1927.

THE PARLIAMENT OF THE COMMONWEALTH OF AUS

Pursuant to Statute

In return to Order

PARLIAMENTARY STANDING ... COMMITTEE ON PUBLIC WORKS.

the Senate.

# 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,	

(Cost of Paper: Preparation, not given; copies; approximate cost of printing and publishing. .)

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#### MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

#### (Fifth Committee.)

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

Senate

House of Representatives.

Senator John Barnes. Senator Patrick Joseph Lynch.\* Senator Herbert James Mockford Payne,† Senator Matthew Reid. Malcolm Duncan Caneron, Esq., M.P.§
Robert Cook, Esq., M.P. (1997)
The Hon. Honry Gregory, M.P.;
Andrew William Lacey, Esq., M.P.
David Charles McGrath, Esq., M.P.
Alfred Charles Seabrook, Esq., M.P.

Resigned 2nd March, 1927. I Appointed 24th Mache, 1927.

\* Resigned foth June, 1926. † Appointed 1st July, 1926.

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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 Commonically Public Works Committee Act 1913-21, the following work be referred to the Parlianentary Standing Committee on Public Works for investigation and report, viz.:—Sydney General Post Office—Extension of the Installation of Mail-handling Appliances.

Question—pub and passed.

#### LIST OF WITNESSES.

		PAGI
Corbett, Arthur Brownlow, Engineer and Inspector, Central Office, Postmaster-General's Department		10
	• • •	
fleming, James, Chief Mechanical Engineer, Department of Works and Railways, Melbourne		7

# 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 expeditions 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 25th 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."

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#### 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 Estimato.		£ 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 :—
  - (a) Cost of original plant under-estimated.
  - (b) Increased volume of mail matter to be dealt with.
  - (c) 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 ne 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:—
  - (1) £19,550.
  - (2) £14,350.
  - (3) £11,459.
  - (4) £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 :—
  - (i) 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:
  - (ii) Additions were made to three of the second-class primaries;
  - (iii) An additional facility was provided in the automatic clearing of second-class mis-sorts, and restoring the mis-sorted articles to their correct primaries;
  - (iv) The recording devices on which statistical information is based were extended;

- (v) Seating accommodation has been provided which was not included in the original
- (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 :---

m . 1						£	£
Total cost of proposal Annual charges—		• •	• •	• • •	••	••	71,000
Interest at 6 per	cent.					4,260	
Depreciation at 1	0 per cent.					7,100	
Maintenance	• •				• •	1,172	
Running costs	• •	••	• •	••	• •	500	
T3 41 4 3 4		~				13,032	,
Estimated saving as	detailed in	Com	nittee's	report	of 25th		
October, 1926	• •	• •		• •		15,276	
Leaving a saving of	••	••	• • •	• •	• • •	2,244 pe	er 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 Commonwealth or State enterprises capable of samilying one definant should be specially infried to submit an offer to fulfil requirements, thus providing a check against tenders received from private firms.

  G. H. MACKAY,

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 Mr. Lucey. Mr. McGrath. Senator Reid. Mr. M. Cameron. Mr. Seabrook. Mr. Cook.

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 £290. 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 £100, 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 £2,000 for contingencies now brings the revised estimate to £70,780, or, say, £71,000. Taking the first item, lifts and clevators, 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. 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. us, and the sum anowed 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 stoveenamelled 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 gave my previous 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 £11,459, 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 para and with a complete out 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 10s... and another £25, and it was stated that the same article could be obtained in America for £5. That relates to pneumatic plungers for operating the divorters. 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 accounted for by alterations from the original scheme, 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 £25, 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 would be a support of the control of the contr 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 secondclass 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 undermakes the mail-handling plunt more or less experi-mental. 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 secondclass 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

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 system of inactoring wine that plant is 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 444,125, 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 over-coming 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 through missing one opening operation. The rate 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 secondclass primary machines had to buy a few light sheetclass prinary 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 ap-

