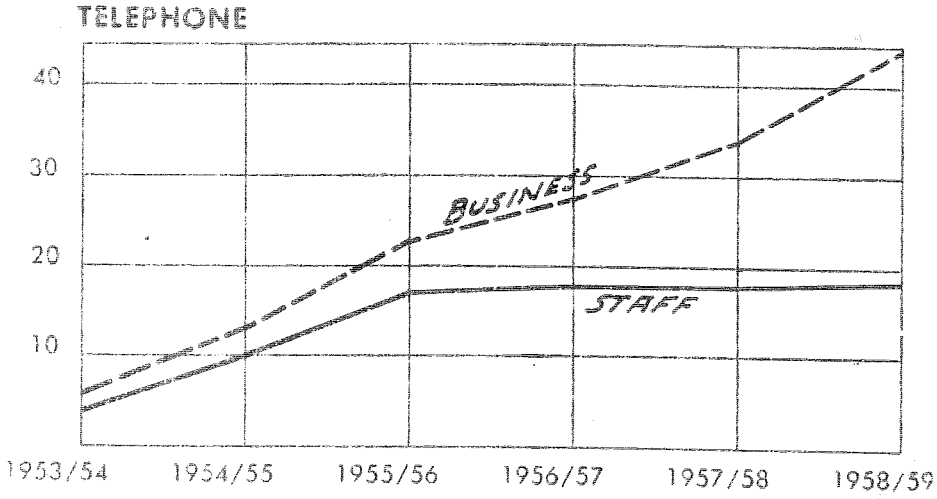
During the past ten years staff employed (other than on capital works) increased by one-third. In the same period the number of postal articles handled increased by 45 per cent., telephone local calls by 63 per cent. and trunk line calls by 81 per cent. During the past three years staff has increased by approximately 8 per cent. for an over-all increase of 20 per cent. in all classes of traffic.

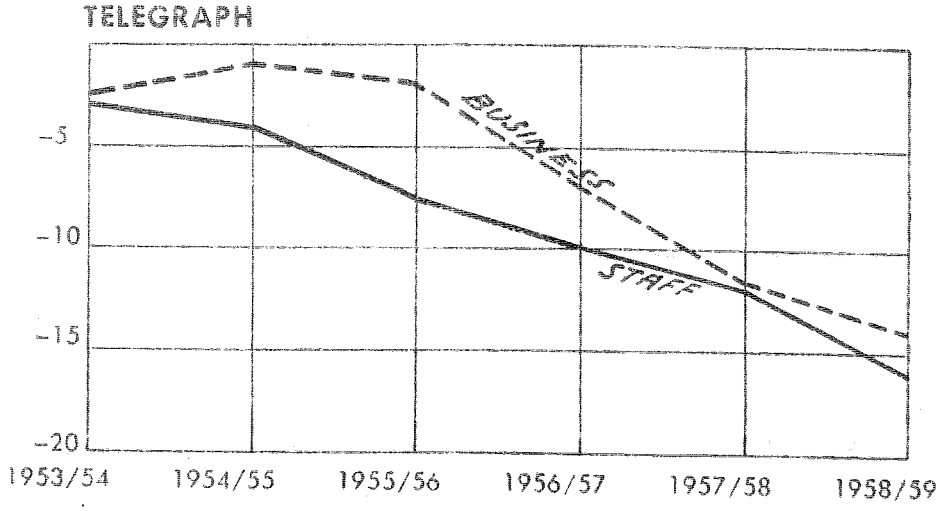
The accompanying graphs compare Post Office business trends with results in staff output.

STAFF IN RELATION TO BUSINESS

PERCENTAGE VARIATION ON 1952/53 LEVELS







Economy through technical development.

Technical progress in the Australian Post Office has produced economies and better service, with greater speed, reliability and additional facilities. Adoption of overseas developments and the products of Departmental research have yielded improvements too numerous to itemize. Typical examples illustrate the trend—

- **Operating aids.**

  Combined recording and connecting switchboards have produced operating load savings approaching 50 per cent.

  "Push button" senders at several exchanges have reduced the time taken to set up a six-digit telephone number from 10 seconds to approximately 2·5 seconds.

  Manual multi-metering enables many trunk calls to be completed without detailed recording.

- **Exchange equipment development.**

  Mechanical announcers are being introduced for the interception and diversion of telephone calls from old to new numbers after group number changes. When a caller dials the old number, the recorded announcement advises him to dial a special number or to consult the new telephone directory.

  Concentration of trunk line traffic in country districts, on a network principle, allows one large country exchange to handle all trunk traffic for a particular area, including nearby exchanges, thereby effecting savings in trunk operation and switchboard provision.

  Since 1947, the percentage of manual telephones has steadily decreased; over the same period, automatic telephones have risen from 59 per cent. to 75 per cent. of the total.

  In Victoria, nearly half the trunk calls lodged by country subscribers are dialled direct to the required number by the originating telephonist.

- **Trunk transit switching.**

  Automatic switching equipment at "through" switching centres enables the originating telephonist to complete the connection of a trunk line call without the intervention of another operator. The system is operating in Sydney, Melbourne, Brisbane and Adelaide and at 24 of the more important country switching centres. Extension is proposed to the other capital cities and to a further 32 centres. Already it is possible for a Townsville telephonist to dial the number of a subscriber in Perth.

- **Subscriber dialling.**

  Subscriber dialling over trunk lines enables a subcriber within a metropolitan local service network to dial direct to an exchange outside the area, where the trunk line call is booked, timed and charged by the local telephonist. This dispenses with the need for a second telephonist.

Subscriber dialling diverts a large proportion of trunk line traffic to the nearer provincial centres from the trunk exchanges in capital cities. It has reduced the demand for staff and accommodation at main city trunk exchanges.

