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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA



Pursuant to Statute

By Command

In return to Order

PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS.

15th Dec. 1927

## REPORT

TOGETHER WITH

### MINUTES OF EVIDENCE

RELATING TO THE PROPOSED

## EXTENSION OF THE INSTALLATION OF MAIL-HANDLING APPLIANCES

AT THE

## GENERAL POST OFFICE, SYDNEY.

*Presented pursuant to Statute; ordered to be printed,*

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# MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

(Fifth Committee.)

GEORGE HUGH MACKAY, Esq., M.P., Chairman.

## Senate.

Senator John Barnes.  
Senator Patrick Joseph Lynch.\*  
Senator Herbert James Mockford Payne.†  
Senator Matthew Reid.

## House of Representatives.

Malcolm Duncan Cameron, Esq., M.P.‡  
Robert Cook, Esq., M.P.  
The Hon. Henry Gregory, M.P.†  
Andrew William Lacey, Esq., M.P.  
David Charles McGrath, Esq., M.P.  
Alfred Charles Seabrook, Esq., M.P.

\* Resigned 30th June, 1926. † Appointed 1st July, 1926. ‡ Resigned 2nd March, 1927. § Appointed 24th March, 1927.

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## EXTRACT FROM VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES.

No. 108. Dated 12th October, 1927.

3. PUBLIC WORKS COMMITTEE—REFERENCE OF WORK—EXTENSION OF MAIL HANDLING APPLIANCES, SYDNEY GENERAL POST OFFICE.—Mr. Hill (Minister for Works and Railways), moved, pursuant to notice, That, in accordance with the provisions of the *Commonwealth Public Works Committee Act 1913-21*, the following work be referred to the Parliamentary Standing Committee on Public Works for investigation and report, viz.:—Sydney General Post Office—Extension of the Installation of Mail-handling Appliances.  
Question—put and passed.

## LIST OF WITNESSES.

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# EXTENSION OF INSTALLATION OF MAIL-HANDLING APPLIANCES, GENERAL POST OFFICE, SYDNEY.

## REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, to which the House of Representatives referred for investigation and report the question of the Extension of the Installation of Mail-handling Appliances in the General Post Office, Sydney, has the honour to report as follows:—

## INTRODUCTION.

1. On 12th August, 1926, the House of Representatives referred to this Committee for investigation and report, a proposal to install in the General Post Office building, Sydney, at present in course of being remodelled, certain mechanical aids to ensure the more expeditious and economical handling of mail matter, and to eliminate tedious repetition work now being performed by hand.

2. The matter was inquired into and a report prepared favourable to the proposal. Parliament re-assembled on 2nd March, 1927, and on that day this Report, dated 28th October, 1926, was presented to the House of Representatives and ordered to be printed, but has not yet been formally adopted.

## ORIGINAL ESTIMATE.

3. The equipment proposed, which was described in detail in the Committee's Report, consisted mainly of lifts and bucket elevators, belt conveyors, and letter and packet-sorting machines, and was estimated to cost £41,400.

## ESTIMATE EXCEEDED.

4. On 23rd September, 1927, a letter was received from the Secretary, Department of Works and Railways intimating that, following upon the Committee's report presented to Parliament on 2nd March, 1927, the Minister had authorized an expenditure of £40,000, but that as the work progressed it had become apparent that the cost would greatly exceed the original estimate.

To this letter a reply was despatched on 1st October, intimating that the matter had been discussed in Committee and the following resolution unanimously adopted, viz.:—

"That, in view of the fact that this Committee reported to Parliament on a proposal to install Mail-handling Appliances in the General Post Office, Sydney, at a cost of £40,000, and it is now expected that the work will cost £71,000, it is considered that the Committee should have an opportunity of making further investigations and furnishing a fresh report in the matter."

## FRESH REFERENCE.

5. On 22nd October, 1927, on the motion of the Minister for Works and Railways, the House of Representatives referred to the Committee for investigation the question of the "Extension of Mail-handling Appliances, Sydney General Post Office."

In explaining the motion in the House of Representatives, the Minister stated:—

"That this question was previously referred to the Public Works Committee for investigation and report, but because of certain alterations to, and the enlargement of the scheme to meet present and prospective requirements involving additional expense, it is considered necessary that the Committee should carry out further investigations in order that the Government may be fully informed before submitting any recommendation for the approval of Parliament."

#### PRESENT ESTIMATE.

6. The estimated cost of the work as now furnished to the Committee is set down at £71,000.

#### COMMITTEE'S INVESTIGATIONS.

7. The Committee on a former occasion having satisfied itself of the efficiency and economy which would result from the installation of suitable mechanical mail-handling appliances, contented itself on this occasion with endeavouring to arrive at the reasons why there should be such a large increase in the cost of the proposal, and whether, in view of the greater expense, the installation might now be regarded as reassuring from a financial standpoint.

8. It was stated in evidence that the figures furnished in 1926 were supplied in all good faith as as close an approximation of the probable cost of the proposal as could then be estimated with the information available.

It was explained that until a project of this magnitude had been reviewed by the Public Works Committee, approval could not be obtained to proceed with the preparation of detail working drawings which would involve heavy expenditure, and have in this case necessitated the employment of a staff of draughtsmen for over eighteen months at a cost of approximately £5,000.

9. Until these working drawings were available it was not possible to ascertain quantities and give a closer approximation of the cost of the project. Furthermore, when tenders were called it was found that there was a considerable disparity between the departmental estimate and the lowest tender, and also between the various tenders received. After an expenditure of approximately £15,000 had been incurred, it became apparent that the original estimate would be greatly exceeded, and this led to the whole matter being reviewed and fresh estimates prepared.

#### COMPARISON OF ESTIMATES.

10. In view of the later information available it is now estimated that the total cost of completing the work will be approximately £71,000.