8. To Mr. McGrath.—We have publicly advertised tenders for each contract, rud 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 place 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 haudling; 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. Corbott stated in his ordience, at page 15—

You sak me whether it would be advantageous to call in a high-class commuting electrical engineer hefore calling for to a commuting selectrical engineer hefore calling for to a commutate the community of the co

I have not been in contact with that committee at all. 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 is 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 Payme .-- 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 precautious 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 £8,000 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 the cost of the experiments made. I had no models made, although Mr. Corbett had a working model at the Sydney General Post Office. Previously 10 per cent.

was allowed for contingencies, but I think 5 per cent, will be sufficient, in view of the more accurate figures now at my disposal. The lifts have been finished, and n sorting machine costing over £5,000 has been nearly completed. Therefore, no contingency allowance is required regarding those items. I would not say the estimate was based on pure guess-work. I based it on estimate was pased on pure guess-nors. It based to shall I thought the equipment would cost, after a discussion with Mr. Corbett as to the form it would take, but at that time he was more or less in doubt on certain matters. The labour cost on the second-class primary machine should be 60 per cent. We developed the automatic travellers as the scheme materialized. They account for £840. There are also 300 swivelling seats for the sorters, costing about £2 16s, each, and these account for a total of over £800. I had made provision for chutes only, but now automatic weighing machines are required. I am told that it was necessary that all mail matter should be automatically weighed. If one of the drop doors accidentally opened it could only result in an odd package slipping through and being mis-sorted. If a machine broke down and there was a certain quantity of mail matter in it, the plant could be operated by hand in order to empty the machine.

## (Taken at Canberra.)

THURSDAY, 27TH OCTOBER, 1927. Present:

Mr. MACRAY, Chairman; Mr. Lacey Senator Payne Mr. McGrath Senator Reid Mr. Scabrook. Mr. M. Cameron Mr. Cook

Arthur Brownlow Corbett, A.M.I.E. (Aust.), Inspector, l'ostmaster-General's Department, Melbourne, sworn

12. To the Chairman.—On 6th September last I prepared and submitted to the Chief Inspector of Postal Services, Melbourne, a statement relating to the costal cervices, actionarie, a statement retaining to use mechanical handling of mails at the Sydney G.P.O., and dealing specially with the estimated cost of the installation. It reads as follows:—

and dealing specially with the estimated cost of the installation. It reads as follows:—

1. With reference to your memorandum of 24th August, 1927.

1. August 1927.

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possible to obtain any precise information as to probable coats, and it was only possible to farafish estimates on the best available information then obtainable. The estimated test furnished to the Public Works Committee was as

Hirmsica to I		
ler:—		£10,550
1. Lifts and elevators		5,000
2. Conveyors and po	sting slip clear	15,700 185
ing machines  4. Lamson overhead runwa	racks and	auto-
matic baggers	· :: :	400
6. Mail chutes 7. Bag cleaning machine	100	1,000 (a)
S. Letter sifting machine Contingencies		3,765
Total		£41,400

4. The proposal was approved by the committee, vide their report No. 92, 25th October, 1926, ordered to be printed 2nd March, 1927.

March, 1927.

5. After approval to proceed with the work was obtained for the control of the con

Syuney work are now wen torward.

6. It is now possible to more closely estimate the probable cost of the completed work, and from the prices already obtained it is appeared work, and from the prices already obtained it is appeared work, and from the prices are considered with the constant of the constant will be exceeded. Following is a comparison of the original and revised exceeded. Original. Revised.

estimates:	Original.	Reviseu.
Item No. 1. Lifts and elevators	£10,550 5,000	£14,200 7,970
2. Conveyors 3. Sorting machines and posting slip clearing machines 4. Lamson overhead runways	15,700 183	38,020 200
4. Lanson otherwise, bag racks, and automatic baggers. 6. Mail clutes 7. Bag cleaning machine 8. Letter sifting machine 9. Contingencies	4,700 400 1,000 100 3,765	1,400 1,400 1,000 2,000
Total	£41,400	£08,940

Apart from the imperfect data available at the time the original estimate was prepared, there are other factors which account for the increased cost.

original excume has prepared, once we owner decorate relations of the increased coast.