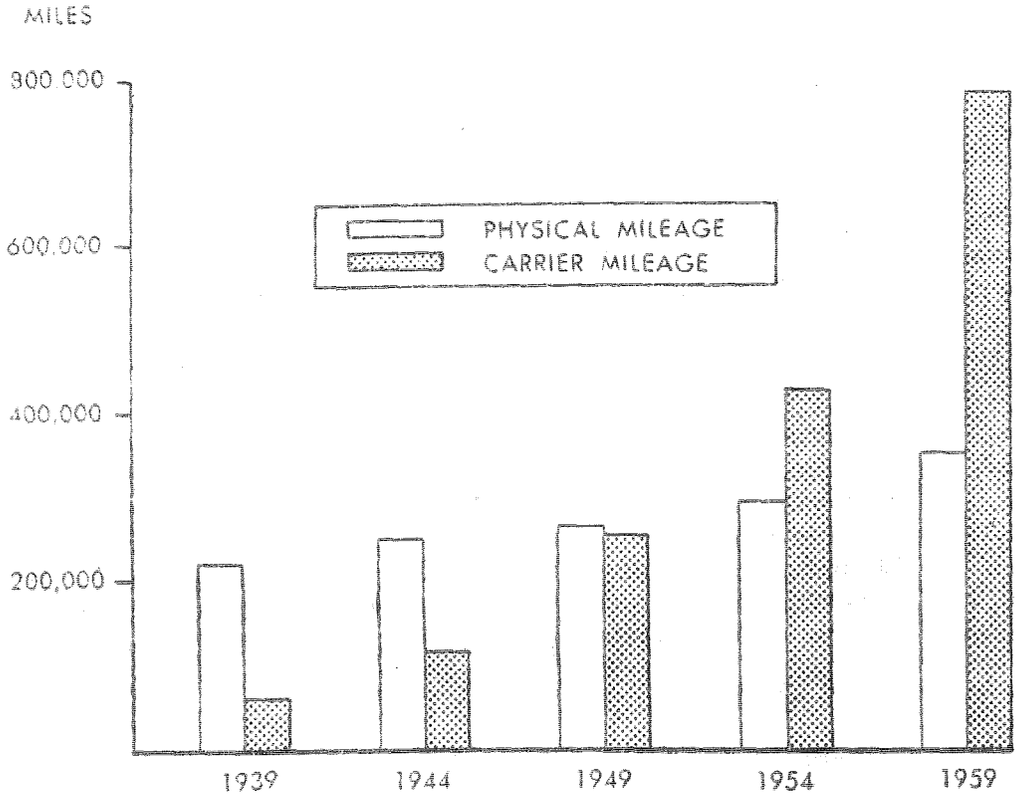
- **Automatic multi-metering.**

New equipment permits subscribers at selected centres to dial direct over a trunk line to metropolitan subscribers without manual assistance from an operator. The charges for calls are automatically recorded on the calling subscriber's normal local-call meter.

- **Carrier wave.**

Carrier wave equipment enables more than one channel to be derived from a wire circuit. Since 1947, there have been major changes in equipment design. The accompanying graph illustrates the tremendous increase achieved in channel miles compared with the small increase in wire miles.

TELEPHONE TRUNK LINE CHANNELS
PHYSICAL AND CARRIER MILEAGE



The latest equipment is very small and occupies approximately one-quarter of the space used ten years ago and is more easily maintained. Transistors are replacing valves and printed circuits replace wires and joints.

- **Mail handling plant.**

  Machines for handling letters, packets and parcels convey mail automatically from one processing point to the next, eliminating manual transfer by bags or wheelers.

- **Qualitative maintenance.**

  New techniques for the maintenance of telegraph and telephone plant are effecting savings and increasing efficiency.

- **Lightning protection.**

  An improved means of protecting outside plant from lightning and power surges is expected to save £80,000 a year when fully developed.

- **TRESS.**

  The handling of telegraph traffic by the new teleprinter reperforator switching system (TRESS) will ultimately effect savings of about £450,000 a year in operating costs. Already staff training costs have been reduced by about £300,000 per annum.

Economy through Organization and Methods reviews.

The Post Office has an Organization and Methods team of specially selected and trained investigators. Each Headquarters Branch also has expert groups concentrating on improvement in methods and procedures. Branch experts and Organization and Methods investigators work together on major problems to secure the best results. On special problems the Public Service Board's Organization and Methods staff join with Departmental officers.

Typical of the many studies now being made are those below:—

- Improved telegram delivery arrangements in Brisbane should save about £8,000 each year and more in other capital cities.

- The use of electronic computers for telephone accounting, pay-roll and other purposes is being considered.

- Improved procedures for telephone orders have yielded yearly savings of £50,000, improved work flow, reduced handling time and avoided the addition of 100,000 files annually to the system. Further savings of £20,000 a year are in sight.

- Collation and assembly of Post Office statistics under new procedures are more accurate, have reduced data sheets from 130,000 to 80,000 annually and have facilitated use of the electronic computer for calculating pay allowances for some staff.

- Mechanical control procedure will ensure maximum usage of engineering plant, reduce requirements and save £30,000 a year in costs.

- Decentralization of telegraph accounting work will reduce centralized Accounts Branch staff without increase in staff at post offices and will save at least £50,000 annually.

Economy through office machines.

The Post Office takes full advantage of the economies to be achieved by the proper use of modern office appliances. The following are important innovations—

- Ticket-issuing machines are to be placed on trial to facilitate acceptance of parcels and packets. These machines supply a gummed slip which is attached to the articles in lieu of postage stamps, and shows the name of the office, the postage paid and the date of issue. If successful, it may be possible to extend the use of the technique to telegrams, bulk postage articles and other items handled at post offices.

- Accounting machines are being modified to enable multiplication to be done in conjunction with posting to ledger cards. The new method releases operators and calculators previously engaged on working out local call debits and streamlines telephone accounting procedure.

- A new system, using an accounting machine to enter debits and credits in Departmental ledgers has achieved even greater accuracy and staff savings.

PART III.—POST OFFICE CHARGES IN RELATION TO COSTS.

