

THE PARLIAMENT OF THE COMMONWEALTH OF AUSPRALIA

PARLIAMENTARY STANDING COMMITTEE Lan.
ON PUBLIC WORKS. 18 Man. 191

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

RELATING TO THE PROPOSED

TRANSFER OF POSTAL DEPARTMENT'S TELEGRAPH LINES BETWEEN PERTH AND ADELAIDE TO TRANSCONTINENTAL RAILWAY ROUTE.

MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

(Fifth Committee.)

George Hugh Mackay, Esq., M.P., Chairman.

Sennte.

House of Representatives.

Senator John Barnes. Senator Patrick Joseph Lynch. Senator Matthew Reid. Robert Cook, Esquire, M.P.
The Honorable Henry Gregory, M.P.
Andrew William Lacey, Esquire, M.P.
David Charles McGrath, Esquire, M.P.
Alfred Charles Seabrook, Esquire, M.P.

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EXTRACT FROM THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES. No. 10, dated 3rd Ferbuary, 1926.

7. Public Works Committee—Reverence of Work—Telegraph Lines between Perth and Adelaide.—Mr. Gibson (Postmaster-General) moved, pursuant to notice, That, in accordance with the provisions of the Commoncealth Public Works Committee Act 1913-21, the following work be referred to the Parliatray Standing Committee on Public Works for their report, viz.:—Transfer of Postal Department's telegraph lines between Perth and Adelaide to the Transcontinental Railway route.

Debate ensued

Mr. Gibson having laid on the Table plans, &c., in connexion with the proposed work—Debate ensued.

Question-put and passed.

LIST OF WITNESSES.	Pass
Limited, Melbourne	4
Trawford, John Murray, Chief Electrical Engineer, Postmaster-General's Department	1, 8
Hobler, George Alexander, Engineer for Ways and Works, Commonwealth Railways Department	9
Kilpatrick, James George, Supervising Engineer, Lines Construction Branch, Postmaster-General's Department	11
Malone James, Chief Manager, Telegraphs and Wireless, Postmaster-General's Department	7

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

TRANSFER OF POSTAL DEPARTMENT'S TELEGRAPH LINES BETWEEN PERTH AND ADELAIDE TO TRANSCONTINENTAL RAILWAY ROUTE.

REPORT.

The Parliamentary Standing Committee on Public Works, to which the House of Representatives referred, for investigation and report, the question of the proposed transfer of the Postal Department's telegraph lines between Perth and Adelaide to the Transcontinental railway route, has the honour to report as follows:—

INTRODUCTORY.

- 1. Telegraphic communication between Adelaide and Perth is at present maintained by three lines as follow: ${\color{black}-}$
 - (a) Adelaide-Fowler's Bay-Eucla-Albany-Perth.

This is referred to as the old coastal wire, is of galvanized iron 400-lb, to the mile, and has a length of 1.870 miles.

- (b) Adelaide Fowler's Bay-Eucla-Kalgoorlie Perth (connected for through service at Kalgoorlie).
 - From Adelaide to Fowler's Bay, a distance of 586 miles, this line is of 300-lb. copper; from Fowler's Bay to Coolgardie, a distance of 825 miles, it is of 400-lb. galvanized iron wire; from Coolgardie to Kalgoorlie, a distance of 24 miles, and from Kalgoorlie to Perth, a distance of 365 miles, it is of 200 lb. copper.
- (c) Adelaide-Fowler's Bay-Eucla-Coolgardie-Perth.
 - From Adelaide to Fowler's Bay, a distance of 586 miles, this line is of 400-lb, copper; from Fowler's Bay to Eucla, a distance of 240 miles, it is of 265-lb, copper; and from Eucla to Perth, a distance of 926 miles, it is of 200-lb, copper wire.
- 2. In 1921, it was proposed to replace the galvanized iron wire by a copper wire 300-lbs, to the mile, which would be carried from Perth to Kalgoorlic, 351 miles, on the Department's own telegraph lines along the road, and between Kalgoorlic and Forrest, a distance of 420 miles, on the telegraph lines of the Commonwealth Railways Department. From Forrest to Eucla. a distance of 67 miles, it was proposed to erect a new line. This proposal, involving an expenditure of approximately £42,030, was recommended by the Parliamentary Standing Committee on Public Works and approved by Parliament; but was held in abeyance by the Postmaster-General's Department pending consideration of the question of the possible provision of a telephone service between Perth and Adelaide.
- 3. In the meantime, the Commonwealth Railways had equipped its safe-working wire with a telephone, and when the question was re-opened some doubt was expressed as to the inductive interference likely to arise owing to the Postal Department's high speed work adversely affecting the Railway Department's safe-working wire. The matter was therefore again delayed until 1924, when it was decided that by metallicising the Railway Department's single wire circuit it would be possible to overcome the difficulty. The present proposal was then brought forward.

PRESENT PROPOSAL.

- 4. The proposal at present before the Committee is : -
 - (a) Port Augusta to Kalgoorlie.

Run two new 300-lb, copper wires on railway poles for use in lieu of three existing wires via Eucla.

(b) Adelaide to Perth.

Utilize one existing 300-lb. copper wire Adelaide to Port Augusta, thence one existing 300-lb. copper wire taken in exchange from the Commonwealth Railways Department, Port Augusta to Kalgoorlie; thence run one new 200-lb. copper wire on existing postal poles Kalgoorlie to Perth; all to make up a through circuit Adelaide to Perth for the use of the Eastern Extension Cable Company.

(c) Dismantle certain portions of the existing coastal route which will be no longer required for interstate or local services.

ESTIMATED COST.

 The estimated cost of the project as submitted to the Committee was set down at £167,010, made up as follows:—

CO TOTO IID *						
New line construction					£143,123	
New buildings					3,500	
Transfer of apparatus from	existing	to new l	ines		793	
Dismantling and recovering	old ma	terial			19,594	
						£167,010
From this amount should be	deducte	d				
Estimated value of old line	materia	l to be re	covered		£22,824	
Payment already made to F	tailwav	Departm	ent on ac	count ·	,	
of erection of poles a	long T	ransconti	nental r	aihvav		
route	٠.				24,844	
				• •		47,668
Leaving a net amount now to	be ince	irred on t	he projec	ct of		£119.342

The time necessary to complete the work is stated to be about nine months.

COMMITTEE'S INVESTIGATIONS.

6. The Committee took evidence from the Chief Electrical Engineer, Postmaster-General's Department, the Chief Manager of Telegraphs and Wireless, the Divisional Manager of the Eastern Extension Australasia and China, Telegraph Company Limited, and from the Chief Engineer of Ways and Works, Commonwealth Railways; examined plans of the route, and generally informed itself in regard to all the aspects of the project submitted.

PRELIMINARY WORK.

7. It was explained in evidence that, with a view to meeting the future requirements of the Postmaster-General's Department, it was arranged during the construction of the Transcontinental Railway that instead of erecting 20 telegraph poles to the mile between Kalgoorlie and Tarcoola, and 22 telegraph poles to the mile between Tarcoola and Port Augusta, which would be sufficient for railway requirements, the number of poles put in should be 25 to the mile between Kalgoorlie and Tarcoola, and 27 to the mile between Tarcoola and Port Augusta, to permit of the extra wires for the Postal Department being carried. This involved an additional expense of £24,844, which was paid by the Postmaster-General's Department to the Commonwealth Railways.

Poles.

8. The poles along the Transcontinental Railway are of the Siemens tubular galvanized iron pattern, about 4 inches in diameter and 22 feet long. They carry cross-arms 45 inches long for the accommodation of the Railway Department's wires, and it is proposed to erect an additional cross-arm on each pole to carry the Postal Department's wires. Accommodation is being left on the arms of the poles to provide for two additional wires if required in the future.

REPEATERS.

9. On account of the length of the line between Kalgoorlie and Port Augusta, it is considered necessary to provide an additional repeater at Cook.

BUILDINGS.

10. The new building which will be necessary to house the repeaters and batteries at Cook is to be erected of brick, and the staff cuttages will be of timber of the type now being erected for the accommodation of railway officials at Tarcoola and other places.

AGREEMENT WITH COMMONWEALTH RAILWAYS.