7. When the original designs for the anchines were prepared they were read on the statistics then available as to the common of the property of the statistics of the common of the property of the statistics of the property of the statistics of the property of the property of the property of the common of the property it is essential that the local statistics and the property it is essential that the many of the property of the volume desystetical at the appoint of the property of the volume to be handled. A careful examination of the statistics and this purpose of the property of the propert

_				78,000,000
	1920/21	 	• • •	86,000,000
	1921/22	 		93,000,000
	1923/23	 • • •	•••	98,000,000
	1923/24	 ••		116,000,000
	1024/25	 • •		139 000,000
	1025/20	 	:	

The figures for 1920-27 will, it is expected, exceed the increases shewn in the last two yours, and under these circumstances it was decreasery to make greater provision, in the capacity of one content of the capacity of the capacity of the capacity of extended the capacity of the capa

8. In the process of mail handling the different types of mail matter pass from one machine to another, and it is not

possible to put out of action one machine in a chain of processes without dislocation of the whole of the machiner engaged in that series of operations.

B. The machines provided are designed to dead chiefly with the functions of opening and receiving multis, primary corting and conveying from one production of the machinery process production of the machinery process. The process production adequate for fifteen years. To have all room operations at some future time to expension on the production operations at some future time to expension of the process of the processing of the pr

nantung.

10. Normal growth of husiness in the final despatch of mails can be met by providing additional bag racks and final sorting presses which are moveable articles and can be added as required.

no. Normal groath of husinese in the final despatch of mails can be met by providing additional bug racks and final corting presses which are moveable articles and can be welded as required.

In the more complete additional bug racks and final corting presses which are moveable articles and can be widded as required.

In the more complete additional form the radius of the more consequent observations made in the right of the probable loads each machine that the requirements it is possible to demand of the present building.

In the stated with the regular proposal have been added. For each probable to the present building and the requirements it is possible to demand of the present building with the continual proposal have been added. For each probable to the present of the present of the continual proposal have been added. For each probable to the present of the present of the continual proposal have been added. For each probable to the present of the continual proposal have been added. For each probable to the present of the continual proposal have been added. For each probable to the present of the continual proposal probable to the continual proposal probable to the continual proposal probable to the probable to the continual proposal probable to the probable to the continual proposal probable to the continual probable to the continual proposal proposal in dealing and proposal proposal in dealing the probable to the continual proposal propos

example of the difficulty in obtaining prices on which to base example of the dimensty in obtaining prices on which to make estimates even for work which has been previously tendered for by firms who regularly supply the department with standard management.

setimates even for Nork which has never previously stated for by firms who regularly supply the department with stand dard requirements.

19. The revised estimates which have been submitted have been prepared after corrected consideration of all the known factors out between the constitution of the known factors out building the appearance of the constitution of the known factors of the model of the constitution of the constitution of the known factors and submitted in Melhourne. He drawings are mediately advanced to know that all the dark the amount submitted star enverse, and it are all unforescent equipments, provides are covered, and it are all unforced in more requirements, provides the proposal before the Works Compiler when the proposal before the Works Compiler the proposal before the Works and the work practically one half was a life of the resulting a while for mail handling purposes, conveyors, &c. were essentials to the contract of £21,400 20,000 Essential equipment of the building Mail-handling machinery proper

Mail-handling machinery proper	
	£41,400
Total	the revised
stimate as follows:  Hem I—Iths and clevaturs Peaking boxes and convoyou Clutter Plutforms in lasement Purcel post fittings and counter for sworter Inge-denning matchin Opening tables (without conveyors)	£14,200 11,000 900 75 200 800 1,000 360
Bag rucks Sorting presses	300 850 500
Face-up tables *Letter primaries (manual type), 6,747 pigeon-holes	8,000
*Second-class primaries (manual type), 2,100 pigeon-koles	0,000
	£44,125
Cost chargeable to new mail-hand ling machines	24,815
Total	£68,940

These items would be required for the new building even if no machinery were provided.