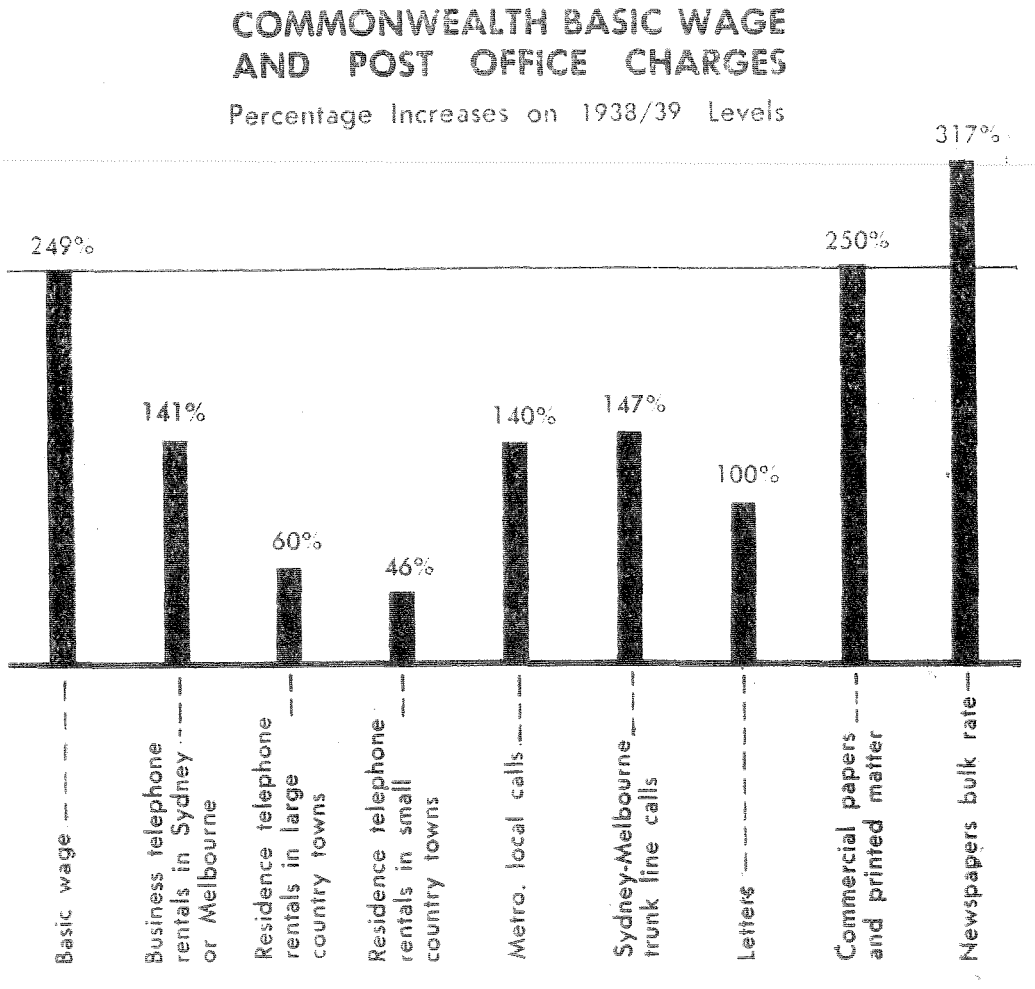
Steadily increasing productivity and efficiency through improvements such as those mentioned have enabled the Post Office to absorb much of the increased costs for labour and materials which have characterized the post-war period.

In 1939 the Commonwealth Basic Wage (weighted average of six capital cities) was 79s. weekly; in July, 1959, it was 276s.—an increase of 249 per cent. Over the same period the letter rate has increased 100 per cent., cost of a local telephone call 140 per cent. and of a typical trunk line call (225 miles) 150 per cent.

Expressed in another way, if Post Office charges had been increased in the same ratio as the Basic Wage, the letter rate would, in August, 1959, be 7d. instead of 4d., a local telephone call would cost over 4¼d. instead of 3d. and a trunk call over 225 miles 10s. 10d. instead of 7s. 9d.

The accompanying graph illustrates the percentage variation in key Post Office charges since 1939, compared with percentage variation in the Commonwealth Basic Wage. Appendix "A" compares in more detail the actual charges for the main postal and telephone services at December, 1939, and July, 1959. This appendix shows the levels to which Post Office charges could have risen, if increased in the same proportion as the Basic Wage. On most items Post Office increases have been modest. There are, indeed, few other costs borne by the community which have been increased so moderately.

The notable exception is the fee for newspapers and periodicals posted in bulk. Traditionally these have been charged at a concession rate much below handling cost. There appears to be no sound reason under modern conditions for one type of postal article to be heavily subsidized by others; the continuing trend will be to move the postal charges for books, newspapers and periodicals closer to actual handling cost.



PART IV.—NEW POLICIES FOR DEVELOPMENT.

Our Development.

Since World War II. Australia has developed at a rate which few people in 1939 would have believed possible. The Post Office has made a substantial contribution to this great expansion and will continue to play its part in future developments as rapidly as resources will permit.

Since the Australian development has followed this trend over the post-war period, it becomes necessary to plan national communication services on a like pattern, in the belief that—

- both primary and secondary industry will continue to expand steadily;

- industrial development will be extended in all States;
- city growth will encourage some decentralization of industry to outer suburban and to country centres;
- housing development will continue at a rapid pace and suburban shopping centres will grow commensurately;
- new areas will be opened up and old areas will be more intensively developed under the influence of electric power, water reticulation and scientific farming.

Communication services must keep pace with the inevitable increase in demand.

A new telephone policy, a new telegraph policy and a new postal policy have been framed, on a long term basis, to meet new times and growing needs.

Telephone policy.

The new telephone policy aims to—

- reduce progressively the number of applicants awaiting connection;
- increase progressively the number of trunk channels on both short and long routes;
- increase the number of automatic telephones;
- provide, eventually, full-time service for all subscribers;
- extend the areas in which local calls may be made;
- enable telephone users to dial any other subscriber within Australia;
- improve the standard of transmission over long channels, particularly in outback areas.

Telegraph policy.