The following is a comparison of the figures given in 1926 and those now submitted :-

	£ Original Estimate.	£ Revised Estimate.
Lifts and Elevators .. .. .	10,550 ..	13,500
Conveyors .. .. .	5,000 ..	8,000
Sorting machines and postal slip clearing machines ..	15,700 ..	38,680
Overhead runways .. .. .	185 ..	290
Tables, platforms, bag racks, and automatic baggers ..	4,700 ..	4,000
Mail chutes .. .. .	400 ..	..
Chutes and automatic weighing devices .. .. .	.. ..	1,460
Bag-cleaning machines .. .. .	1,000 ..	1,000
Letter-sifting machines .. .. .	100 ..	100
Automatic travellers for primary machines .. .. .	.. ..	840
Swivelling seats for sorters .. .. .	.. ..	800
Contingencies .. .. .	3,765 ..	2,000
	41,400 ..	70,670
	or say	71,000

#### REASONS FOR INCREASED COST.

11. In the course of the Committee's inquiry it was learned that the principal causes suggested for the increased cost of the project were :-

- Cost of original plant under-estimated.
- Increased volume of mail matter to be dealt with.
- Additional facilities not included in original estimate.

##### (a) Cost of Original Plant Under-estimated.

12. It is stated that the cost of the work was estimated on the only data available at the time, that is without the complete detail drawings which have taken about eighteen months to prepare.

Practically all the machinery is of an entirely new type, designed specially for the requirements of mail handling, and, it can be stated that to a very large extent there is no similar machinery in any other country. It is claimed that the estimates were reasonable assumptions of the probable cost, based on conditions then existing and the information then available to the engineers who prepared the estimates, but since found to be inadequate.

13. It is represented that the cost of manufacturing work has increased during the past twelve months, and it is assumed that many contractors have, in order to safeguard themselves against further increases in overhead and labour costs, increased their prices. As an example of the difficulty of estimating costs, even with complete data, attention was drawn to the fact that for one section of the work where all quantities of materials were tabulated and guaranteed the following tenders were received :-

- £19,550.
- £14,350.
- £11,459.
- £8,600.

14. Further, it was found that the manufacture of the electric pneumatic diverter controllers on which the whole distribution of the machines depends for their correct operation, involved a very high class of precision work; contractors experienced difficulty in obtaining and retaining highly-skilled men; and many contractors' workshops are not equipped for repetition work because they cannot obtain sufficient work to justify the purchase of the necessary plant. All this has added to the cost.

##### (b) Increased Volume of Mail Matter to be dealt with.

15. When the original designs for the machines were prepared they were based on the statistics then available as to the volume of mail matter handled in previous years and the projected volume likely to be handled during the ensuing fifteen years.

16. It is represented that reliable mail branch statistics are very difficult to procure and it is essential that the plant shall be capable of handling the peak load in the peak hour, as mails must be despatched at the appointed time irrespective of the volume to be handled. Averages of annual volumes are useless for this purpose.

17. A careful examination of the statistics, and special observations made to ascertain the volume to be handled by each machine at peak periods, revealed that the forecast made originally was too low in several instances. During the last Christmas season there was an unprecedented volume of mail matter handled in every capital city, and the growth of Sydney indicated that even greater volumes will be dealt with in future. It was shown that the number of letters despatched in Sydney for delivery for all places increased thus :-

1920-21 .. .. .	78 millions
1921-22 .. .. .	86 "
1922-23 .. .. .	93 "
1923-24 .. .. .	98 "
1924-25 .. .. .	116 "
1925-26 .. .. .	132 "

and it is stated that the figures for 1926-27 will exceed the increases shown in the last two years.

18. Under these circumstances it was deemed necessary to make greater provision in the capacity of the machines. With the more complete statistics available from the result of the past twelve months' observations, made in the light of the probable loads each machine will be required to handle, it is claimed that it can now be stated with confidence that the machines will meet all requirements it is possible to demand of the present building.

##### (c) Additional Facilities not included in the Original Proposal.

19. It was stated in evidence that during the design of the machinery additional facilities not included in the original proposal were added. The principal of these were :-

- The letter primary sorting machines were enlarged, both as to the number of sorters employable at each machine, and the number of receptacles provided for each sorter;
- Additions were made to three of the second-class primaries;
- An additional facility was provided in the automatic clearing of second-class mis-sorts, and restoring the mis-sorted articles to their correct primaries;
- The recording devices on which statistical information is based were extended;

- (v) Seating accommodation has been provided which was not included in the original proposal;
- (vi) A new feature was introduced in providing mechanical travellers for clearing the letter primaries which will facilitate and expedite the work of these machines;
- (vii) To reduce, as far as possible, any risk of break-down, greater provision has been made for replacements and spare parts.

#### FINANCIAL ASPECT.

20. Some difficulty was experienced by the Committee in dissecting from the figures supplied, those items which it is claimed would be required in the remodelled building if the present system of mail-handling were continued, and those items which are due to the improved system of mechanical mail-handling suggested.

Taking the extreme view that the whole of the estimated expenditure should be charged to the mechanical mail-handling, it is still claimed that the proposal is financially attractive, as shown hereunder:—

	£	£
Total cost of proposal .. .. .	..	71,000
Annual charges—		
Interest at 6 per cent. .. .. .	4,260	
Depreciation at 10 per cent. .. .. .	7,100	
Maintenance .. .. .	1,172	
Running costs .. .. .	500	
	13,032	
Estimated saving as detailed in Committee's report of 25th		
October, 1926 .. .. .	15,276	
Leaving a saving of .. .. .	2,244	per annum

#### COMMITTEE'S RECOMMENDATIONS.

21. The Committee takes a grave view of the fact that an estimate of £41,400, which was given as a close approximation of the complete cost made after the construction of working models—should have varied to the extent of over 70 per cent., and considers that it should have been emphasized to the Committee that, owing to the original nature of the apparatus involved, a wide variation might have been expected; so that if necessary the provision of working drawings might have been authorized to more correctly ascertain the cost before the project was agreed to.