- 11. Under agreement made with the Commonwealth Railways Department, the Postal Department undertakes to—
 - (a) Provide and run one 400-lb, galvanized iron wire from Port Augusta to Kalgoorlie to convert the Railways' safe-working and telephone wire to a metallic circuit, and to insert transpositions in the converted line to minimize inductive interference. This second 400-lb, galvanized iron wire will then become the property of the Commonwealth Railways.
 - (b) Provide and fit one 78-inch wooden crossarm throughout.
 - (o) Provide and run one 200-lb. copper wire, with insulators and spindles. &c., on the new arm. This wire is to be handed over for use as a railway telegraph line in exchange for their existing 300-lb. copper wire, which will then become postal property.
 - (d) Lower the existing 300-lb. copper wire mentioned in (c) to the new arm, and then use it as portion of the Adelaide-Perth circuit to be leased to the Eastern Extension Cable Company.
 - (e) Provide and run two 300-lb. copper wires, which will be used as portion of the through postal wires in lieu of the three existing wires on the coastal routes.
 - (f) Pay rental for the use of the railway poles at the rate of 10s. per mile of wire per annum for the three postal wires.
 - (g) Strengthen the railway pole route by providing and fitting two transverse stays at each half-mile, with two longitudinal stays alternating at the same intervals, thus giving eight single stays per mile.

For the rental payable under (f) above, the Railway Department undertakes to carry out patrol and ordinary maintenance work.

AGREEMENT WITH EASTERN EXTENSION COMPANY.

12. During the course of the inquiry, it was stated that the Eastern Extension Australasia and China Telegraph Company Limited had made a request to the Postmaster-General's Department for the provision of a telegraphic channel of communication between Perth and Adelaide, and that it was intended to give offect to this under the present project.

that it was intended to give effect to this under the present project.

The Company has a submarine eable from Adelaide to Perth, thence to Cocos Island, from which there are branches running to Batavia and Singapore on the one hand, and to Mauritius and Cape Colony on the other. Owing to the heavy traffic on this line, and the consequent delays which arise, the Company decided to duplicate its cable from Cocos Island to Perth, and it superted that this work will be completed by the end of March, 1926. To avoid the expense of also duplicating the cable from Perth to Adelaide, which is said to be subject to many interruptions on account of the frequent storms and rocky nature of the sea-bottom, the Company is desirous, if satisfactory arrangements can be made, of utilizing a land line from Perth to Adelaide.

13. After some negotiations, the Postal Department has offered to provide under this scheme one 300-lb. copper wire from Adelaide to Kalgoorlie and one 200-lb. copper wire between Kalgoorlie and Perth. Automatic repeaters will be provided at Port Augusta, Cook, and Kalgoorlie These repeaters, as well as the line, will be maintained and attended to by the Postal Department For providing this channel of communication, the Postal Department asks a rental of \$15,000 per annum for a period of 10 years with option of renewal, and the Eastern Extension Company has agreed to these terms.

NECESSITY FOR RE-ARRANGEMENT.

14. In the course of the evidence taken by the Committee, it was stated that of the existing lines along the coastal route, one is wholly of 400-10, galvanized iron wire, and another for 880 miles, or about half of its length, is composed of wire of the same type. These iron wires, on account of their proximity to the coast, are adversely affected by the salt-laden atmosphere, and even when new their high electrical resistance acts as a serious detriment to efficient telegraphic transmission over long sections. It was represented that the existing lines do not effectively carry the traffic offering, which amounts to approximately 3,857 messages daily, partly because of the comparatively large proportion of iron wire which is nearing the end of its useful life, and partly because of the frequent interruptions due to the age of the construction generally.

It was further stated that reconstruction of long sections of the existing route is becoming more urgent each year, particularly in Western Australia, where it is held that an estimated expenditure of £34,260 will become an immediate necessity if the lines are not transferred to the Transcontinental route as suggested.

ADVANTAGES OF NEW PROPOSAL.

15. It is claimed that the transfer of the Departmental lines to the Transcontinental route will confer many advantages, as on account of the dry climate, equable temperature, and infrequency of storms there will be greater freedom from interruptions to the service and consequent improvement in efficiency and revenue production. On account of greater accessibility also, more rapid restoration can be effected in the event of a breakdown. In addition, there will be some economy, and on line and mechanical staff and repairing stations it is estimated that a saving of

ESTIMATED REVENUE.

16. Figures obtained by the Committee showed that the revenue for the past five years was

Year,			Interstate Traffic from Western	Interstate Traffic
1920-21			Australia.	Australia,
1921-22	• •	• •	£38,445	£33,864
1922-23	• •	• •	41,534	32,822
1923-24	• •	••	40,720	31,661
1924-25	• •		42,925	35,300
1924-20	• •		41,711	31,439

and it was stated that, with the new lines eliminating delays and providing better circuits, it is possible that a substantial increase in revenue will result, apart from the £15,000 ayear which would be received from the Eastern Extension Telegraph Company.

ADELAIDE TO PERTH TELEPHONE.

17. During the hearing of evidence, the opinion was elicited that the new route will provide 11. During the nearing of evaluation, the opinion was encised that the new route win provide sufficient accommodation when required for lines necessary to carry a telephone service between Adelaide and Perth, and arrangements are being made that the repeating stations to be put in will harmonize with those that will be ultimately required for the telephone service.

It was stated, however, that this facility is not suggested at present, and its date of installation will depend on the public demand for it.

LOCAL SERVICES.

- 18. In the course of the inquiry, it was ascertained that although the coastal lines are inadequate to cope with high-speed interstate traffic, several sections could still be satisfactorily used to deal with local requirements. For this reason, it is proposed to retain for the convenience of settlers in the vicinity the following telegraph services:—
 - (a) Perth-Coolgardie-Norseman :
 - (b) Perth-Albany-Esperance;
 - (c) Adelaide-Port Augusta-Smoky Bay-Fowler's Bay; (d) Nundroo-Nullabor;

and also a telephone service between Fowler's Bay and Nundroo.

RECOVERY OF OLD MATERIAL.

19. Even allowing for the retention of certain local services, there will be considerable mileages of line thrown spare. The Committee was informed that where it is considered a payable proposition, an effort will be made to recover such material on the existing coastal route as can be used elsewhere: but that a considerable amount of material will not pay for its recovery. The Chief Electrical Engineer, in giving evidence, stated that, in endeavouring to recover as much material as possible, the Department would take into careful consideration the wisdom or otherwise vii

CONTRACT PERSONS DEPARTMENTAL LABOUR.

20. Some members, however, were of opinion that not only the recovery of old material, but the whole of the work involved in this project, might be more properly carried out by contract,

Mr. Seabrook moved. That tenders be called for the whole of the work involved in the

Seconded by Mr. Gregory.

The Committee divided on the motion :-

Ayes (2). Noes (5). Mr. Gregory Senator Barnes Mr. Seabrook Senator Reid Mr. Lacey Mr. Mackay Mr. McGrath

and so it passed in the negative.

COMMITTEE'S RECOMMENDATION.

21. After giving the matter full consideration, the Committee recommends that the proposal as submitted for the transfer of the Postal Department's telegraph lines between Perth and Adelaide to the Transcontinental Railway route should be given effect to as early as

G. H. MACKAY. Chairmay.

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

Melbourne, 26th February, 1926,

MINUTES OF EVIDENCE

(Taken at Melbourne.)

MONDAY, 8TH FEBRUARY, 1926.

Present:

Mr. Mackay, Chairman;

Senator Lynch Mr. Cook Mr. Lacey Mr. McGrath.

Mr. Gregory

John Murray Crawford, Chief Electrical Engineer, Postmaster-General's Department, sworn and examined.

1. To the Chairman.—I have prepared the following brief statement relating to the proposed transfer of the Postmaster-General's Department's telegraph lines between Perth and Adelaide from the coastal to the transcentinental railway route:—

In 1921 a proposal was dealt with by the Public Works Committee covering the provision of an additional telegraph line from Perth, via Kalgoorlie, Forrest, and thence 67 miles southward to Eucla. The estimated cest of this work was £42,030. The Public Works Committee recommended approval of the work to Parliament, which was given.

2. Before carrying out this work, however, further investigation was made with a view to further improving the telegraph service between Perth and Adelaide, and it is desired to amond the original scheme and carry out the work as defailed below—

Brit Description of Proposal.—The interstate tolegraph lines between South Australia and Western Australia at present are carried by routes both along the coast and inland. The cost of maintaining these lines is very high owing to their isolated position, and, further, considerable reconstruction work is required in order to put the lines in a satisfactory condition.