The new telegraph policy will—

- replace morse telegraph entirely by printing machines which are speedier and more accurate;
- replace manual repetition of telegrams by automatic switching to reduce delays and minimize cost;
- provide a fully automatic switching system to enable any subscriber to Telex (Teleprinter Exchange Service) to call direct any other subscriber in Australia;
- extend the scope of the International Telex Service and provide for automatic receipt of messages after office hours;
- enable telegrams to be sent by facsimile between telegraph offices and to subscribers where teleprinter working is not required.

Postal policy.

The new postal policy seeks to—

- speed the carriage of letters within Australia by air wherever possible;
- deliver letters sent between capital cities within 24 hours of posting in all cases and within eighteen hours in favourable circumstances;
- despatch city mail on the first delivery after receipt in the Mail Exchange;
- mechanize mail handling to avoid delay and reduce costs;
- make Post Office facilities available as widely as possible by the use of automatic sales devices;
- establish official post offices where business warrants, as soon as buildings can be provided.

NEW TELEPHONE POLICY EXPLAINED.

The high rate of telephone development, the increasing complexity of the telephone system and the development of new techniques and equipment call for new approaches to the provision of an efficient telephone service. For example, the Sydney and Melbourne telephone networks, many country manual exchanges, and some main trunk routes, are reaching capacity for the type of equipment and techniques now employed. Fundamental changes and major reconstruction plans are necessary.

At present, 112 million trunk calls a year are handled by telephonists. These involve the recording of charges on dockets, and costing and processing by manual methods. More than half the calls are made over short distance ranges between 5 and 40 miles, where they are relatively unprofitable, since the revenue is small compared with the heavy capital expenditure and operating costs entailed.

About one-quarter only of rural subscribers are provided with automatic service; only 75 per cent. of Australian telephone subscribers enjoy the advantages of automatic service, compared with Switzerland (99·7 per cent.), Western Germany (97·7 per cent.), U.S.A. (89·4 per cent.), Argentina (83·0 per cent.), Canada (79·9 per cent.) and U.K. (79·2 per cent.). Of the fifteen countries recording more than one million telephone services as at 1st January, 1958, Australia is thirteenth on the list in automatic telephone density. Subscriber dialled trunk service throughout the Commonwealth is not possible under such conditions.

Meeting the problem.

Local service is already largely mechanized. Metropolitan areas have been almost completely converted to automatic working; provincial centres and rural areas are being converted as resources permit. Automatic trunk equipment is being provided at major switching centres throughout Australia to permit operators to dial into distant cities without the assistance of telephonists at intermediate or terminal stations. At some centres facilities are already available for subscribers to dial trunk calls over short distances.

Progressive mechanization of the telephone network is necessary, with more automatic working on trunk as well as local calls so that more and more conversations can be handled without the aid of an operator. The ultimate objective in the telephone system in Australia—as overseas—must be nation-wide subscriber to subscriber dialling.

A national telephone plan for the development of the system along these lines over the next 50 years has been prepared. This is to be implemented in stages, early attention being given to areas where traffic is heaviest and to smaller centres where subscribers do not enjoy the benefits of continuous service.

Although, ultimately, subscribers will be able to dial anywhere in Australia, telephonists must still be retained for "Information", "Assistance", "Complaints" and similar special services. The progressive nature of the plan will avoid any sudden reduction in staff; it will also ensure that the Australian system is integrated with that of other countries where similar national telephone plans are being implemented.

Extended local service areas (ELSA).

The plan will enable subscribers to call over much longer distances and to many more subscribers for the local call fee than at present. As from 1st May, 1960, exchanges will be grouped in zones based on community of interest and calls within a zone and between adjacent zones will be treated as untimed local calls. A typical country subscriber will be able to obtain local service over an area several times as great as is available to him at present. The principle is illustrated in the diagram shown on page 26.

Most calls up to 25 miles and many up to 35 miles will become local calls. Subscribers in zones adjoining metropolitan areas will share access at the local call fee with metropolitan subscribers. The local call fee will thus buy a much wider service than at present.

Trunk line calls.

At present trunk call charges are divided into 22 separate mileage categories based on distance between the two exchanges concerned. It is impracticable to retain so many categories, as other countries where national dialling plans have been developed, have found. In the United Kingdom, for example, there are now only three categories of trunk call charges. Although in Australia, because of our longer distances, it is not possible to reduce to three categories, it is intended to reduce the 22 at present in force to eight.

This will be done in two stages. As from 1st October, 1959, the number of mileage categories will be reduced to eleven. When zoning is introduced on 1st May, 1960, extended local call facilities will eliminate the first three and only eight will remain.

At present there are over 7,300 telephone exchanges in the Commonwealth, each of which has its own individually assessed charging distance to each of the other telephone exchanges. Although no great problem under manual operating conditions, this system is unnecessarily complicated and becomes technically undesirable and economically impracticable to reproduce in an automatic charging system. Consequently, the zones for local call service will be used also for assessing trunk line charges. On shorter distance trunk calls the distance will be measured between the centres of the zones at each end of the call, rather than between the originating and terminating exchange.

For long distance calls, zones will be grouped together in districts. The distance between districts at each end of the call will determine the amount of the fee for calls.

In this manner the number of areas for which separate assessments of distance and trunk charge must be made for any given exchange will be reduced from the present figure of over 7,300 to approximately 300. These principles are illustrated also in the diagram shown on page 26.

Multi-metering.

At present a meter is installed for each subscriber connected to an automatic or a large manual exchange. This meter operates once for each local call. These local calls are not subject to a time limit; these conditions will continue to apply to local calls made under extended local service conditions.

The same meter will be used for recording trunk line calls under a method known as multi-metering. With this system, the local call meter will operate at a predetermined rate during the progress of a trunk line call, the rate of operation being governed by the distance over which the call is made. On trunk calls dialled by subscribers the present minimum charge for three minutes' speaking time will be eliminated, the meter operating at regular intervals related to the distance of the trunk line call. For example, on a call for which the interval between pulses is 30 seconds, the charge would be only two local call fees if the duration of the call does not exceed one minute. Ultimately, a call could be completed between any two telephones in Australia for the local call fee, provided that the duration of the call is limited. This method will encourage subscribers to make more calls of shorter duration and will enable the Post Office to conserve and make the most efficient use of its plant.