At the same time members desire to record their appreciation of the frankness with which the departmental officials, when faced with a larger expenditure than had been recommended, placed the full facts before the Committee with a view to obtaining sanction for the larger project.

22. After carefully reviewing the whole of the evidence received, and taking into consideration the fact that during the last twelve months results have shown that the original estimate was too low, the Committee is satisfied that the project is still a sound financial proposition which will result not only in a substantial annual saving, but also tend to the greater comfort of the employees, improve the efficiency of mail-handling and permit of a greater economic use of the floor space available in the General Post Office building.

23. It therefore recommends that, provided the present estimates of costs and savings are not materially departed from, the work be put in hand as early as possible.

24. The Committee regards with some concern the wide difference in prices of tenders received for portion of the machinery for this work, and recommends that every effort be made to safeguard Commonwealth interests in this matter. Where possible it is thought that Commonwealth or State enterprises capable of satisfying the demand should be specially invited to submit an offer to fulfil requirements, thus providing a check against tenders received from private firms.

*G. H. Mackay*  
G. H. MACKAY,  
Chairman.

Office of the Parliamentary Standing Committee on Public Works,  
Parliament House,

Canberra. 30th November, 1927.

## MINUTES OF EVIDENCE.

(Taken at Canberra.)

WEDNESDAY, 26th OCTOBER, 1927.

Present:

Mr. MACKAY, Chairman;  
Senator Payne  
Senator Reid  
Mr. M. Cameron.  
Mr. Cook.  
Mr. Lacey.  
Mr. McGrath.  
Mr. Seabrook.

James Fleming, Chief Mechanical Engineer, Department of Works and Railways, sworn and examined.

1. To the Chairman.—I was responsible for the estimate of the cost of the extension of the mail handling appliances at the Sydney General Post Office formerly inquired into by the committee. The original estimate for lifts and elevators was £10,550, and the revised estimate is £12,700. The original estimate for conveyors was £5,000, and the revised estimate £8,000. Sorting machines and postal slip clearing machines were originally estimated to cost £15,700, and the revised estimate is £38,020. The Lamson overhead runways were formerly estimated to cost £185, and now they are expected to cost £200. Tables, platforms, bag racks and automatic baggers originally estimated to cost £4,700, are now set down as costing £4,000. In the original estimate £400 was provided for mail chutes. That item has been altered to chutes and automatic weighing devices, which are estimated to cost £1,460. The original estimate of £1,000 for a bag-cleaning machine remains unaltered. I am allowing £200, as before, for a letter-sifting machine. In addition to the foregoing, I have allowed for automatic travellers for the primary machines, £840, which was not previously included. The sum of £800 is now allowed for swivelling seats for sorters. An allowance of £3,000 for contingencies now brings the revised estimate to £70,780, or, say, £71,000. Taking the first item, lifts and elevators, there is a difference of just under £3,000, which is mainly accounted for by the cost of elevators. We found that the original design, providing for canvas belts with buckets, was not suitable for the location, and we had to adopt a more expensive type of elevator. The lifts themselves come out practically at the estimate. As to the conveyors, there is a difference of £3,000, practically wholly accounted for by the increase in the number of conveyors, and the number of drives. There are more drives, because we find it necessary to have shorter lengths instead of one long drive. We have to do that in order to get a proper incline with the head room available. We found we had to split the plant up into three or four conveyors, each of which means another motor and another worm gear. The big difference is noticed in regard to sorting machines, where the increase amounts to £23,000. When the original estimate was made we had one sorting machine fairly well designed. The only information we had on which to estimate was a little rectangle shown on the building floor space. These machines have never been built before, and it was physically impossible accurately to estimate their cost. We had no information to guide us, and the sum allowed seemed ample to cover the cost. Having detailed plans before us, we can now see that the machines will be very much more expensive than we originally estimated. The few tenders we have received confirm that opinion. The machines are manufactured in Australia. I allowed for a number of stove-enamelled bins; but I now find that hundreds of bins

about 5 inches square are required, and that is where the bulk of the money will go. If I had had at the outset the full information and the detailed plans that are now at my disposal, my estimate would have been at least £60,000 instead of £41,000. I do not see that any responsibility for the difference in cost should be attached to anybody in particular, because the necessary information was not available at the time. The new portion of the work has had to be developed, and it is now apparent that, if we are to make the plant reliable, it must be of more costly construction than was calculated for in the first estimate. Possibly, when I gave my previous estimate, I should have made it clearer than I did that the information on which the estimate was based was extremely meagre. You point out to me that a difference of nearly £30,000 would be too great if such departmental miscalculations were general. My explanation is that the work was entirely new. It had not been attempted in any part of the world before. The department had not sufficient information at its disposal at the outset to enable actual estimates to be formed. We fully believed that the sum originally asked for would be ample to cover the cost. I now pass on to tables, platforms, &c. I find they will not cost quite so much as I estimated. I am now of the opinion that we can build them for £4,000, if I may rely on the tenders already received, and if I can get other tenders on the same basis. For the first machines we designed we took out the quantities and guaranteed them to the tenderers. We called for tenders for two second-class primary sorting machines, one for Melbourne and one for Sydney. The lowest tender was £8,600 for the two machines, the next tender was £11,450, and the highest was £19,550, on exactly the same plans and specifications, detailed to the last part, and with a complete bill of quantities. The lowest price came from a Sydney firm. The next lowest was from a Melbourne firm, and the highest was from a Sydney firm. There were four tenders. A considerable rise in production costs has taken place in Sydney since the first estimate was formed. I should say it has made a difference of at least 10 per cent. The trouble seems to be that, when tendering for new works involving a large amount of labour, as these machines do, contractors are very much afraid of construction costs. For work that they have not been in the habit of doing, construction charges are extremely high. The big difference in the tender prices received must be due to charges for labour, because contractors are supplied with the quantities of material, and they are all buying in the same market.

2. To Mr. McGrath.—You ask me whether the increase is not also attributable to the greed of the contractors. My reply is that when they are tendering for work to which they are well accustomed, we do not find the same disparity in tenders.