At the time the transcontinental railway was

At the time the transcontinental railway was being built, this Department arranged for additional poles to be provided per mile with a view to transferring the existing lines to that route when it was economical so to do. This time has now arrived, and it is proposed to carry out the work immediately.

Cost.—The estimated total cost of the work is £167,000.

Eastern Extension Company.—A request has been made by the Eastern Extension Company for the provision of a line between Perth and Adelaide for the company's exclusive use. It is proposed to provide this line at the same time as the departmental transfer is being carried out.

Advantages.—The advantages to be derived from transfer of the departmental lines are—

- Greater freedom from interruptions to service with consequent improvement in efficiency and revenue production.
 More rapid restoration of service in the
- event of breakdown.

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(3) Provide accommodation for a trunk telephone circuit between Perth and Adelaide.

(4) Save an amount of £34,000 on repairs to the coastal route which, in any caso, would not give a service of the same efficiency as the transcontinental route.

The Department has no record as to the cost of the crection of the existing lines and the date of their recetion. They were probably constructed in the seventies. At the present time there are three wres connecting Perth with the castern States. On the coastal route from Adelgide to Perth the line passes though Port Augusta, Port Lincoln, Fowler's Bay, Smoky Bay, Eucla, Esperance, and Albany. This is an iron wire throughout. It is of sery little value now, because it has outlived its usefulness. The other two wires are partly copper and partly iron. They follow the same route between Adelaide and Eucla, but themethey run via Norseman to Coolgardie, when one goes direct to Perth and the other to Kalgoorlie. The proposed new wires will put in a direct line from Port Augusta to Kalgoorlie. The copper wire from the del lines will be recovered where it will pay to adopt that course. We propose to run two 300-lb, copper wires from Port Augusta to Kalgoorlie, and to utilizons 300-lb, copper wire that belongs to the Commonwealth Railway Department. This wire will be worked by the Eastern Extension Telegraph Company, and, in return, we propose to give the Commonwealth Railway Department. This wire will be worked by the Eastern Extension Telegraph Company, and, in return, we propose to give the Commonwealth is, to duplicate by crecting another 400-lb. galvanized iron wire—the Railway Department's present safe working wire, which is also used as a telephone circuit. At any point along the transcontinental railway the guard can cut in with a portable telephone. Therefore, we shall run one 200-lb, copper wire and a now 400-lb, galvanized iron wire, and take in return the existing 300-lb, copper wire. The details of the stimated cost are as follow:—

New line construction ... £143,123
New buildings 3,500
Transfer of apparatus from existing to new lines 793
Dismantling and recovering ... 19,594

£167.0

I have given the gross cost. The actual net cost will be £144.186, because material and plant will be recovered to the value of £22,824. Effect can be given to this proposal in a very short time, because the poles are already erected along the transcontinental railway line. All it will be necessary to do is to add an additional wooden arm, 78 inches long, and that I think could be done in, at the outside, nine months. When the construction of the transcontinental railway was being undertaken, the Commonwealth Railway Department told the Postal Department that it was going to build a telegraph line along the route, and it was reviewed at that time that at future date, a telephone

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line of communication between the eastern and western States would probably be required We asked the Railway Department whether it would add additional poles Its proposal at that time was to use 20 poles a mile but that would cause a very long span, and would not be satisfactory for telephonic communica As a result of negotiations then entered into, As a result of negotiations often entered may be perfectly the Poetal Plepartment paid about 22 feet long. Between Port Augusta and Tarcoola there are actually 27 poles to the mile, because the Commonwealth Railway Department proposed to erect 22, as it had extra wires between those two points. The position now is that between Port Augusta and Tarcoola there will be 27 poles to the mile, and between Tarcoola and Kalgoorlie 25 of which five poles a mile throughout the whole length have been paid for by the Postal Department The book entries between the two Departments were made when the work was completed. The coastal line is the longest of the three existing wires, and the proposed line will be about 200 miles shorter. The coastal route lies through very difficult country. Camel teams have to be employed for transport over a large portion of it. Another serious disadvantage is the fact that the heavy sea fogs corrode the iron wire, At particular sensons of the year, both morning and evening, the wires are practically unworkable, or they can be operated only at a very low speed. The proposed inlaind route will completely overcome that very grave difficulty. Moreover, the patrol work will be far less costly. On line and mechanical staff and repairing stations an estimated saving of over £500 a year should be realized. The Eastern Extension Company is now laying an additional cable between Cocos Island and Cottesioe, and when the work is completed it will have much heavier traffic between Perth and Adelaide than it now has. A submarine cable is used at the present time between Perth and Adelaide, but the company desires to supplement that by a land line. It has asked for a 300-lb, copper line. The existing lines would not meet its requirements, and it would not pay this Department to put up a line wholly for the company, but we have taken advantage of the opporrequirements at the company's request and our own requirements at the same time. We have occasionally assisted the company, and it has at times assisted us, but there is no transfer of traffic between us, except when interruptions to lines take place or the business is particularly heavy. An agreement has been entered into between the Department and the company, by which we undertake to provide it with a 300-lb. copper wire line between Adelaide and Perth. The rental paid will be £15,000 per annum for a minimum of ten years. We regard the agreement as quite satisfactory from our point of view All our expenses in connexion with the pro-vision of this wire will be covered. The proposed new line is required to cope with the business of the Commonwealth. One of the existing lines is entirely of rron. The other line for about 880 miles, or about half its length, has 400-lb. iron wire in it. The third is a composite copper line, varying from 400 to 200 is a composite copper line, varying from 400 to 200 ib so that the new line ought to be better than any of the existing lines, because the distance will be shorter and the gauge uniform. We are providing at the same time for extension at a future date, when a transcontinental telephonic service may be justified between Perth and Adelaide. Before that work is undertaken it will be necessary to put in additional repeating stations. This facility is not justified at the moment, but I have no doubt that in the comparatively near future it will be necessary to establish a trunk line telephone connecting Western Australia with the eastern States. The provision proposed on this route will enable that work to be carried out at a minimum of expense. The necessary apparatus is expensive How soon this telephonic service will be

provided will depend on the public demand for it The wire used for the proposed new line will probably in accordance with the policy of the Department, be of Australian manufacture. We usually call for tenders for material. The last price received in Australia for hard-drawn copper wire was £101 a ton for 200-lb, wire, and £102 a ton for 100-lb, wire, as against the English prices of £80 and £82 respectively. The duty on the imported article represents approximately £23 a ton. No competition is experienced in tendering for wire manufactured in Australia. The Australianmade wire is quite a satisfactory article. All the other material required is obtainable in Australia, and we get Australian competition. The present proposal will lead to economy in staff. I regard it as a necessary work that should be proceeded with as soon as possible. I understand that the Eastern Extension Telegraph Company will have completed the laying of the additional cable between Cocos Island and Perth by about the end of next month. I am not afraid of any possibility of the advance made in wireless or any possibility of the advance made in wiredees telegraphy rendering the proposed new line useless within the next ten years. The traffic between the assict an advestern States in a typical week averages 3,859 messages daily. Accommodation has been left on the arm of the poles for two additional wires. It will not be necessary to touch the existing line between Port Augusta and Adelaida. We have three wires there already, and they will meet requirements.
Our policy, broadly, where there is settlement along the route, is to leave sufficient communication facilities to meet local needs. We do not propose to recover the material where the service is required. There will be telegraph services, for instance, between Perth, Coolgardie, and Norseman; between Perth, Albany, and Esperance; between Port Augusta, Smoky Bay, and Fowler's Bay; between Fowler's Bay and Nun-droo (telephone only); and between Nundroo and Nullabor. It would not pay us to recover the whole of the material along the coastal route, and if there are any settlers who wish the line to be kept going I do not think that they would be prevented from retaining it. Only in the settled parts, however, will patrol work be

- 2. To Mr. McGrath.—I cannot separate the cost to the Eastern Extension Company and to the Department respectively. The wire we shall give to the railway is the 400-lb. galvanized iron wire, which it will motallicize for its safe working. It is a perfectly satisfactory financial proposal, which should result in a considerable saving to the Department. There will be no further payment to make to the Commonwealth Railway Department.
- 3. To Mr. Lacey.—The proposal will not improve the telegraphic facilities of people between Tarccola and Port Augusta, because the new line will be reserved for interstate work. The existing services will be retained and added to as required. The new line will be purely a trunk line worked at high speed. The iron poles should have a life of at least 50 years.