Rentals.

At present a special rental category applies to the large networks of Sydney and Melbourne and another to those of Brisbane, Adelaide, Perth, Hobart and Newcastle. Rentals in rural and provincial areas fall into one of five categories depending on the number of subscribers within the local service area.

As from 1st October, 1959, the five rural categories will be reduced to three; the two special metropolitan categories will be retained. Current rural or country rental categories, expressed in terms of subscribers connected, and those which will come into force on 1st October, 1959, are shown below:—

Number of Subscribers Within Local Service Area.

Existing.	*As from* 1.10.1959.
1– 300	1–2,000
301–1,000	
1,001–2,000	
2,001–5,000	2,001–7,500
5,001 and upward	7,501 and upward

The principle of charging a higher rental for a business service, which now applies only in metropolitan and the larger provincial centres, will be extended to country areas as from 1st October, 1959.

When zoning is introduced on 1st May, 1960, there will be no change in the basis of assessing rental categories or in the charges therefor. However, because some subscribers will then obtain local service to so many more subscribers that they will pass into higher rental categories, they will be required to pay the higher appropriate rental. In particular, subscribers in zones adjacent to metropolitan areas who will share local service with the metropolitan networks will be required to pay the metropolitan rental. Their trunk call fees to the adjacent metropolitan area will, however, be abolished.

Summarized, Australia's telephone system is at the critical stage when it is necessary to develop a nationally integrated system providing modern facilities characteristic of every progressive telephone administration. Such facilities are essential for the efficient operation of industry and commerce.

NEW TELEGRAPH POLICY EXPLAINED.

Australians are the second largest users of the telegraph service in the world; they originate each year some 22 million telegrams, an average of 2·2 telegrams per head of population.

For many years morse equipment has handled a large proportion of the public telegraph load. High costs of training morse operators and the need to speed up transmission of telegrams have demanded that morse be replaced by more modern, speedy transmitting and receiving equipment.

TRESS.

It is necessary to route a large proportion of telegraph traffic through switching centres mainly located in capital cities. With manual switching, up to six intermediate operators can be involved in receiving and retransmitting one telegram.

An automatic switching system called TRESS has been developed to enable telegrams to circulate automatically through major centres without manual intervention. A telegram transmitted by teleprinter from the originating office to the switching centre will be reproduced on perforated tape and retransmitted over the appropriate circuit to the office of destination. The switching equipment is similar to that employed in directing automatic telephone calls.

TRESS is being installed at more than 700 post offices throughout Australia and will be introduced first in South Australia. Western Australia, Queensland, Victoria, Tasmania and New South Wales will follow, in that order.

The introduction of TRESS means—

- Speedier service—the teleprinter and high-speed automatic switching equipment reduce transmission times to a minimum.

- Greater accuracy—less manual handling means less possibility of human error.

- Lower handling costs—elimination of manual rehandling saves labour costs estimated at about £450,000 a year.

Telex—the teleprinter exchange service.

The Telex service is similar in most respects to the telephone subscribers' service, except that the printed and not the spoken word is communicated.

The Telex service is proving very popular and plans are well advanced for further expansion of the system within Australia during the next few years and to additional overseas countries wherever practicable.

Facsimile.

Facilities are already available in capital cities and Newcastle for the transmission and reception of picturegrams between those centres and for the handling of overseas photo-telegrams.

Plans envisage the use of small desk-type facsimile units for the transmission of telegrams between lightly-loaded telegraph offices and TRESS offices and for the lodgment of telegrams by subscribers or for the delivery of telegrams to them. This system is simple to operate and provides an actual facsimile of the transmitted message at the receiving point. The units are about twice the size of an ordinary telephone.

Data transmission.

There is a quickening interest in data processing in Australia and the Post Office is studying developments overseas in this field, particularly in the use of telegraph channels and equipment for the transmission of data for processing by electronic computers.

NEW POSTAL POLICY EXPLAINED.

Since the Australian Postal Service began it has been the policy to use the fastest established means for conveyance of mail. In the first place, as in older countries, the saddle horse was the main means of transport and was supplanted in relatively rapid succession first by coach and then by railway as these transport media developed. The railway has remained the chief means of carriage over long distances, although motor vehicles are now of major importance over short routes.

The first airmail flight in Australia took place in 1914, over 40 years ago. By 1938 a large and regular airmail traffic had developed and has continued to grow until to-day approximately 7 per cent. of Australian internal letter mail and 75 per cent. of its overseas letter mail go by air.

The aeroplane is now accepted as a normal means of transport, and as the best available means for the carriage of mail over many routes. In consequence, wherever delivery of mail would thereby be expedited, air transport will be given without surcharge to both sealed and unsealed letter form mail not exceeding 10 in. x 5 in. in surface size nor more than 3/16-in. in thickness. These limits have been chosen for practical and economic reasons.

It is essential to avoid the carriage of unduly heavy articles by air without surcharge, as cost is directly proportional to weight and, with the proposed dimensions, letters would not generally exceed 2 ounces. It is essential, also, to avoid problems which would arise in selecting from large quantities of mail, those articles which are to be given air transmission, either by weighing or selecting on the basis of postage paid. The Post Office will therefore include, in the air despatches, all letters which are handled through its letter and stamp-cancelling machines. The size limit adopted is large enough to cover all commonly used small and medium size envelopes and would include more than 90 per cent. of all letter form mail. The use of standard medium envelopes and light-weight paper could increase this percentage, and the public will be advised on methods of securing the maximum advantage from the new provision.

For articles not eligible for air transmission without surcharge an airmail service will be available. Because of the size of articles using this service the present half-ounce weight unit for charging will be increased to 1 ounce.

The new arrangement will provide domestic airlines with a substantial regular loading on all routes. This should be of great assistance to the air carriers in stabilizing and improving their services to the advantage of the posts and of the travelling public. A 24-hour service between capital cities for all letters will become possible.

Mechanical handling of mails.

Machines for the sorting of letters, packets and parcels have been or are being installed in all capital city mail exchanges. Where operating, their use has resulted in considerable economies. These machines are an advance on the machines previously used in Australia and have been designed by the Post Office to meet Australian conditions.