3. To the Chairman.—You draw my attention to the fact that, for a certain article, one firm quoted £12 19s., and another £25, and it was stated that the same article could be obtained in America for £3. That relates to pneumatic plungers for operating the diverters. It is really a mass-production job. There are not many shops in Australia that are well equipped for mass production. On the other side of the world firms have automatic machinery, and can turn out articles such as pneumatic plungers very quickly, whereas here they have to use ordinary lathes, and the job takes five or

six times as long. I do not think that the difference in price is due to any attempt by local firms to make excessive profits.

4. *To Mr. McGrath.*—You ask me to explain the reason for such a disparity as there is between £25 and £12 10s. I do not think that a firm submitting a price as high as £26, against another tenderer's £12 10s., would be anxious to get the work.

5. *To the Chairman.*—I do not think it would be any cheaper to obtain from abroad big items such as letter-sorting machines. The actual machines would probably cost a good deal less abroad, but they are bulky goods to pack, and by the time freight was paid, and they were unpacked and re-assembled here, they would probably cost as much as local firms would charge. Most of the engineering shops here like to adhere to the line of work to which they have been accustomed and not many of them are keen on undertaking anything new on a big scale. They are afraid they will lose on it, and for that reason they put in big prices. Considering the work we have done up to date, the lowest tender for the second-class primary machines was a very fair price.

In Melbourne we installed some conveyors and sorting machines quite recently. We put in two or three conveyors, a primary letter-sorting machine, and a second-class machine, which was made by a Sydney contractor. The rest of it was made by Melbourne contractors. The total cost of the Melbourne plant was estimated at £15,000, including building alterations, and I think the complete cost will be about £14,500. Each individual unit has been run for short periods separately, and the complete plant should be in daily use in about two or three weeks. We have not made inquiries in the direction of having such work done at Lithgow, although the plant there seems well equipped to undertake it. It is the combination of the equipment that makes the mail-handling plant more or less experimental. From the time the mails go into the building almost until they leave, they pass through mechanically-operated conveyors and sorting machines until they are despatched, and if one conveyor stops it may hold up the whole train. I am not afraid of any mechanical trouble with lifts or elevators. There may be a possibility of occasional interruption in the working of the second-class primary machines, because their nature is such that they must of necessity have a large amount of mechanism in them. Where they are moving parts, one cannot say definitely that nothing will ever go wrong. We have made the parts as accessible as possible, and have provided plenty of spare parts. Before going in for second-class machines on a large scale, I would rather see one running under normal conditions, for, say, six months. The working of the Melbourne plant will be a guide. What I should most like to test out is its durability. I mainly refer to the door-opening mechanism. This must be of light and compact construction, because of the limited space in which it is confined. Each of the 30 bins has to be operated by a separate lever, and as the levers must be put in the space between the bins, they must be of light construction. I think we are far enough advanced with the Melbourne machine to get a fair indication as to whether it will be quite satisfactory. The model plant in Sydney was a good guide, as regards the operation of the mechanism; but in a very big machine like this we have to consider the factor of wear. The mails are going through seven days a week, and sometimes 24 hours a day. We must not have a breakdown. If a lathe in a factory gets out of order it can be shut down for a few hours; but in the busy times the post office cannot afford to lose a machine for more than a few minutes. Of the difference between the former estimate of £41,400, and the present estimate of £71,000 for the complete plant, I should say that, roughly, from £10,000 to £12,000 is

accounted for by alterations from the original scheme, the balance being purely attributable to the fact that, when the plant was further developed, more expensive construction than was originally allowed for was found necessary. You ask me if there is any guarantee that departmental estimates will not be out to such an extent in the future. On the main items we have definite tender figures, and I think we may take them as being a fair average. In the revised estimates I have taken the mean between the lowest and the second lowest tenders, in basing my estimates for new work. When the plant is complete it may cost slightly under or slightly over £71,000. Take the tender of £8,600 for two second-class primary sorting machines. If that tender had not been accepted, the machines would have cost us over £11,000. You ask me whether anything could be gained by deferring the work a little longer to make sure of the success of the Melbourne plant. I should certainly feel happier if I had something definite to go on in the way of practical experience of the running of the machines. If the work proved a failure it would put the whole of the post office out of gear. In my opinion it cannot revert to the old system of hand-sorting while that plant is in the building. We have accepted tenders for passenger and goods lifts, two chutes and one second-class primary machine. Every item except the latter machine would be required for any system of mail-handling. If the second-class primary machine forms part of the new scheme, that is all the additional work to which we are committed. You state that you were told on the last occasion that £21,000 would be necessary if no further mechanical plant were installed. I am informed that there will be no more expense for actual mechanical equipment, but, as regards certain tables, pigeon-holes, &c., which are purely furniture, Mr. Corbett, in his report, says that the cost of items essential to the completion of the plant amounts to £44,125, including £11,000 for posting boxes and conveyors. If the system of handling now in operation at Central Square were adhered to, I should say £21,000 would cover all that is required in the way of lifts, chutes and elevators. Owing to the growing quantity of mail matter being handled, the number of certain tables might have to be increased.

6. *To Senator Reid.*—Ball bearings and motors would have to be imported, but very little else. The machines are entirely of Australian invention, and at least 90 per cent. of the work will be of Australian manufacture. We had to base our estimates on a verbal description of the plant required; but the contractors were able to submit their tenders in the light of full working drawings, and quantities. We have made numerous alterations and improvements in the mechanism, because the plant had to be developed from the start. When handling second-class matter we have experienced no difficulty. A sorter may put a packet into one of the chutes in such a way that the door catches the packet, but provision is made for overcoming that difficulty. A packet may be caught in such a way as to prevent the bin above it from opening, and that bin may miss one opening period; but the bins are of sufficient capacity to avoid overloading through missing one opening operation. The fact that the contractors were groping in the dark, so to speak, might be largely responsible for the variations in the tenders. I think the contractor who made the second-class primary machines had to buy a few light sheet-metal folding machines. Even if he added their cost to his tender, he was well below the next tenderer. There are firms in Australia that can carry out pretty well the whole of the work, because there is nothing about the machines that cannot be done in an ordinary work-shop. If the department were to undertake the construction of such a machine, it would require a properly equipped work-shop, and I do not think this

would be warranted, because it would be useless afterwards. I am satisfied that the proposed machine will do the work required of it; and, unless a very big increase in costs occurs, the £71,000 estimated should be sufficient. If we made a dozen second-class machines we should be able, in the light of experience, to embody improvements in each one.