The revised figures given on page 12 of the minutes of evidence given before the Works Committee by Mr. Corbett should be .—

en before the Works Committee of 2011. C	£21,815
Interest at 6 per cent. Depreciation, 10 per cent. Maintenance Running costs	£1,188 2,181 1,172 500 £5,641
Estimated savings as per Table III. Less annual charges	113,276 5,641
Annual saving	£0,635

The estimated savings shown in Table III, could be fairly increased, but this has not been done. The meanened volume provided for and additional facilities made have all tended to increase savings, atthough concert of \$50,840 were charged to the proposal and the concert of \$50,840 were charged to the proposal and still be financially sound, apart from the country of the proposal and still be financially sound, apart from the control of the proposal and still be financially saint, and the ability that made is a protect volume of multimater in the building than would be it all possible if no machinery were provided. The fluores would be: figures would be :-

Total cost of proposal			£68,940
Annual charges— Interest, 6 per cent. Depreciation, 10 per cent. Maintenance Running costs	· :	::	£4,134 6,894 1,172 500
Estimated savings (not increase Less annual charges (on com Annual saving	ed) plete pl	ant) 	£15,276 12,700 £2,576

Inis lasts, while reasouring from the financial aspect, is quite unfair to the proposal, because the whole of the saving, of 15:276 is based on the expenditure on the multi-handling machinery proper, i.e., a capital expenditure of 22:3,415, not a capital expenditure of 26:940 as included above. In other words, if the building, furniture, and equipment at present used only were provided, mone of the saving of 515;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 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 naking that report I was not aware that I should be required to give intribure 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, Only a small portion of the work has so far neen competen, the actual work in hand or completed comprises the city econd 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 mail beg elevator and goods lift. In addition, contracts are let or pending for twelve letter primary sorting machines, and the goods lift muchines. The remaining contracts are not yet let. The actual exponditure and liabilities already incurred amount to £15,665 out of £41,400 approved. The coasons for the additional exponditure which will be required are more fully explained in my report of nth September, 1927, but may be summarized as follows:

- (a) 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 wer twelve months to prepare.
- (b) 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 intidequate.
- (c) The cost of manufacturing work has increased by reason of legislation passed during the past twelve months, and many contractors have in order to sateguard themselves against further increases in overhead and labour costs, increased their prices to an extent which made competition negligible. On metal the price of the price all quantities of material were tabulated and guaranteed, resulted in the following tenders.—
  - (1) £19,550 (2) £14,350 (3) £11,459 (4) £8,600
- (d) In my opinion contractors are nersons 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
- (c) Contractors experience difficulty in obtaining and retaining highly skilled men, and production of work requiring a considerable amount of precision work requiring a consucrance amount or precision Many contractors are not equipped with tools for repetition work, because they cannot obtain suffi-tion work to justify the purchase of such tools.
- (f) The larger firms can obtain sufficient standard work at remunerative prices and they do not tender at competitive prices for work which is now to them. The smaller firms are more enterprising but are bandlenple financially in handling large

It was renormable to assume that in an engineering work of this nature there would have been keener competition among firms with the engineent to produce repetition work at lower prices than those actually paid. Probably mone of the lower prices than those actually paid. Probably mone of the contracts, but factors have ranks any large profits on their contracts, but factors have ranks any large profits on their contracts, but factors have been obtained. The fair piec of an article is the cost of production. I am of opinion have prices would have been obtained. The fair piec has a time of the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been led at a fair price, but the contracts already let have been been dead to be a fair price and the contracts already let have been already and the contracts are already and th

It was found necessary when the details of the scheme were developed to add to the items originally included and this also has increased the cost. Such items fall under three head-

- (a) Those which were unforeseen and omitted from the original estimate, e.g., seating accommodation for
- original estimate, e.g., seating accommodation for sorters, \$300.

  (b) Machines which have been increased in capacity because further studies of the volume handled indicate that the apparently adequate provision originally made was insufficient.