The letter machines have been designed so that they may be linked together by a system of conveyor channels. Ultimately, all letters passing through the various processing stages will not be handled other than for sorting.

There is little doubt that within the next few years overseas research will point the way to efficient letter coding and decoding methods for mechanical sorting and the Australian Post Office will be able to fit the new machines into its mail flow system to achieve greater economy and speed of handling.

Orders have been placed overseas for the supply of automatic letter facing and cancelling machines. These machines are capable of processing letters at considerable speed, averaging 350 per minute, and their use will step up productivity in mail exchanges to a marked degree.

Other methods of mechanizing mail handling are being studied in Australia and overseas and the next five years are expected to yield considerable progress in this field.

New mail exchanges.

For some years mail exchanges in capital cities have been operating under difficult conditions, and restricted accommodation has meant high operating costs. It has been necessary, therefore, to plan in each capital city for the provision of building or additional space to meet requirements.

The erection of a new mail exchange building at Redfern, Sydney, at a cost of £4·2 million approximately, has been approved and the mail exchange activities now located in the G.P.O. building will be removed to the proposed new building when erected within the next five years.

The Department has also prepared a proposal for a new mail exchange in Roma-street, Brisbane, to cost £536,000. It will be necessary in the near future to consider plans for the extension of the G.P.O. building in Melbourne to meet mail development.

Plans are under consideration for the erection of a new building to accommodate mail exchange activities in Perth, and it will be necessary to commence erecting this building within the next two or three years, if the Department is to avoid resorting to costly expedients. In Adelaide, action was taken some years ago to purchase

a building in Grenfell-street, to accommodate mail exchange activities at that centre. This building is being renovated and modified to meet requirements and the mail exchange is expected to be in its new accommodation at the end of 1959. In Hobart the mail exchange is already operating in a building previously acquired and modified for the purpose.

In each case, the mail exchange will be equipped with modern handling machinery fitted into an efficient mail flow system.

New delivery methods.

Following American experience, several small three-wheeled motor vans are being tested for the delivery of mail in outer suburbs of Sydney and Melbourne. The results achieved indicate that these vans could become a regular means of delivery in suitable areas throughout Australia.

The advantages expected are speedier delivery of mail and better co-ordination of delivery and collection services. Considerable operating savings should be possible.

Establishment of official post offices.

There are many centres at which official post offices are needed. New buildings will be required in most cases and improved facilities will be provided as soon as resources permit.

" Silent " post offices.

A study is being made of automatic vending machines in order to design and equip standard units which could make available to the public, on a 24-hour basis, such items as stamps, stamp booklets, letter-cards and, perhaps, some commonly used postal notes. It is intended to install these units in small shopping areas where post office counter service is not available.

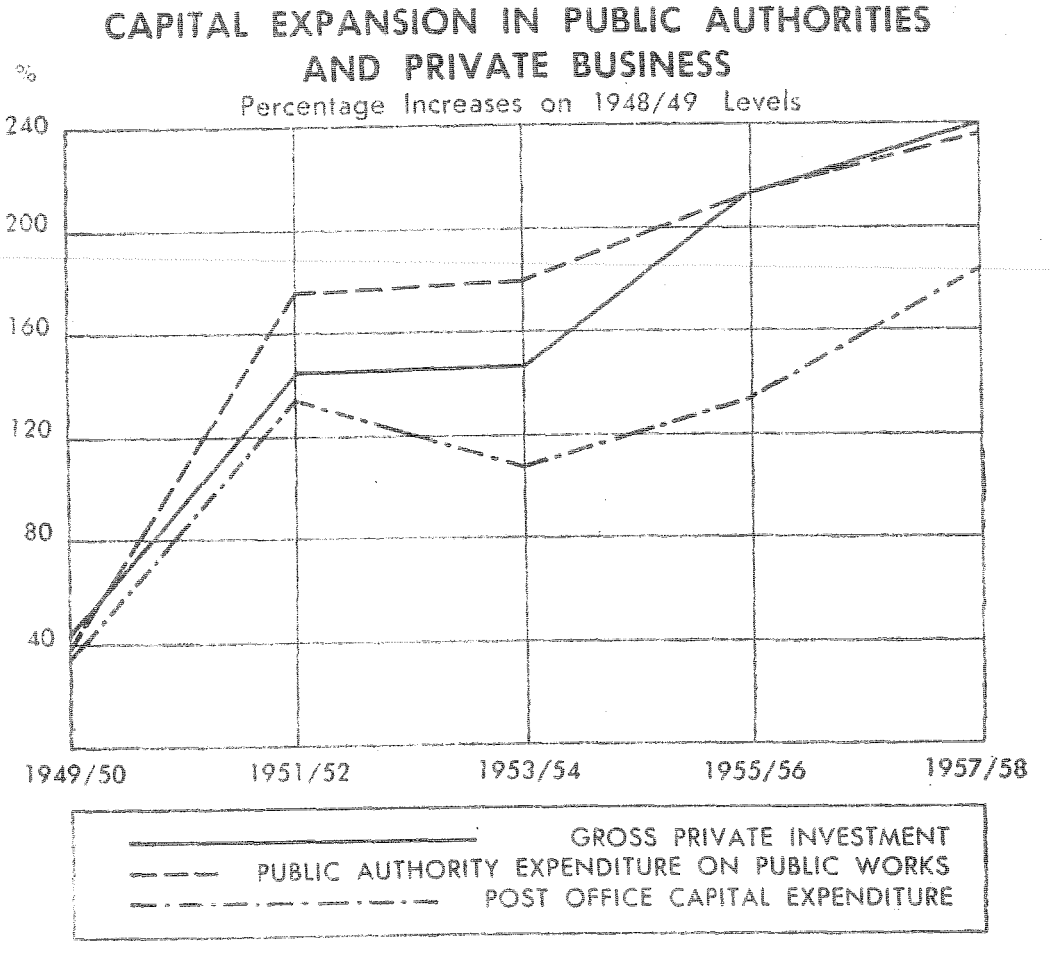
PART V.—CAPITAL INVESTMENT AND GROWTH.