7. *To Mr. Cook.*—I realized at the outset that the details available were meagre; but I am now satisfied that we have before us all necessary information. The installation in Melbourne was begun after the evidence had been taken by the committee on the Sydney plant. The Melbourne scheme is a comparatively small one. In Sydney there are many more machines. In addition to ball bearings, the rough sheet iron plates, from which bins are made, come from Great Britain. All the fabrication and the conveyor belts are made in Australia. If there were a factory in this country that had been specializing in this work, it would be able to do it more cheaply than is possible in the present circumstances. The maintenance costs should not be unduly heavy. The figures I gave the committee previously should not be exceeded to any great extent; but, of course, owing to the increased capital cost the interest and depreciation charges will be higher. Power charges will probably show a slight increase, and maintenance costs may go up from £1,100 to £1,500. The estimate of £71,000 is not exact to £1,000; it is an approximate one.

8. *To Mr. McGrath.*—We have publicly advertised tenders for each contract, and we have communicated with firms likely to be interested, drawing attention to the advertisements. Alterations of wages rates would have very little to do with the difference in the original and the revised estimates. The difference is largely due to alterations in the scheme. I have not heard of any similar system of mechanical mail handling at the London General Post Office. I believe that conveyors and elevators are employed in all big post offices; but I know of no other plant where mechanical sorters automatically clear themselves. You drew my attention to the fact that Mr. H. P. Brown, at page seven, stated in evidence—

I have seen a similar plant at the London Post Office, where there are extensive mechanical appliances for mail handling; but the machinery proposed to be installed in Sydney will be even more up to date than that now used in London.

I am informed that the machine to be installed at Sydney is without parallel in any part of the globe. The Brisbane machine is not mechanically operated in the same way. I understand that the doors are opened by hand instead of automatically. You remark that Mr. Corbett stated in his evidence, at page 15—

You ask me whether it would be advantageous to call in a high-class consulting electrical engineer before calling for tenders. I point out that Mr. Brown has already done something on these lines. For instance, the Chief Mechanical Engineer of the Works and Railways Department (Mr. Fleming) has gone carefully into this matter, because he will be responsible for the installation of the plant. Mr. Brown has also had a special committee appointed, consisting of a bachelor of engineering in the department and a leading officer in the mail branch to report on the proposal.

I have not been in contact with that committee at all. I was in contact with Mr. Corbett about six weeks prior to the previous investigation by the committee. Possibly a committee has been appointed by the Postal Department quite independent of me. I know nothing whatever of its report. I consulted with Mr. Corbett to see whether the scheme was reasonably sound from a mechanical point of view; otherwise I have not consulted with him to any extent. I think I mentioned previously that only one machine had then been designed. I am now quite satisfied with the first-class primary machine. In no particular is its mechanism likely to give trouble. I am also satisfied with the

letter-sorting arrangement. If we had had the information and the detailed plans that are now at our disposal, we could have submitted much more reliable estimates. If I had had any idea of the additional cost that would be involved, I certainly would have told the committee when I previously gave evidence. But I was convinced at the time that £41,000 would be sufficient.

9. *To Mr. Lacey.*—In ninety-nine cases out of a hundred we can accurately estimate the cost of new works, because we have precedents to guide us; but in this case we had no precedent. It was an entirely new piece of work that had not previously been undertaken in any part of the world. No doubt it would have been better if I had mentioned that fact at the time. I will certainly do so if similar circumstances arise in future. I did not know at the time that automatic weighers would be required. They have since been asked for. The scheme for Mr. Corbett's, and the execution of it is my responsibility. If he tells me to provide automatic weighing machines I have to provide them. The number of pigeon-holes is very much greater than originally estimated for. You mention that there has not been an increase of 10 per cent. in the cost of wages in the last twelve months. I was not referring to the increase in wages; but, since compulsory insurance and child endowment have come into force in New South Wales, the tenders for engineering work have been generally 10 per cent. higher than they previously were. As a rule, rather more than the actual increase is charged. The increased cost of maintenance will not be so great as the increased cost of production. On much of the plant there will be practically no maintenance charge.

10. *To Senator Payne.*—Originally I discussed the scheme with Mr. Corbett and made up the estimate with him, after he had verbally explained what he desired the plant to accomplish. If I had realized that the estimate would be greatly exceeded, I should have mentioned it to the committee. With all machinery of a new type we cannot get away from the fact that there is some element of doubt, no matter what precautions one may take in the way of design and construction. I should very much like to see the second-class machines in operation for some time under actual working conditions. I am strongly of the opinion that they will be effective. I would not call them purely experimental, but I would feel more confident after seeing them in use for some time. We found many objections to the use of the canvas belts as originally proposed for the elevators, and we consider that it was far preferable to adopt a better and more reliable type of elevator. The tender of £8,600 for second-class primary sorting machines was received from a reliable firm, whose constructional steel work was very good. We are taking precautions to see that all material used is of the best quality. The delicate mechanism seen in the plant in Sydney was all made locally, and it would be impossible to obtain better workmanship.