 4. To Senator Lynck.—If the proposal is not carried
- 4. To Senator Lyuck.—If the proposal is not carried out, it will be necessary to renew the existing coastal line between Albany and Bremar Bay, since it is practically falling down. Its renewal has been postponed from year to year. Subsequently it will be necessary as the alternative to the present undertaking, to renew the line from Bremar Bay to Eucla. We set down the cost of renewing the Albany-Bromar Bay section as an offset to the cost of the proposed new line instead of setting it down to repairs, because it was recomstruction work which might be said to be wholly dependent on the construction of the new line. In addition to the saving in mechanical staff, there will be fewer repeating stations, and the patrol charges will be considerably reduced. You ask me why the Department did not take action before now to make this saving, I wish to point out that when we got the approval of Parlient to go on with this work towards the end of 1931.

a question was raised by the then Secretary of the Postal Department (Mr. Oxenham) regarding the pos-sible provision of a telephone service. The then Chief Electrical Engineer, who had just returned from abroad, had investigated the matter, and found that the time was not ripe to provide telephonic communi-cation. That caused a delay of nearly a year. The Commonwealth Railway Department meanwhile had equipped its safe working wire with a telephone. When everything was ready for us to go on with the work, that Department was afraid that the inductive interference likely to arise owing to our high speed work would adversely affect its safe-working wire. No doubt it would. The matter, therefore, was more or less in abeyance for a short time. It was re-opened eighteen months or so ago, and it was decided that by metalli-cizing the Railway Department's single wire circuit it would be possible to overcome the difficulty. I think that the present proposal would improve the tele-graphic service, and provide facilities for installing a telephonic service in minimum time and at a minimum of expense. Before providing telephonic communication between Ferth and the eastern states, however, it will be necessary to undertake a study of that line with regard to the additional repeating stations needed. This would mean fairly heavy additional cost. We are even arranging that the repeating stations to be put in will harmonize with these controls of the state of munication between Perth and the eastern States, that will ultimately be required for the telephonic service. The coastal route has almost ceased to be dependable, because of the constant interruptions caused by coastal mist. The delay averages much over 30 minutes daily between the two capitals, but the difficulty will be entirely overcome on the new inland route, which is a most reliable one. It is never affected by coastal fogs, and rarely by anything in the nature of eveloues. This route seems to lie between the two disturbing factors. It will be a first class, modern, highspeed line. The life of the copper wire through the desert should be almost indefinite. It should be one of the most reliable lines in the Commonwealth.

- 5. To Mr. Gregory.—I do not know that it would pay the Department to take up the line between Esperance and Fowler's Bay, but if any settlers wish to keep it going they may do so. Once they let the line fall, there will be no communication between Esperance and Eucla. The new proposal provides for one 300-lb copper wire and one 200-lb copper wire, and we shall also have one 300-lb copper wire from the Commonwealth Railway Department The distance from Port Augusta to Kalgoorlie is so great that a repeating station will be required at Cook. For telephonic communication between Adelaide and Perth we shall probably require two extra wires, but we have not yet gone into that matter. The work of execting the new line will be carried out by our own Department We do not usually prepare specifications unless the work is to be done by a contractor. If the poles were not already in position we should certainly do the work by contract, unless the contractor's price wanch higher than our own. The quantity of copper wire required is about 350 tons. I undertake to supply the committee with a copy of the agreement entered into between the Department and the Eastern Extension Telegraph Company.
- To the Chairman.—The following is a supplementary statement which I have prepared for the information of the committee:—

ADELAIDE-PERTH TELEGRAPH LINE—PROPOSED RE-ARRANGEMENT, ETG.

Brief Outline of Proposal.

(a) Port Augusta to Kalgoorlie.—Run two new 300-lb. copper wires on railway poles for use in lieu of three existing wires via Eucla.

- (b) Adelande to Perth Unize one cistung 300-lb. copper wire (Lao No. 45), Adelande to Fort Augusta, thence one casting 300-lb. copper wire taken in sochange from the Commonwealth Railway. Department, Port Augusta to Kagoorle: theme run are new 200 lb. copper wire on existing poetal poles Kalgoorle: to Perth, all to make up a through circuit Adelande to Perth for the use of the Eastern Extension Cable Company.
- (*) Dismantle certain portions of the existing coastal route which will be no longer required for interstate of local services.

Existing Facilities

There are now three telegraph lines in use between Adelaide and Perth, viz ...

	Class of Wire	Approximate Wiro Mileage,
o. 12 (old coastol wire). Addarde- Fowler's Bay Eucla Albany Perth	G I., 400 lb.	1,570
o. 46/10. Adelaido - Fowler's Bay- Bacia-Kalgoorlie-Porth (conne-ted for through service at Kalgoorlie)- Adelaido to Fowler's Bay Fowler's Bay to Cookardie Coolgardie to Kalgoorlie Kalgoorlie to Perth	C., 309 lb. G.I., 400 lb. C., 200 lb. C., 200 lb.	386 825 24 365
45 Maria Product Products		
o. 47. Adelaide · Fowkr's Bay Eucla Coolgardie Porth		
Adelaide to Fowler's Bay	(°, 4004b.	580
Fowler's Bay to Eucla	C., 2654b.	240
Eucla to Perth	C., 2004b.	926
		1.752

Necessity for Re-arrangement

The existing lines do not effectively carry the traffic offering, partly because of the comparatively large proportion of iron wire which is nearing the end of its useful life, and partly because of the frequent interruptions due to age of the constnuction generally.

Owing to the absence of travelling facilities along the coastal route, the interruptions are of coversity duration, and for the same reason the general main tenance of these lines is readered more expensive.

Reconstruction of long sections of the existing route is becoming more urgent each year, particularly in Western Australia, where an estimated expenditure of £34,260 will become an immediate necessity if the lines are not transferred to the East-West ratilway. The greater portion of this expenditure has been deferred from year to year owing to the prospect of saving it by transferring the lines.

Preliminary Work.

When the Commonwealth Railway Department was constructing its telegraph line along the Port Augusta-Kalgoorlie railway, the Postal Department arranged for the strengthening of the construction by the erection of from five to seven additional poles per mile, with a view to providing the strength necessary to carry postal wires also at a later date.

The cost of the additional poles, &c. amounted to £24.844, and was adjusted by journal entries as between the two Departments concerned.

Telephone Trunk Line Proposal.

Consideration has been given to the provision of a telephone trunk line between Adelaide and Perth (railway route), but inquiries indicated that such a course is not at present justified

Telegraph Traffic.

A typical statement of traffic handled on the Adelaide-Perth circuits for any six consecutive days during the busier period of the year is as follows:—

	Delays (Messages transmitted Perth end only).						
Total Messages Sent and Received.	Under 10 mins.	11-30 mins.	31-60 mim.	60-120 valus.	2-3 bm.	3-4 hrs.	
23,146 (= 3,857 daily)	1,623 (14°°)	4,471 (39%)	2,988 (25%)	1,8u8 (10° ₀)	501 (წ ⁰ ა)	86 (1%)	

Negotiations with Commonwealth Railway Depart-

Both parties have now reached agreement upon the following terms :-

- (a) Postal Department to provide and run one 400-lb, G.I. wire, Port Augusta to Kalgoorlie, to convert the railways safe-working and telephone wire to a metallic circuit, and to insert transpositions in the converted line to minimize inductive interference. This second G.I. 400-lb, wire will then become the property of the Commonwealth Railways.
 (b) Provide and fit one 78-in. wooden arm
- throughout.
- (c) Provide and run one 200-lb. copper wire, with (c) Provide and run one 200-lb. copper wire, with mentators and spindles, &c., on the new arm. This wire is to be handed over for use as a railway telegraph line in exchange for their existing 300-lb. copper wire, which will then become Postal property.
 (d) Lower the existing 300-lb. copper wire men-tioned in (c) to the new arm and then use the property of the property.

it as portion of the Adelaide Porth circuit intended to be leased to the Eastern Extension Cable Company.

(c) Provide and run two 300-lb. copper wires, which will be used as portions of Postal lines Nos. 12 and 47, in hou of the three

oxisting wires on the coastal route.

(f) The Postal Department to pay rental for the use of the Railway poles at the rate of 10s. per mile of wire per annum for the three Postal wires.

(4) Owing to the additional loading of wires it is considered necessary for the Postal Depart-ment to strongthen the Railway pole route by providing and fitting two transverse stays at each half-mile with two longitudinal stays alternating at the same intervals, i.e., eight single stays per mile.