Private, public and Post Office investment.

In 1948-49, gross private investment in fixed capital equipment in Australia totalled £300 million; in 1957-58 this had risen to £1,019 million, an increase of 240 per cent.

Naturally, increases of this magnitude in private investment required a complementary growth in the basic services arising from public investment (including development of Post Office services). In the ten-year period, Public Authority annual expenditure on public works rose from £142 million to £479 million, an increase of 237 per

cent. The Post Office annual share in the higher rate of investment in public works rose in the same period from £12 million to £34 million, an increase of 183 per cent. These relative movements are seen in the accompanying graph.



Special problems of Post Office investment.

To meet development of this magnitude would not, at any time, be a simple task, because telecommunication services are subject to rapid technological change and the Department would be failing in its duty to the public if it did not make the improvements which flow from these changes available as soon as possible. A further difficulty is presented by the uneven growth of industry and population in particular areas, especially in outer suburban areas where the establishment of new centres of population has required the provision of new post office buildings, automatic exchanges, junction plant and new cable runs over longer distances.

The growth of the telephone system has some distinct differences compared with other reticulated public services such as gas, water and electricity. With the gas supply, if there is a main in a street, each house can be tapped off that main; water and electricity can be supplied in this way too. This is not so with the telephone service. Each telephone subscriber must have an individual link with his telephone exchange, whether he be situated near or a long distance away.

This feature has a marked effect on costs because a great deal of development in Australia to-day is taking place on the outer fringe areas of the capital cities and the larger provincial centres. To provide telephone cables in the past, in the inner heavily populated areas, has been relatively cheap. Distances from subscribers' premises to the exchanges have been relatively short and in many cases it has been possible to install large cables, carrying many pairs of wires, in cable tunnels and ducts provided under city streets in earlier years. Now that large business enterprises as well as new residences are being established in outer suburban areas, the costs of providing links to the telephone exchanges are rising sharply.

It is a significant feature of a telephone service that not only must a subscriber have an individual line to his exchange, but that each service must be able to secure a connection to any other telephone in the system. Once the connection is established on a particular call, it must be reserved exclusively for the required period of conversation. Most importantly, the number of such possible exclusive connections which must be provided increases much more rapidly than the number of subscribers in the system. The complexity and, therefore, the cost of the inter-connecting links increase with the size of the system.

Examples of development problems.

There have been many instances of spectacular growth in single localities in the post-war period. For instance, development at Dandenong (Vic.) has increased population in this district from 13,000 in 1947 to 57,700 in 1958. This represents an annual increase of 31 per cent. on the 1947 level, compared with the Australian population increase for the same period of less than 3 per cent.

To meet this development and the increased importance of Dandenong itself, the Post Office has spent £400,000 in this area since 1955. Trunk channels with Melbourne were increased by 260 per cent. whilst annual trunk traffic increased from 364,000 calls to more than 2·5 million in 1958-59.

Similar large scale development is typical of a number of areas including Newcastle (N.S.W.), Wollongong (N.S.W.), Broadmeadows (Vic.), Altona (Vic.), Mt. Isa (Q'ld), Townsville (Q'ld), Elizabeth (S.A.), Whyalla (S.A.), Kwinana (W.A.) and Burnie (Tas.).

There has also been spectacular development in city commercial buildings in all States. Nine large buildings have been erected or are proposed in the Circular Quay area of Sydney and the biggest office building in Australia was recently opened in North Sydney. A 19-storey building has been completed in Melbourne and many other large buildings are at present being constructed.

Telephone service for these buildings requires new equipment and cabling, and the erection of, or major extensions to, automatic exchange buildings on a scale which involves very heavy expenditure for each new commercial building project.

Post Office capital requirements.

It will be apparent from the picture of general development and from the outline of Post Office policies, plans and programme to meet the demands inevitably made upon it, that very heavy capital expenditure will be necessary in the years ahead on postal and telecommunication services. Capital will be necessary for—

- sites in key locations for post offices and telephone exchanges;
- buildings for post offices, mail handling centres, telephone exchanges, stores and line depots;
- cables, including co-axial cable, and aerial wire to augment existing links;
- equipment to maximize channels over cables and wire and to provide radio channels;
- equipment to provide automatic services, automatic switching and recording, and to handle mails;
- motor vehicles and mechanical aids.

The capital required in the years ahead will be a worth-while investment for Australia, returning high dividends in terms of essential service to its people and reduced operating costs.

PART VI.—IN BRIEF.

Australia is a vast country with unique conditions which make speedy and reliable communications essential, but difficult.