11. *To Mr. Seabrook.*—Before the committee previously took evidence on this subject Mr. Corbett had been working on this scheme for about two years. When the model was produced I thought that the experiment was over. When the plans and specifications had been prepared, they were submitted to the tenderers. We did not incur further liabilities on realizing that the plant would cost more than the original estimate. We confined ourselves to putting in the lifts. One second-class primary machine was the first to be ordered, and we had no idea when that contract was let that the cost would increase. Mr. Corbett obtained a certain sum from his department for experimental work, but I had not included in my estimates made although Mr. Corbett had a working model at the Sydney General Post Office. Previously 10 per cent.



This basis, while reassuring from the financial aspect, is quite unfair to the proposal, because the whole of the savings of £15,276 is based on the expenditure on the mail-handling machinery proper, i.e., a capital expenditure of £24,815, not a capital expenditure of £05,940 as included above. In other words, if the building, furniture and equipment at present used only were provided, none of the saving of £15,276 could possibly be effected, but, on the contrary, the absence of machinery would involve additional floor space which is not available, to enable the present volume of mail matter to be handled at the General Post Office.

I have also prepared the following statement for submission to this committee—

With reference to the necessity for obtaining additional funds for the installation of mechanical equipment for mail handling at the General Post Office, Sydney, I submit the following statement to supplement my report of 6th September, 1927, addressed to the Chief Inspector, Postmaster General's Department, a copy of which is attached. At the time of making that report I was not aware that I should be required to give further evidence before the Public Works Committee. I now confirm the statements made in that report and for your information submit the following additional facts.

Only a small portion of the work has so far been completed, the actual work in hand or completed comprises the city second class primary sorting machine on the ground floor, the letter lifts and enclosures and the steel work for the mail bag elevator and goods lift. In addition, contracts are let or pending for twelve letter primary sorting machines, and the goods lift machines. The remaining contracts are not yet let. The actual expenditure and liabilities already incurred amount to £13,665 out of £41,400 approved. The reasons for the additional expenditure which will be required are more fully explained in my report of 6th September, 1927, but may be summarized as follows—

- The cost of the work was estimated on the only data available at the time, that is without complete detail drawings which have since taken over twelve months to prepare.
- The estimates were reasonable assumptions of the probable cost based on conditions then existing, and the information then available to the engineers who prepared the estimates, but have since been found to be inadequate.
- The cost of manufacturing work has increased by reason of legislation passed during the past twelve months, and many contractors have in order to safeguard themselves against further increases in overhead and labour costs, increased their prices to an extent which made competition negligible. As an example, one section of this work in which all quantities of material were tabulated and guaranteed, resulted in the following tenders—
  - (1) £10,550
  - (2) £14,350
  - (3) £11,450
  - (4) £8,000

- In my opinion contractors are nervous of accepting large contracts for work with which they are not familiar, and which extends over any lengthy period, and prices are increased to cover risks which they cannot foresee or provide for in any other way.
- Contractors experience difficulty in obtaining and retaining highly skilled men, and production of work requiring a considerable amount of precision. Many contractors are not equipped with tools for repetition work, because they cannot obtain sufficient work to justify the purchase of such tools.
- The larger firms can obtain sufficient standard work at remunerative prices and they do not tender at competitive prices for work which is not standard. The smaller firms are more enterprising but are handicapped financially in handling large contracts.

It was reasonable to assume that in an engineering work of this nature there would have been keener competition among firms with the equipment to produce repetition work at lower prices than those actually paid. Probably none of the successful contractors have made any large profits on their contracts, but this is due to their want of facilities and not to the fact that their tenders were too low. I am of opinion that had the industries been in a more stabilized condition, lower prices would have been obtained. The fair price of an article is its cost of production plus a small profit, but the contracts already let have been let at a fair price, but the cost of production has been increased by factors which were not contemplated when the estimates were prepared. The above reasons only cover a portion of the increased cost.

It was found necessary when the details of the scheme were decided to add to the items originally included in the estimate has increased the cost. Such items fall under three headings—

- Those which were unforeseen and omitted from the original estimate, e.g., seating accommodation for sorters £800.
- Machines which have been increased in capacity because further studies of the volume handled indicate that the apparatus adequate provision originally made was insufficient.
- Additional provision made to secure against breakdown, and to provide improvements on the original design.

This machinery forms a chain of processes, and every link of it must be provided and must be adequate to carry the load, otherwise the whole chain would be useless. The plant will cost more than was originally estimated, but it is fully justified as a financial proposition as shown in my report of 6th September, 1927, because after providing for interest at 6 per cent. and writing off the whole cost in ten years on machines which will give excellent service for at least fifteen years, and after paying maintenance and running costs the savings effected, which in my opinion have been under-estimated, will amount to £0,635 per annum, and will pay for the whole plant, interest, maintenance and running cost in less than eight years. It must also be remembered that while the whole plant will pay for itself in eight years, two-thirds of the expenditure would not be incurred in any case whether the special machinery were provided or not, because it is necessary to provide equipment for the new building to allow the work of the mail branch to be carried out. So that practically one-third of the total expenditure on the new machinery from which all the savings arise, is required to carry the burden of the whole expenditure to pay for itself in eight years. If all the savings due to the use of new machinery were used to pay for that machinery only, then the cost would be paid off in less than three years. I would put the matter this way—Suppose the Department borrowed £27,000 to purchase the machinery, and by its use effected savings of £16,000 per annum—the annual charges being £0,000 per annum, the net savings being £0,000 at the end of the third year the loan could be paid off. The position would then be that the annual charges would be—

Maintenance	£1,172
Running costs	500
	£1,672

Say £2,000 per annum.

The savings of £15,000 per annum would increase as the load increased, but taking the net savings after three years, at £13,000 per annum, and this saving would not be reduced during the life of the machines, say another ten years, then the total saving effected would be not less than £150,000 in ten years, after repaying the whole cost of the new machines and maintaining and running them for thirteen years.

The fact that subsequent events have indicated that the original estimate was too low has not materially affected the proposal as a sound financial proposition which will not only result in very large savings, but will also improve the efficiency of mail handling, and obtain greater economic use of the limited floor space available in the new building. The responsible for the original design of this installation and who are in close touch with the Department of Works and Railways, who are responsible for carrying out the work and who prepared the original estimate with which I concurred.