Eastern Extension Cable Company's Requirements. The cable company asked on 17th December, 1924.

for the company used on 11th December, 1924, it is lepartment will provide one 300-lb. copper wire for the company's use between Adelaide and Perth, and upon what terms, alternatively for:—

(a) The company to pay the cost of construction, plus an annual amount for upkeep. or (b) Leasing the wire.

This facility wil be provided under the scheme by means of one 300-lb. line from Adelaide to Kalgoorlie, and one 200 lb. from Kalgoorlie to Perth. Automatic repeaters will be provided at Port Augusta, Cook, and repraters will be province at rout Augusta, cook, and Kalegorine. The repeaters will be maintained and attended by the Postal Department, and the line maintained at an annual rental of £16,000. The Eastern Extension Cable Company have agreed to these terms. The capital cost and annual charges of providing a

line for the Eastern Extension Company as a separate work, i.e., on the assumption that the departmental work would not be carried out, is shown in Appendix Cost.

The new building to house the repeaters and batteries at Cook is to be of brick and the staff cottages of wood of the type now being erected for the accom-modation of railway officials at Tarcoola and other

The approximate costs of the complete proposal are

mated at:-	
New line construction New buildings Transfer of apparatus Dismantling and recovering	£143,123 3,500 793 19,594
Less value recovered material and	£167,010 22,824
Y nonmont already made for	£144,186
Less payment already made for additional railway poles	24,844 £119,342
•	20,10,012

7. To Mr. Gregory .-- I shall give the committee such rounce figures as are to be obtained, as well as de-tailed estimates of cost. It is estimated that £20,000 worth of copper wire will be recovered.

8. To Mr. Cook .- I should say that the actual cost of the work wil be within 10 per cent. of the estimate

I have given. 9, To Senator Lynch .- I would not like to commit myself at this stage as to when it will pay to establish telephonic communication between Perth and the eastern States. In addition to the £34,000 which would be necessary immediately for the renewing of the coastal line as far as Bremar Bay, probably another \$50,000 would have to be spent in subsequent years 250,000 would have to be spent in subsequent years if the present proposal were not carried out. Then, later, the Eucla-Fowler's Bay link would have to be renewed. That is the sort of expenditure that would have to be incurred to keep the existing facilities in a satisfactory condition. The proposed work should be of benefit to the public, because it will mean an extra line between Porth and Adelaide. Even if large sums the proposed work in continuous control in the public proposed work and the proposed work should be supported by the proposed work and the proposed work should be supported by the proposed work and the proposed wor were spent in repairing the existing coastal line and keeping it in order, the service would not be equal to that obtainable on the proposed new route.

(Taken at Melbourne.)

TUESDAY, 9TH FEBRUARY, 1926.

Present:

Mr. Mackay, Chairman;

Mr. Lacey Senator Lynch Mr. McGrath. Mr. Cook Mr. Gregory

Edward George Brooke, Divisional Manager, the Eastern Extension Australasia and China Telegraph Company Limited, sworn and examined.

10. To the Chairman.—It was only recently I heard that the proposal to transfer the Postal Department's telegraph line from the coastal route to the route of the railway between Perth and Adelaide had been referred to this committee. My company is seeking to utilize the channel of communication along the route of the railway. I tender a map showing the company's cable system with land line connexions, so that the actual position of cable communications may be readily seen. The whole of the lines marked in red on the map belong to the associated companies, those beyond India being controlled by my company.

The Eastern Extension lines to Australia join up at Coops Island with the cable to Perth, and that from Darwin to Java. We do not control the Darwin Intertate line, although we work along that route. Our weak link is the cable between Forth and Corn 1 Land and that between Adelaide and Porth, the traffic being dependent upon a single line Cariously enough, nearly all our interruptions occur on the Western Australian coast, the consequence being that heavy traffic is thrown on to the Pacific cable. The factors in this case are: -(1) Amount of traffic to be dealt with: (2) capacity of the present line; (3) means proposed to improve the service; and (4) chief drawbacks attendent improve the service; and (4) that drawleads attendant thereto. My company's lines carry all the cable compunications for Australia with the whole of Africa and Asia, and the greater part of Europe and South America. They are in competition with the Pacific Cable Board for traffic with Great Britain, North Cable Board for trailic with Great Britain, North America, and a low countries in Europe. The chief-chanuel of communication is by cable from Adelaide to Perth, thence to Cocco Island, Mauritius and Cape Colony, whence numerous lines belonging to the East-ern Associated Cable Companies lead to Europe. Africa, and America. As the map will show, there are brauch cables from Cocos Island to Batavia, and from manner coops from coops frame to natives, and from Mauritius to Seychelbs, connecting up the company's cable with the main systems of cables between Great Britain and Asia. With regard to (1), the number of words—paid and non-paid—dealt with by my company, now amount to 12,500,000 annually. There words do not at present include the heavy week-end cable service, as my company is opposed to Sunday work for the staff. The non-paid words consist of the preambles to messages, showing whether they be governor in, preor ordinary messages, the correcting of services, and the repetition of services. They amount to one-fourth of the traffic. No inconvenience is caused to the publitoo traine. At measurement is reason to the paths the withholding of a week end service. We have substituted a daily lettergram service, which is available on any day in the week except Stunday. The facilities required by the public have, therefore, been fully mot. It will be seen that there is very heavy the training and the start inches positions of cable hetween pressure on the two single sections of cable between Adelaide and Coros Island, and in the event of a break in either of those cables serious delay and inconm either of those causes sections around and monthly ventiones, with consequent loss of business is suffered by the telegraphus public. I may state that the business community is so dependent upon market quotations that when the messages conveying those quotations are an hour or two late the whole of the local organization is thrown out of gear, and we receive serious and angry complaints. As most of the traffic is handed in for transmission in the latter part of each day, congestion takes place at Adelaide, where the lines from eastern Australia and New Zealand converge The average delay there is at present over two hours, and, as business grows, this will increase, with consequent damage to commerce. Only yesterday, I received a compaint from the Chamber of Com merce in Sydney regarding the loss astrined by business owing to delays in the traffic with India. The chief delays occur on the cable lines, because the land entet douvys deutr on une cause mess, necuser une and lines can overtake any congestion very quickly. Both however, one seriously inadequate at present, and med strongthening. With recard to (3) (means proposed to improve the Service): The company decided last year to duplicate the sections between Adolade and Coccs Island, and by the end of this month a now cable of the latest type will be leid between Perth and Coos Island at a cost of £582,000. originally have been the terminus of the company's cable system, but owing to the weakness of the coastline, the cable system was extended to Adelaide af vory line, the cable system was extended to Adesiade at very considerable cost. Since the transcrontinental railway line has been constructed, however, the company has applied for the lease of a wire to be cereted on the posts belonging to the Commonwealth Railways, and this is the proposal now under your consideration. (4) Chis drawhocks attendant on present lines): As the south-