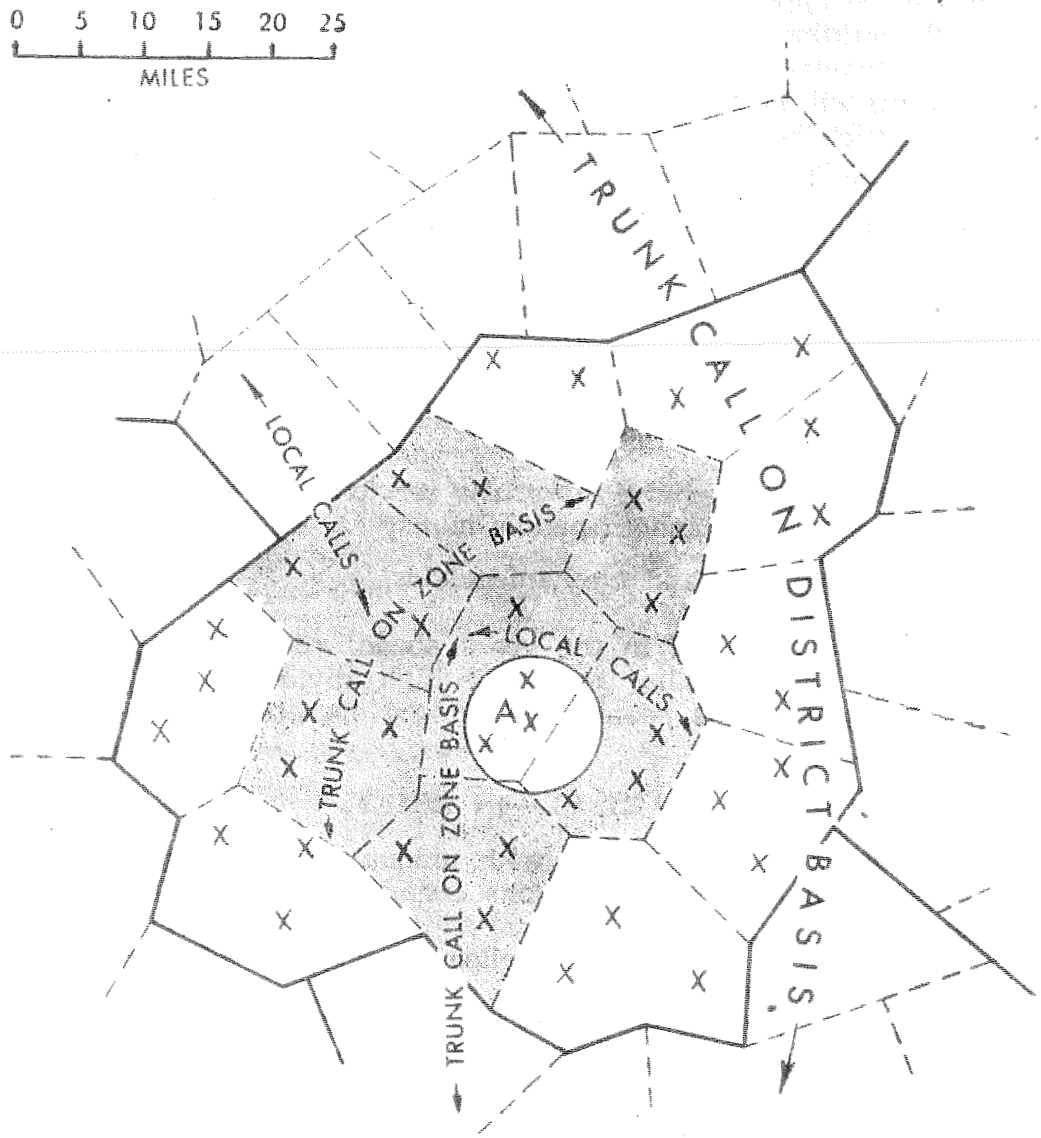
The Post Office has made excellent progress in overcoming the difficulties and providing a grade of service consistent with its resources. It is continually striving, with good results, to secure technical and other improvements and economies. Efficient operation has enabled tariff increases to be kept at a reasonable level compared with increases in the costs of materials and labour employed.

New times demand new policies. Post Office policies provide for—

- extension of automatic telephone services, and national subscriber-to-subscriber dialling;
- automation of the telegraph service;
- speeding of the mails by mechanical handling and air carriage where practicable.

To implement these policies and to meet public requirements must inevitably require heavy capital expenditure. The Post Office believes that this expenditure will yield worth-while dividends to the country as a whole, since the country as a whole will benefit. The Post Office recognizes too, that capital expenditure must be matched by efficiency and good housekeeping and it is with a full appreciation of its responsibilities in this direction that it looks to the future with confidence.

DIAGRAM SHOWING EXTENDED LOCAL SERVICE AREA (ELSA) AND BASIS FOR TRUNK LINE CALL CHARGING AS FROM 1st MAY, 1960.



× indicates TELEPHONE EXCHANGES.
EXCHANGES are grouped to form ZONES.
ZONE boundaries are indicated by dotted lines.
ZONES are grouped to form DISTRICTS.
DISTRICT boundaries are indicated by heavy lines.
CIRCLE indicates LOCAL SERVICE AREA for EXCHANGE "A" up to 1st May, 1960.
SHADED AREA indicates EXTENDED LOCAL SERVICE AREA for EXCHANGE "A" and all other Exchanges in the SAME ZONE as from 1st May, 1960.

TRUNK CALLS.

As from 1st May, 1960, trunk call charges will continue to apply for calls from EXCHANGE "A" to places beyond the shaded area.

As from 1st May, 1960, trunk call charges will be on a ZONE to ZONE basis for the nearer places and on a DISTRICT to DISTRICT basis for those more distant.

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APPENDIX "A"

POSTMASTER-GENERAL'S DEPARTMENT

Relationship between Variations in Post Office Charges and Variations in Commonwealth Basic Wage.

Item.	As at December, 1939 (Basic Wage*—79s. per week).	As at July, 1959, (Basic Wage* — 276s. per week).	
	Actual Charges.	Actual Charges.	1939 Charges adjusted for variations in Commonwealth Basic Wage.
	£ s. d.	£ s. d.	£ s. d.
POSTAGE—			
Letters (first oz.) ..	2	4	7
Commercial Papers (2 oz.) and Printed Matter (4 oz.)	1	3½	3½
Bulk Newspapers (per 8 oz.)	0·6	2½	2·1
TELEPHONE CALL CHARGES—			
Local Calls (Metropolitan)	1¼	3	4·4
Trunk Calls (9 a.m.–6 p.m.)—			
10–15 miles ..	4¼	6	1 3
20–25 miles ..	6¼	1 0	1 10
75 miles ..	1 4¼	3 6	4 9
225 miles ..	3 1¼	7 9	10 10
550 miles ..	6 1¼	15 0	1 1 4
Sydney–Melbourne ..	5 4¼	13 3	18 8
Melbourne–Perth ..	12 1¼	1 0 0	2 2 3
TELEPHONE RENTALS—			
Sydney and Melbourne (Business)	5 10 0	13 5 0	19 4 0
Sydney and Melbourne (Residence)	4 10 0	12 0 0	15 14 0
Brisbane, Adelaide and Perth (Residence) ..	4 7 6	11 5 0	15 6 0
Rural (1–300 lines Residence)	3 0 0	4 7 6	10 10 0

* Commonwealth Basic Wage—Weighted Average of Six Capital Cities.

By Authority: A. C. BROOKS, Government Printer, Melbourne.