I should explain that the revised estimate of £68,940 is my estimate. I understand that Mr. Fleming has submitted a figure slightly in excess of that amount. He has asked for £71,000. Mr. Fleming has seen a copy of the first statement that I read. It is still intended to install the 24-ton lift as originally suggested. The installation of the letter lifts is practically completed and we are proceeding with the work. The present proposals do not differ in any respect in those items, except that the cost has been increased. The increase is due to the general increase in the cost of lifts. Our estimate at the time was based on the price that the Works and Railways Department was actually paying for lifts. We thought it reasonable to base the estimate on the prices that they were actually paying; but when we came some time later to buy a second 24-ton lift we found that the price had been increased by 20 per cent. It was natural to assume that we could get the lifts at the same price for the two jobs, but we

found that we could not. We do not anticipate that there will be any further increase. From what the contractors tell us they will find it extremely difficult to carry on if any further increases occur. We have varied the type of bag elevator, but that will not necessarily increase the cost. That contract has not yet been let. The variation was made as the result of further consideration, and it is only an alteration in the mechanical detail. The belt conveyors are practically the same as those provided for in the original design, the total length of conveyors in the amended scheme is about 5,000 feet, which is the original estimate. We shall still maintain the belt speed of 940 feet per minute. The general principle of the sorting machines is exactly the same, but the machines have been increased in size in several cases. Our original estimates were based on the best information that we could obtain, but the tenders that we have obtained so far show that we cannot get the machinery at the estimated price. The largest increase has occurred in sorting machines. The larger machines will have roughly 15 per cent. or 20 per cent. greater capacity than the smaller ones. Although the machines will cost more, we shall actually get more work out of them. We want more money, but we shall be doing more work for the money. There is a distinct increase in the actual amount of machinery that we shall install. The extraordinary increase in the number of articles handled at the General Post Office has led us to make the larger provision. We are satisfied that sufficient experiment has been made with the electro-pneumatic diverters to insure that they will function reliably under working conditions. We are in a happy position of having completed the Melbourne machinery and that in all respects is the same as the Sydney machinery though there is less of it. We have had the Melbourne plant running although we have not had a complete try-out with mail matter, but each machine has been running, and I think we can safely say that the Melbourne machinery is entirely satisfactory. I have no doubt that when the cut-over is made about the end of November, it will be found to be entirely satisfactory. It is the same class of machinery as we are installing in Melbourne, but on a smaller scale. The experience that was gained there is most valuable. When we made our estimates for the Sydney installation we estimated on 50 per cent. heavier loading than the biggest load we had up to that time, but we are now allowing for a 60 per cent. increase on the biggest load we have had since then. That was last Christmas time. That will be a much larger percentage than the average loading. The machines should be able to deal with normal expansion for the next fifteen years. Our difficulty in ten or twelve years' time will be not in the machinery but to get room for the final sorting racks. We may need more floor space then, but we should not need more machinery. We shall be able to get ground for more floor space, for the Department owns ground that will permit of the building being extended. I think that we shall be using this machinery in this building for the next twenty years. There are various ways if the load grows for getting parts of it cut off. We can establish centres in other parts of Sydney to reduce the volume of matter coming into the General Post Office. I cannot tell you how much it has cost to date in the preparation of plans and in the construction of models in connexion with this proposal. I suppose we have incurred a liability of about £15,000 already in respect to the contracts that we have let. The preparation of plans and the making of working models may have cost £5,000. The cost has not been included in the estimate, but is included in the overhead costs of the Works Department. These plans have been used in Melbourne, and will be used in Sydney, and

possibly later in Adelaide and Brisbane. The Department of Works and Railways does not charge the cost of preparing plans against the job. The Works Department staff is responsible for drawing the plans. I am the only Postmaster-General's Department man connected with the work. My estimates were prepared quite independently. After we had prepared our individual estimates, we had a conference at which we went through the figures in an endeavour to arrive at one figure to place before the committee. I understood the figure would be £68,000. Mr. Fleming has apparently increased his estimate a little since then. I am not quite sure now upon which items we differed. I did not know until the day before yesterday what amount had been asked for. I cannot tell you the items upon which Mr. Fleming differed with me, but it was only a matter of £3,000 spread over all the items. I should not like to reduce Mr. Fleming's estimate. He is responsible for carrying out the work, and it is only a matter of £3,000 in that large sum. This is my proposal, but after the matter is handed over to the Works Department, at the tendering stage, I have no further control, neither am I consulted as to what is done. Mr. Fleming has worked on my experience, but he is also using his own experience. If probably has a better right to submit estimates to you than I have, because he is responsible for getting the work done. In my original estimate submitted last year, I stated that if the present system of mail handling was adhered to, the following equipment would be required—Lifts and elevators, £10,550; tables, platforms, bag racks and automatic baggers, £4,700; mail chutes, £400; bag cleaning machines, £1,000; letter sifting machines, £100; contingencies, £1,675. The total was £21,000. That figure has now been increased to £44,125 partly because a number of items have been included which were not in the original estimate at all, but even if mechanical appliances were not installed, we should still have to install a number of these items. I said in my previous evidence that £21,000 worth of equipment should be necessary, supposing no mechanical mail handling appliances were installed. In my quote, which is now before the committee, we have itemized the expenditure and we have taken out from the £44,000 the items which are not special machinery. Although there are some big increases, I wish to point out that the increases in regard to the installation that will have to be made whether mechanical appliances are provided or not, are just as great, if not greater than the increases in the estimated cost of the mechanical appliances. The increase is not confined to the special machinery, but includes the whole of the machinery. We have included in our fresh estimate certain items which were not included at all in the original estimate. The first estimate has been shown by experience to be too low. I did not prepare the estimate of £21,000; it was prepared by the Works and Railway Department; but I think it was a fair estimate at the time. They were not in close touch with the nature of the undertaking upon which they were required to submit an estimate. If you take out of the new estimate the items which were not included in the old figure, you will reduce the total somewhat. I am quite sure that costs have increased by at least 50 per cent. since the original estimate was made. The estimates covered both labour and material. I have given you an illustration in my statement of 100 per cent. increase in one item alone which we have been purchasing in Australia from different firms for the last twenty years. There is a variation of 100 per cent. between the Sydney and Melbourne tenders, and that occurred only last month. Both the firms concerned tendered for the same job at the same time and there was 100 per cent. difference in their figures. We should have to put in the whole of the items included in the £41,000 total even if we did not go on with the