west coast of Western An Italia is steep and rocky, and the seas stormy, interruptions are more frequent there the seas storing, interruptions are more required that on any part of the company's system. As the cable repairing ship is stationed at Sugapore, our central storion, time is lost in getting the vessel down. central station, time is lost in setting the vessel down, and as it cannot work during had weather or in a heavy swell, weeks often pass without any work being possible; and, during all this time, traffic is dislocated causing serious public and Commonweith incovenience, as well as throwing extra work in the land lines. The new ouble section is table in someonee, as wen as enrowing extra work on the land lines. The new cable section to tde?...? would have to go reared the Lecus in, one womponents to go reason the tection, the is to most this that the company is desirent constituting a land line by way of the transcent mental railway. The company has no desire for a line yie the cast, as that route is subject to interruption in the constitution of from storms, loss of insulation through damp, and is remote from facilities for repair. In fact, this route is a burden at times on our already convested cable is a burden at times on our already consected cable. Only in December last we had to carry over 6,600 local messages for the department. The land lines were interrupted, and the business in Western Australia seriously congested. The route via the transcentic mental railway is a impulately fortunate one for a telegraph land line. There are no mountain ranges or rivers to cross, storms are rare, damp almost non existent, and the temperature is fairly uniform Con tinuous communication can be looked for along that route. I have been told that traffic on the but route. I have been fout that trade on the has have been interrupted Facilities for repair are also available along the entire route. The chief bases for my company's application are, therefore, economy and important public utility. The original line from Cocos Island to Adelaide was laid in 1901 at a cost of 2250,000 from Cocos Island to Perth and another £250,000 from Porth to Adelaide The company origi nally decided to lay a cable only to Perth me to obtain some particulars of the working of the land line via Eucla I learned that that line could not be depended upon as a channel of communication nos os unjectures upon as a camanto to communicaciono Despite its costlines, we therefore decided to continue the cable to Adelaide The company controls a land line in parallel circumstances across Cape Coloux Permission to work that line was given because of the difficulty of laying a cable along the coast. In the present case, the company specified that 300 lb. copper wire should be used. It is most important to have heavy copper conductor in order to ensure a quick service. Nearly the whole of the work now is machine work, and any variation caused by the use of a small work, and any variation caused by the use of a small wire would throw the printing gerr out. The company would not consider any proposal to use the coast line, the delays that it accasions are too serious, in view of the competition which we have to meet from the Pacific Cable Board and wireless comparis. The cable from Perth to Adelaide will have to be taken up and renewed throughout in another 15 years. The maintenance expense is a very heavy one. There is considerable chafing on the coastal sections. We shall have to send a ship down before the year is out to re-pair both the Cocos-Perth and Perth-Adelaide sections They are very much abraded and weakened, making us liable to frequent interruptions. A land line between Perth and Adelaide would enable us to give more satis faction to the public. We do not know of a better channel of communication. I cannot promise that our charges will be reduced The department is asking our charges will be reduced. The department is desking a rental of £15,000 per annum for that one section. We would naturally besuate before undertaking the expenditure of a new section of cable from Perth to Adelaide. I believe that, as a matter of international obligation, the Commonwealth Government is bound to provide a land wire for international communica-tions. We submitted our proposals to the department eight or nine months ago. We have entered into a 10 years' contract, with the right of renewal at the expiration of that term. As the duplication of the cable between Cocos Island and Perth will be

completed by the rol of this month, w should, the hoad line to is available as early as possible. Belay will be obviated by having you charlest of communication instead of one. The use of the hoad line and such as the body run, be ause they will be able to send a mach larger number of works over the line. The congestion at present as caused by the incupacity of the able to early the work that is required of it. My impany has two rabbs from Willington to Sydney, they are the original cables. It was decided to duplicat the cable between Cocos Island and Perth, because it was found necessary to provide a greater number of cables to handle the traffic. Even with a land limit is necessary to have a cable from Adelaids to Perth. The company has, on different occasing, carried local messages for the Postal Dypertment, which has frequently asked it to take on a batch of delaced work when de lines are not to busy.

11. Fo Mr. Meterath.—In estimating the rental of L15,000 per annum, prevision has to be made by the department for repair work. We shall simply work the line. I assume that the department estimated the riginal cost and made prevision for interest and working expenses that are likely to be incurred. The department's engineers were working on the matter for some time.

12. To Mr. Lacey .-- We must keep open as many lines as possible. We shall have to use both eables in order to keep up an even flow of news. The great thing running smoothly. Both sections will be worked during the whole of the day. We hope that, atime goes on, when we have a land line and our new cable carried through to its destination, greater speed will be attained in the dispatch of messages. At present, we are compelled to work the fastest cable at the rate that is set by the slowest. The delays to which I have referred have not been occasioned by congestion en route. The Melbourne office, at about 5 o'clock in the afternoon, pours messages into Adelaide from Tasmania and Victoria Simultaneously Sydney with a separate line, pours messages in from Queens-land New South Wales, and New Zealand There is only one cable to carry the work of those two wires It gets behind, and there is a gradual collection of messages until 10 o'clock at night. As the land lines become idle the cables gradually work down the collection until, at about midnight, they are practically clear If the company cannot obtain the use of this land line, it will have to lay another cable from Perth to Adelaide That would not prove anything like so satisfactory

13 To Senator Lynch -There is no obligation on the part of the Commonwealth Government to grant my company this concession, but there is the obligation which was imposed by an international convention to provide lines that will carry the fraffic offering and it would obtain the revenues prescribed by the convention. Approximately one half of the news that is sent from Australia travels over my company's lines. The newspapers watch the matter very closely and utilize the line that is least congested. If we fail to secure the use of this land line we shall have to lay another calde between Adelaide and Perth, at a cost of 1 £250,000. I do not think that the fact of our not having to incur that expenditure can be used as an argument in favour of our reducing rates. The competition that at present exists is an effective check against high rates. If one company reduces rates the other must follow uit, even though it loses by so doing. Coming from Perlit to Adelaids we have to go right around the Leauvin, which is a very rough part of the coast. That is what we wish to avoid. If the congestion is relieved at Adelaide by the use of this land line it will not necessarily be shifted to Perth, as we shall then have two lines going right through. At the end of the month there will be two lines available

from Perth, and if we get this concession we shall have two lines from Adelaide to Perth. They will be able to cope with the work that is sent to Adelaide by Sydney and Melbourne, and there will be a nice even flow of We are able even now to overtake the work at Adelaide, but it is a slow process. There will be no con gestion anywhere when this line has been built, be cause the duplication of these two sections will mean the provision of a double section throughout From the public viewpoint that will be an improvement, because there will be an even flow of news, without any There will be the added advantage that if one line fails the other will be able to carry the traffic with out any serious delay. At the present time an inter ruption causes a delay of from 24 to 36 hours. The ruption causes a delay of from 24 to 36 hour. The charges are very low now. The last reduction was made by my company, so the next must be made by the Pacific Cable Company. I think that the land line will not be quite as easily as would a cable from Adelaide to Perth. With the application of most re-used also by the department, so that the benefit will be mutual. The agreement provides for our being given a "channel of communication", not a wire. The wire will still belong to the Postal Department, and to it may be applied a wireless system at different freuencies. The Commonwealth will always have that to fall back upon if the existing provision is not sufficient to cope with an increased pressure of work. We sometimes help the department out of difficulties, and it also helps us Our capacity is not very great with only one cable.

13A, To Mr. Gregory .- The new cable from Cocos 13A. To Mr. Gregory.—The new radic from Coccos Island to Porth has probably the highest capacity of any in the world. It is loaded cable, which gives a greater capacity for traffle. As time goes on it will be possible to cope with additional traffle without extra cost, thus making possible a reduction in the rates. All cable systems will have to follow the practice of nutting in loaded cables, which are capable of carrying a much greater amount of traffic at the same operating cost. A very great advantage will be the time saved. A line from Kalgoorlie to Port Augusta will be infinitely more serviceable than the one along the coast At the present time birds cause a considerable amount of trouble on the lines between Sydney and Adelaide They perch in hundreds, and fly off at the same moment, shaking the line to pieces, just at the busy period of the day. That will not be the the case along the transcontinental railway, on which route there are neither birds nor storms. It is singularly good line. The department does not ropose to allow us to have the sole use of this line, although. I believe, the rental has been based upon the total cost. The heavier copper wire works more quickly and more satisfactorily than the lighter. The weight of 300 lb. is used practically throughout the world. I do not favour the use of 200-lb, wire on a line of this size, the sections are too long for the weight. I have not been connected with the electrical side of the work for a long time, and I have not had much experience of land lines, but from what I know of big lengths of land wires it is advisable to use 300 lb. copper wire hecutse of its strength. It is proposed that my company shall pay a rontal of £15,000 annually for a period of ten years, with the right of renewal, the Government to undertake the upkeep of the line and the company to bear the expense of sending the messages. That will give us the first right over a single line from Perth to Adelaide.

13n. To Mr. Cook.—Our charge is about 4d, a word, which is equal to that of the Government. We take cables of every category for all parts of the world at press, deferred, and ordinary rates. The company undertakes its own repair work. We have ships stationed at different points between here and England. One depot is at Singapore, and I think the next is at Zanzibar.

All our cables are really Empire cables, they all converge on London. We work in very closely with the Imperial Navy. At the beginning of the war we laid a scoret cable to Archangel. It was worked by us and nobody knew it existed. We also laid secret cables for the Imperial Navy at stratege points. The line via the Cape was laid after consultation with the Naval authorities as the route would probably be free from interruption and most under the protection of the Navy. At times of was they place Imperial officers in all the cable stations. I have not said that I at all times prefer a land line to a cable, I prefer it in this case because a railway runs alongside the route, making repair work more easy and less costly, and because it is not subject to storms. Even if the line breaks by some mischance, it can be repaired in the course of a few hours. If a break occurred around the Course of a two hours. It a break occurred around the Leauwin the tepairs might take a couple of months to effect. Our cable from Adelande goes right round the Leeuwin to Cottesloe. From Cottesloe we have land lines into Perth. There is another cable from Cottesloe to Cocos Island. That is our main channel of communication. The saving in time with this line will amount to two hours a day for ordinary traffic. As Australia's commercial traffic is in competition with that of other nations the saving of two hours a day is important. My company is associated with other cable companies. The associated companies are mostly controlled by the same board. The work is carried on much better when there is interchangeability.