  (c) Additional provision made to secure against break-
- downs, and to provide improvements on the original

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 of 1s must be provided and must be adequate to earry 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 September, 1927, because after providing for interest at 6 September, 1927, because after providing for interest at 6 September, 1927, because after providing for interest at 6 September, 1927, because after providing for interest at 6 September, 1927, because after providing for interest at 6 September, 1927, because it is made a provided by the savings effected, while it my opinion have been underestimated, will amount to £9,435 per annum, and will pay for the whole plant will pay for itself in eight years, two-chirds of the expenditure would need to be incurred in any case whether the special machinery were provided or not, because it is necessary to provide equipment for the new haldling to allow the work of the mal branch to be carried in the same of the second proposition of the same in the same and the same of new machinery were used to pay for that machinery only, it would put the matter this way:—Suprose at the record of the whole sheinery and by its use effected savings of £15,000 per annum. At the end of three years the foun could be a would be—

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

#### Say £2,000 per amona.

Say £2,000 per annum would increase as the load increased, but taking the net savings after three years, at £13,000 per annum would increased, but taking the net savings after three years, at £13,000 per annum, and this awaring would not be reduced during the life of the machines, say another ten years, then the total saving effected would be not less than £15,000 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 expect the control of the limited floor space available in the new buildings of the limited floor space available in the new buildings of the responsible for the original design of this installation and have been in close touch with the Department of Works and Railways, Wo are responsible for carrying out the work and Railways, who are responsible for carrying out the work and who prepared the original estimate with which I concurred.

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 21-ton lift as originally suggested. The installation of the letter lifts is practically completed. The framework for the 21-ton lift is 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 price that they were actually paying; but when we came some time later to buy a second 21-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 possibly later in Adelaide and Brisbane. The Depart-there will be any further increase. From what the ment of Works and Railways does not charge the contructors tell us they will find it extremely difficult to carry on if any further increases occur. We have varied the type of bag clevator, but that will not necessarily increase the cost. That contract has not vet 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 240 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 electropneumatic diverters to insure that they will function reliably under working conditions. We are in the happy position of having completed the Melbourno 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 is made about related to two-most, it was bound 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 had up to that time, but we are now allowing for a 50 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

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 ouly 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. He 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, ong 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 McBourne tenderers 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

mechanical handling scheme. I wish to make it clear that we have not yet occupied the new Sydney General Post Office for mail purposes. When we get there we shall occupy four floors of the building and we must have some means of getting the material to the third floor. At present we are carting all the postal matter to Central Square in motor lorries. If we do not have the mechanical appliances, how can we get the stuff up three floors. There are not enough lifts. We should have to put in a conveyor so I submit that that is a reasonable charge against the building but not against the mechanical appliance proposal. As against the original proposal we now find that we have to pay £1,700 more for lifts and elevators; £500 more for mail chutes; £800 for seats for sorters, which is not included in the original estimate; £100 for letter sifting machine; and a larger figure has been allowed for contingencies. Then an amount of £75 has been included for platforms in the basement. The amount of £11,000 for posting boxes and conveyors was not included in the £21,000 originally; it was included under special machinery. But as I have said, we think it is a fair charge against the building. I admit that it is rather hard to separate these items, but they can to statuer mara to separate cases trems, out they can be separated and they ought to be separated in considering the savings are derived only from certain of the machinery. If we take the annual charges on the total cost of the proposal, namely £68,940, we shall the total cost of the proposal, namely £68,940, we shall the total cost of the proposal, namely £68,940, we shall the total cost of the proposal namely £68,940, we shall the total cost of the proposal namely £68,940 and the total cost of the proposal namely £68,940 and the total cost of the proposal namely £68,940 and the total cost of the proposal namely £68,940 and £68,940 a make an annual saving of £2,576, but if we take it against the new mechanical appliances only, the saving will be £0,000. I do not make a very strong point of that, but it is a matter that could be considered. In whichever way you put the case, a saving of at least \$2,000 a year will be made and I repeat that more than \$40,000 will have to be spent in any case. The power charge of 2.2d. per unit will not be increased, in fact we are finding that we are using less power than was originally estimated. I think an ample allowance has been made for maintenance and repairs. I have every confidence that the savings which I have estimated will follow the installation of the machinery and in addition there will be benefits to both employees and the general public. The working conditions of the employee will be ever so much more comfortable and we shall be able to handle a very much larger volume of mail matter in a given time. If the scheme is not approved by Parliament, we shall not be able to make any use of the plant that we have already let tenders for, at a cost of £15,000. It will be a dead loss. It is only recently that we discovered that there was likely to be serious differences between the actual costs and our estimates. It is only within the last three months that we began to be seriously alarmed about the probable cost of the job. I am quite satisfied now that there is no possibility of failure. The job will be entirely successful. I would probably have a good deal better knowledge than Mr. Fleming of what the plant is required to do, and personally I have no doubt whatever about the matter. From what I have seen of the Melbourne plant in operation I should be quite prepared to guarantee that the Sydney plant will be entirely satisfactory. I should have sufficient confidence in the success of the scheme to go on with the work of installation in two offices simultaneously. The whole of the experimental work in connexion with the scheme has been completed. We have passed the experimental stage. I feel quite sure that we shall not have to ask for any more money to complete the Sydney