13. To Mr. Cook.--I am quite satisfied that the amount that we are now asking for will be very near to the actual cost. We shall not exceed it and may finish up with something in hand. I do not think anyone could be held to be blameworthy in respect to the estimates, which were originally placed before the committee because we had simply to go on the

14. To Mr. McGrath.—When I last gave evidence before the Committee there was no suggestion that we should begin installing a plant like this in Melbourne. That proposition arose when they got into difficulty in Melbourne owing to the increased volume of business there. They wanted additional facilities, and the secretary decided to push on with the small installation there and let the Sydney installation stand aside for the time. We should have been further ahead with the Sydney work if the Melbourne work had not been started. Although the increase in mail matter handled in Sydney last year was only 16,000,000 articles, as against 18,000,000 in the previous year, we think it wise to allow 50 per cent. only for the next year. These figures that appeared in my first statement were not available when I gave evidence last year. We only take one estimate twice a year, in May and November. I accepted the £8,000 tender that I referred to in my second statement, for it was the lowest. I inspected the work yesterday, and it was well done. If contractors who have definite drawings in front of them vary as much as 100 per cent. in making an estimate, it is only to be expected that we, without drawings, should vary in our estimates. We had only those tenders in that particular case, and if the lowest tenderer had not put in his price for any reason, we should have had no one whatever of checking those prices. There are instances where we are required to submit estimates for works of this character is such that we cannot spend a shilling on drawings or plans until we have got the approval for the expenditure. As a matter of fact, it has cost us £5,000 to discover what expenditure this job will involve. I thought everybody knew that when we submitted our estimate previously no plans had been prepared. The cost of preparing the plans is not debited against the work. The plans are prepared by the

15: To Mr. Lacey.—It is quite right that this was entirely new work. Machinery like this had never been constructed anywhere in the world. I designed the plant here, and we had very little evidence to guide us as to cost. I do not agree that I did not tell the committee that we were working without plans or specifications. I think I made it quite clear that this was a new business. In my previous evidence I said—

It is a remarkable fact that in the largest mail-handling centres in Australia and in many other parts of the world, no labour-saving machinery except the sorting machines had been used. The only work of sorting

At that time I did not anticipate that there would be a large increase in the actual cost of this installation over our estimate. If I had thought that way, I should have asked for more money, for the proposition was a good one, and it could have stood extra cost.

137. To Mr. M. Cameron, Mr. Fleming and I worked independently on our estimates. As individuals we have given the best advice that we could give. I discussed with Mr. Fleming whether we should split the difference between us and come forward with one estimate, but he thought it would be better to give our individual figures. We worked in two different States, and we did not even discuss the matter over the telephone. Our estimates are for the same work already finished. An estimate of the Works and Railways Department supports the draftsmen. I got out the original designs and keep an eye on things. I am always on the job. The supervisor of the Works and Railways Department consults me as the works proceeds and I more or less tell him what to go on.

18. To *Mr. Seabrook*.—When we are calling for tenders we set matters out to the last detail and guarantee sizes and quantities. If we invite tenders for 1,000 bolts and 1,025 have to be used, the extra twenty are charged for. We have not gone on with the work or incurred extra expenditure since our discovery that the job is likely to cost a good deal more than we first estimated. In one case we let a contract for two machines, one being required for Melbourne and the other for Sydney. When the first tenders were opened for this job, we were somewhat surprised at the high prices, but we expected to end things up on the next lot of tenders, though it did not happen that way. We have not spent all the money already voted to us, though some of it has gone. The Sydney machine which we ordered at the same time as we ordered the Melbourne machine cost £5,500, and the Melbourne machine cost £3,000.

20. *To Senator Reid*.—As soon as we knew that this work was likely to cost more than was estimated, we took steps to approach the committee on the subject. I had no idea the expense would be so great when it was previously before the committee. I am very much in the position of a consulting engineer. Mr. Fleming's duty to the Government is to keep the machinery in good order and is meant for heavy and long wear without the necessity for renewals. Although we have allowed for a 10 per cent. depreciation, we do not expect the machinery to wear out in ten years. The chains and belts will wear more rapidly than the parts of the equipment. We have a large stock of spare parts and have been supplied with the machinery. The belts are rubber and canvas and are specially manufactured to



our design. Mr. Fleming has no personal knowledge of mail handling appliances. I have known occasions when the postal department has been absolutely overcrowded and could not get the matter out. It is serious when that happens, for it means that on account of the overcrowded position, the men are not able to work as effectively as they can under normal conditions. This machinery will keep everything moving, and I consider that its installation will be a great benefit to the service as well as to the community generally. We have spent about £15,000 of the £41,000 already voted for.

21. *To the Chairman.*—Previously when I gave evidence, I pointed out that Mr. Brown had already directed the chief mechanical engineer of the Works

and Railways Department to go carefully into the matter of this installation. He had also a special committee appointed of a Bachelor of Engineering in the department and a leading officer of the mail branch to report on the proposal. I have seen a copy of their report and it is favorable. It only covers two sheets of foolscap and did not discuss the matter of cost, but only whether the machines would do what we claim. That report was on the departmental file. We are duplicating certain of the motors at vital points so that we shall reduce the likelihood of the breakdown. The motors cost on the average about £60 each.

*The witness withdrew.*

*The committee adjourned.*