The witness withdrew.

James Malone, Chief Manager, Telegraphs and Wireless, Postmaster-General's Department, Mel bourne, sworn and examined—

14. To the Charman -I have been instructed to make a statement regarding the traffic aspect of this proposal. At the outset I should like to subscribe to the view which, I understand, has already been expressed to the committee, that the existing lines are unsuitable and inadequate for the interstate telegraph service. The chief disability arises from two causes-(1) the nature and condition of the existing circuits, and (2) their promimity to the sea, and the isolation of the country traversed. There is considerable mileage of iron wire in the circuits, the high electrical resistance of which acts with serious detriment to efficient tele graph transmission over such long lines. Even if the iron wire were up to its original gauge it would have a resistance per mile of 2.32 ohms as compared with 2.928 ohms per mile for the copper wire it is proposed to use in the new line. It will be seen, therefore, that the difference in conductance in favour of the new wire is 450 per m conductance in layour of the new wire is 350 per cent. This improved characteristic would be reflected in the working speeds which could be attainable. Whereas on the existing route, under good conditions, the total present capacity of the wires approximates 250 words per minute, the capacity of the proposed wires would amount to 350 words per minute, which equals an increased traffic accommodation of 40 per cent. In actual fact, the iron wire has seriously deteriorated from erosion, due to the salt-laden atmosphere, and the conditions are worse than I have indicated. This loss of gauge has a further serious aspect due to increased liability to breakage, particularly during the stress of frequent high winds on this exposed coast, It has already been mentioned in evidence that the expenditure of a large sum of money would be necessary on one section of the route in order to secure reasonable stability in the existing service, and year by year additional large sums would be incurred over other sections. The proximity of the line to the sea is a source of continual reduction in what otherwise would be the normal teaffic careving century. of the circuits. The failure arises because of the fre quent heavy mists over long stretches of the route which render the insulators partially conductive and permit

the leakage or current to earth at each one of the poles on which the lines are supported. As a result only a fraction of the current which leaves the transmitting office traches its destination, and its magnitude is in sufficient to operate the receiving apparatus at a useful speed. The solution of the line recognity, intails difficult maintenance and abnormal delay in the restoration of communication where breakage or interruption occurs owing to the absent of any rapid means of trans port. From the traffic stand point these weaknesses in port. From the traffic stand point these weathcoses in the existing system make me strongly support the diversion of the route. At present the Department is in the unhappy position that it amount reader the service that the community is justified in expecting, and traffic is constantly subjected to examperating belave to the serious detriment of business transactions. The the serious detriment of business transactions. The proposed method of constructing all the w line acculd permit of additional telegraph channels being made available by utilizing terminal apparatus without having recourse to the creetion of additional wires also understand that telephonic needs have been carefully reviewed, and the disposition of the wires to be erected is such as to permit of the establishment of telephonic communication between Adelaide and Porth at a later date without encroaching on the necessary facilities to meet all telegraph requirements. It is understood that the committee is auxious to have some information concerning the annual revenue derived from traffic dispatched over this route, and I take have to submit the following statement -

Adelaide-Pertr Telegraph Circuits, Particulars at Revenue, -- Fears 1920-21 to 1924-25.

Year	Internate Troffi- front W A Value	later-tate Traffa to W.A Value
1920-21	£38,445	£33,864
1921-22	£41,534	£32,822
1922-23	£40,720	£31,661
1923-24	£12,925	£35,300
1924-25	£41.711	£31,139

It may be of interest to mention that, although the revenue has shown a slight decrease in the year 1924-25 over the preceding year, the cause is not to be attributed to the falling oft in the volume of traffic. It is consequent principally on concessions which were granted in regard to lettergram traffic, which resulted in a greater proportion of the business being transacted on the lower tariff of lettergrams as compared with ordinary and urgent messages. The traffic section ordinary and urgent messages. The traffic section is the only one that I am in a position to discuss with any degree of certainty. So far as I know, the Department has not prepared any figures to show the annual charges on the proposed line. I was asked to bring revenue figures only. The revenue for the current year should be a little in excess of the of last year, for last Christians traffic was extraordinarily than the contract of the contr On Christmas eve it represented about five times the business of an ordinary day. The figures I have given take no account whatever of the business I have given take no account wantever or in the obsuless of the Eastern Extension Company. They represent the payments for ordinary telegrams haudled by the Department. I understand that in the event of this new line being constructed, most of the present coastino will be dismantiled. Probably Smoky Bay and Fowler's Bay would need a service. I am told that there have been developments in the Smoky Bay dis trict which are likely to lead to a considerable increase in the telegraphic business. The same is true of the Norseman district in Western Australia I believe Norseman district in Western Australia I believe the line to Fowler's Bay is in sufficiently good order to rope with the amount of local business that would need to be dispatched out it, but it is not sufficiently efficient to properly ope with the business between the capital cities. I do not anticipated and difficulty or serious delays when the proposed line is in operation. At present, even when conditions are good, a delay of over 30 minutes may be conneed on always between Adelnide and Perth. I confidently amorphate

that in the event of the new line being constructed there will be practically so such delay. Two good wire should be sufficient to provide a protty safe margin. W. regard the present whose as only able to deal , ith 250 words per minute, who was the new wie and enable to to handle 350 words a minute. Delays in the present line are nearly all occasioned by faults at places diffiult of access. Another cause of delay is that the intermediate stations like Fowler's Bay have necessarily to break in on the through husiness to get their own matter away Although I have seen the agreement with the Eastern Extension Company, I am not sufficiently acquainted with its details to be able to disouss a properly I know that it is proposed to provide two 300-th wires for the departmental business. According to the agreement, the Eastern Extension Company would provide its own equipment and staff, and our Department would supply the channel of communication, together with repeater stations, and maintain the circuit.

15 To Mr Lacey. -My revenue figures are the actual income for the business that we handled in those years. The whole of that business would go through the new If the first year with the new wires was just wires If the first year with the new wires was just as good as last year the revenue would be £41,711. plus £15,000 from the Eastern Extension Company.

16 To Senator Lynch .- I cannot say how much revenue has been lost because of the delays that have count has been tost because of the dealys that have becurred under the skitting arrangements. When there is any serious delay, a notice is posted outside the terminal offices. Naturally the people who come to do business see it, and there can be no doubt that they frequently decide not to send their telegrams. delays occur the officers have to work longer hours and so are paid at overtime rates. The Department does not use iron wire nowadays on long traffic circuits. There may be some iron wire in the shorter circuits I understand that a statement has been made that it would cost about £40,000 to put the present coastline into a proper state of repair between Bremer Bay and Albany. It is not proposed to put the terminal apparatus in as soon as the line is constructed. That would only be necessary when the business had grown to such an extent that a multiplicity of channels was required I believe that with 300-lb, wires in a line such as it is proposed to build, it would be possible to instal ten more channels by using the terminal apparatus It is very difficult to account for the fact that the revenue for traffic from Western Australia is 30 bouch greater than the revenue from traffic to it. certainly em confident that business would improve it the new lines were constructed. Two good wire, to the new route would be much more satisfactory than the present coast line. They would enable us to get through a lot more business, for they would be con-tinuously efficient. The present line is very often out of order In my opinion, there is not a weak point in the new proposal It would provide us with an unto-date equipment and so effect a very big improvement in the present arrangements.

17 To Mr Gregory .- Two wires of good conductruty would be capable of handling much more business than those that are at present in use. The type of construction that is proposed will enable the termind apparatus to be used effectively. In my statebusiness from Porth to Adelaids. Any through busi-1198 say, from London, appears only in its exact proportion

The williams willdow.

John Mattay Crawford, Chief Electrical Engineer, Postmoster-General's Department, receiled and further examined.

18 To the Chairman, As I proposed when I was last before the Committee, I produce the following

estimate of cost of the proposed diversion of the Perth-Adelaide telegraph route:

PROPOSED DIVERSION OF PERTHADELABET AND TELLGRAPH ROUTE

ESTIMATE OF COST.