installation.

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 finish up with something in hand. I do not consider the property of the estimates which were originally placed before to the estimates which were originally placed before to the estimates which were originally placed before against the work. The plans are prepared by the the committee because we had simply to go on the

best information we had. As an illustration of how original estimates are exceeded, you may take the case of the Murray Waters scheme. The original estimate the cost was £4,660,000, but it is now estimated that the work will run into £14,000,000. Excesses in estimates for engineering work are not unusual. I refer again to the tenders we received for the steel letter boxes. Since we last appeared before the committees in relation to this proposal we had had actual experience in installing these machines in Melbourna, and I am quite satisfied that their installation will be a profitable investment. We have allowed 10 per cent. for depreciation. You have seen the type of machinery in Sydney, and I would like you to see the Melbourne machinery. I am quite sure that it will be sound and good in fifteen years' time. The reason why such a large plant is required in Sydney and only a small plant is being installed in Melbourne, is that the Melbourne plant is required to deal only with the City mail matter, while the Sydney plant will deal with all five sections of the mail branch. We anticipate that mechanical appliances will be installed in Melbourne at Bourke-street after the Sydney work is completed. I do not know that it will be humanly possible to undertake two installations of that kind at the same time. We should not be able to get sufficient draftsmen. We could not get the drawings done and the supervision necessary to undertake two big jobs like that simultaneously. The additional cost of the scheme under the new estimate may be stated under various headings. First of all, there is the increased cost of manufacturing; secondly, items are included in this proposal which were not included in the original proposal; and thirdly, some of the machines have now been increased very considerably. Certain of the machines have been increased in size by 25 per cent. The increased cost from a manufacturing standpoint has been attributed to the New South Wales Child Endowment Scheme and the change over from the 48 to the 44-hour week.

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 shead 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. on the record figures. Those figures that appeared in my first statement were not available when I gave evidence last year. We only take our statistics twice a year, in May and November. We accepted the £8,600 tender that I refer 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 way whatever of checking those prices. The system under which 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 pre-

required. Every one of these has to be drawn to scale. Every bolt hole has to be shown on the drawing, so that the plan may be handed to the workman with instructions to go straight ahead. It would be quite impossible for us accurately to estimate the cost of work in the sheares of record in the absence of proper drawings.

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 neen constructed anywhere in the worth. 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-

was a new dustiness. An my previous evidence 1 said—
It is a romarkable fact that in the largest mall-laundling
centres in Australia and in many other parts of the world, no
labour-saving machinery except stamp-cancelling machiners have
yet been introduced to assist the 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.

16. To Senator Payne .- I have not previously had the experience of having to appear before the Public Works Committee to explain why my previous estimates have been exceeded, for this is the only matter upon which the Works Committee have examined me. There is no doubt, however, that estimates for engineering installations are frequently exceeded. When I gave my evidence previously I honestly thought that the installation would cost only about £40,000. view was based upon the evidence which we had before us. I have given certain details of items in which the as. A more given certain quants or rems in when the original estimates have been exceeded. It is rather difficult to analyze the figures as they appear before us, but I can give you the actual dotails for the individual machinery. I think I could do it without very much delay. A rush period in mail handling comes at various times in the year. There is the Christmas period. The outgoing mails are heaviest from the 10th November to the end of the month, and the incoming mails from the 14th to the 24th December. It is essential that the machinery should be sufficient to meet these rush periods. Under the manual system, extra hands are engaged for a limited period at Christmas time, and also at the Easter season, and at certain times when the big drapery firms and other businesses send out huge numbers of catalogues. We have not taken into account the extra heavy period in estimating the saving that will be effected by the installation of this machinery. We have taken the average employment throughout the year. The man who took the second-class primary contract for £8,600 has finished his job. I do not know how he came out of it. They always tell us they never make anything. The usual thing for them is to say that they have just covered expenses.

17. To Mr. M. Cameron,-Mr. Fleming and I worked independently on our estimates. As individuals we had given the best advice that we could give. I disnad given the eest advice that we could give. I also cussed with Mr. Fleming whether we should split the difference between us and come forward with one esti-mate, but he thought it would be better to give our own individual figures. We worked in two different States, and we did not even discuss the matter over the telephone. Our estimates are based upon work already finished. An officer of the Works and Railways Department supervises the draftsmen. I get 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 work proceeds and I more or less tell him what to go on

Works and Railways Department. The drawing of plans is a costly job. Take the case of the second-class primary, for which 6,000 different pieces of metal are the hands of the mechanics blue prints to show every detail of the job. Mr. John Close has had draftsmen in his works from the day he started operations nine months ago. We have taken steps to try to ensure that the liability of breakdowns shall be reduced to a minimum. The senior officers of the mail branch have inspected the Melbourne machinery within the last day or two and they are perfectly satisfied with

18. To Mr. Scabrook .- 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 1,020 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 even 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 us £5,800, and the Melbourne machine cost £3,000.

19. To the Chairman .- The cost of the drawings that still have to be made will not seriously affect the price. We came before the committee for more money immediately we discovered that we were not likely to have sufficient. After the original designs were agreed upon, we discovered improved methods, and I think we should not have been doing our duty had we failed to incorporate them in the installation. The models the committee saw were provided by the Postmaster-General's Department, though some of the gears were bought outside and charged to the Works and Railways Department, and they will be available for other models besides those which the committee saw. As soon as their purpose is served, they are dismantled. We have a vote for expenses for experimental work. We have a special staff to undertake research work in connexion with the telephone department. That is very necessary. I do not think that we have spent £200 for making models for this installation. drawings and plans will be paid for by the Works and Railways Department and they will be available for use when installations are being made in the other States. It would be hardly fair to charge them against this job. We shall probably be installing plants at Perth, Adelaide, Melbourne and Brisbane. The cost of the drawings could be debited evenly between these installations, but if the charges were made in that way there would be no need for the Works and Relways Department.

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 I was previously before the committee. I am very much in the position of a consulting engineer. It is Mr. Fleming's duty to see the job through. The machinery is substantial, 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 other parts of the equipment. The Dunlop people have guaranteed the belts. A number of spare parts have been supplied with the machinery. The belts are rub-ber 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 over-crowded and could not get the matter out. It is serious when that happens, for it means that, on account of the over-crowded 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 yoted for.

N.

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 Dopartment to go carefully into the inatter 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 brunch to report on the proposal. I have seen a copy of their report and it is favorable. If only covers two sheats of foolscap-and did not discuss the matter of cest, 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 yital points so that we shall reduce the likelihood of the breakdown. The motors-obst-on the average about 480 each.

The witness withdrew.

The committee adjourned.