Total gross cost to Department -£167,010. Material -Copper Wire (n) 2-300 lb. for 1,051 miles (Port Augusta-Kalgordie, for Postmaster-General's Department), equal to 22 tons (ap-proximate). Cost, at £155 per single proximate). Coit, at £16 5 per single nulle (approximate) (b) 1-209 lb, for Commonwealth Railways (1.051 miles), equal to 94 tuns. Cost, (c) 1-200 lb., for Eastern Extension Com-pany (Exaportic-Perth), 305 miles equal to 33 tons. Cost, at £10 25 per nille 10,773

3.741 47.358 Wiro-Coll. wiro (Port Augusta-Kalgoorlie), 1,051 miles, for Commonwealth Railways, equal to 188 tons (approximate). Cost, at £4.8 per with 5,045

Stays-Eight per mile on existing poles, to strengthen them for added load. Cost, at £1 per mile for 1,051 miles, equal to £4 x 1,051 Arms, Wood—
784n., 3-in., x 3-in., 20 per mile (average). Cost, at £4.3 per mile, equal to £4.3 x 1,051 ...

Other Material—
Wiring stores for copper wire, i.e., spindles, inrulators, botts, tapes, blinders, sleaves, &c.,
Wiring stores for galvanized-fron wire
Material for transpositions, i.e., bands, transposition boils, &c. 199 68,641 Total material ...

abour— Erecting additional crossarms, running wires, staying pules, transposing wires, &c., 180,660 man hours at 2s. 6d. per hour Travelling, camping, child endowment, cartage, freight, &c. Idministration Charges-

11,565 On Isbour and material ...

Erection of New Building (Cook) For staff and repeaters ... 3 000 dditions to Existing Buildings-Port Augusta Transfer of Apparatus— Eucla-Cook Port Augusta E

Total cost of new work new to be undertaken ... 122,572
Add out of work done by Commonwealth Railways
and already paid for by Postal Department, i.e.,
from additional poles per suite on Commonwealth
Railways roote (4,681 miles) ... 23,841
Cost of disuanating and recovering old line material 19,501

167,010

Less value of old line material to be receivered £22,821 Payment alreads made (see above) 47,668 ... 119,342 Not cost now to be incurred ...

19. To Mr. Gregory .- Although I stated in my earlier evidence that the capper wire necessary for this work would cost from £102 to £103 per ton, the estimate of cost in my statement is not inaccurate, for it overs the cost, not only of the wire, but of carrying it from Port Kembla to Sydney and then to Adeluide, As you ray, it brings the price up to £116 9s, per tan. I am not able to say whether the difference from £10 to £14 in the prise of the copper wire as against my estimate is the actual charge of the freight. I have not the details et hand to say. The amount for cartage and freights included in the figure £15.498 covers the cost of conveying the wire from the stores in Adelaide or Perth to the place where it will be used. In our e timates we have necessarily to work on a tanderd figure. The estimate in this case i taken from the last actual price that we pud for smiler cuper wree. It is quite probable that a good deal of this wire will be taken direct from the worker! Port Kembla to the job, but I know that we have some in our stores that we will use. The amount of £11,365, set down as administration charges, covers, amongst other items, the cost of inspectors on the job, supervisors of the work, engineering work, paid leave, sick leave, and, in feet, every expenditure right up to the cost of the central office. The basis of it is furnished to us periodically by the Accountant's Department. Engineer's branch officers are not responsible for adding the percentages. I have a good idea of the basis on which it is calculated. Labour administration charges are much higher than stores administration charges. I hope that the new line will be open to traffic within nine mouths from the time the work is commenced. The dismantling and recovering of old line material is estimated to cost £19,594, and the value to be recovered from the old material is set down at £22,824. The difference is something over £3.000. I wish to make it clear that the Department will take into careful consideration the wisdom or otherwise of calling for tenders for this work. It has to be remembered, however, that a good deal of the material that will be recovered will be useless except to the Department. We always take into consideration the advisablences of having work like this done under contract. It is quite possible that it may be decided to call for tenders for labour only for this work. Probably the State officers would be able to advise on this point. I am mable to say whether it would be possible to use motor transport along the whole route of the present coastline. Some time ago the Department purchased a motor truck for work in the Marble Bar district, and found it much more economical than any other method of transport. If it is found that we can use motor trucks on this line-and I know we can as far as Fowler's Bay-we shall certainly use them in preference to camels.

20. To the Chairman. — A certain portion of the existing line can certainly be left standing, for it will yield good returns. A district like Fooler's Bay, which is raidly developing, needs telegraphic and telephonic communication. The manager of the Telephonic enumerication. The manager of the Telephonic Branch at Alcheide advices that the developments in these areas justify the retention of the telephonic branches are into the matter very carefully We always go into the matter very carefully before we dismantle an existing line. If leaving it there will serve any useful purpose we leave it. sections of the line which are to be left will be put into good order. The explanation of the reference to 200lb. copper wire in paragraph (a) of the agreement with the Eastern Extension Company is that the line between Kalgoorlie and Cottesloe, which is not part of the transcontinental line, is to be built of that wire but the whole of the line from Kalgoerhe to Port Augusta will be of 300-lb, wire.

21. To Mr. McCrath. - The bulk of the £15,498 under the heading of allowances is for labour. bably the total amount that will be paid for labour done will be about £34,000. The Department will have a certain amount of expense in carrying out the agreement with the Eastern Extension Company. There will be bookkeeping, for instance, and rentals for buildings. I do not think it would be proper to charge the company for its line just a little less than it would have to pay to lay a cable for it off. If that were done, the charges to the public would undoubtedly be increased.

22. To the Chairman. - I certainly consider the Eastern Extension Company agreement good business, and I am quite satisfied with it.

(Taken at Melbourne.)

WEDNESDAY, 10m FEBRUARY, 1926

Present

Mr Mackay, Chairman.

Senator Lynch Mr Lacey Mr McGrath Mr. Cook Mr. Gregory Mr Seabrook.

George Alexander Hobler, Chief Engineer of Ways and Works, Commonwealth Railways, sworn and ex

23. To the Chairman. I am aware of the proposal to transfer the telegraph line between Perth and Ade laide to the transcontinental railway route During the construction of the trans-Australian railway it was agreed with the Postal Department to erect 25 to 27 poles per mile instead of 20, which would have been sufficient for railway purposes. The Postal Department paid a proportion of the cost for the provision of the extra poles. At the present time the route carries two wires- one a 300 lb. opper wire used as a hand-speed telegraph circuit, and the other a 400-lb a nand-speed telegraph circuit, and the other a 200-10 galvanized iron safe working signaling line, upon which is superimposed a station to dation telephone circuit. The route consists of 22 feet Siemen's galvanized iron poles spaced 25 and 27 to the mile. The wires are of poies spaced 20 and 27 to too mile the wires are of one cross-arm. The Postal Department subsequently made application to use the arm space provided for their wires, and after considerable negotiation it was agreed that the following work should be carried out at the expense of the Postal Department

(a) Erection on the radiusy poles of a 52 in, cross arm 24 inches below existing 40-inch cros arm (a 78-inch cross-arm was subsequently agreed to instead of the 52-inch cross-ar upon the conditions that the Postal Deparment provide eight stays per mile on the railway poles).

(b) Removal of the present 300 lb copper wire from the existing cross-aim and placing the wire on the new cross-arm

(c) Erection on the existing cross-arm of another 400-lb. galvanized iron are to provide metallic circuit for the existing 400-lb. ga vanized non sate-working and telephonwire of the Ranway Department.

(d) Exection on the me, cross-arm of a 200-lb copper wire which will become the proporty of the Rails ay Department.

or one cannow impactment.

(c) Installation of a proper scheme of transpositions on the celegraph line in order that there may be no inductive interference. the Railway Department's safe-working

(f) Installation of accumulators at Cook, portion of the current from which will be available for the Radway Department's telegraph of

The Railway Department's 300-lb, copper wire at p. sent in use referred to in paragraph (b) to become property of the Postal Department. The Postal De partment will also erect two (2) more 300-lb, win-which, with the 200-lb, copper whe for the Raily. Department, referred to in paragraph (d), will ma a total of four (4) copper wires on the new 78-inc. cross-arm. I am not aware that in 1921 or thereabour approval was given, at the request of the Postal De partment, for the erection of a 3064b, ware between Pertli and Eucla, and also between Forrest and Ke goorlie. Negotiations respecting the present proposa-began with the Postal Department in about 1922 There was no difficulty in the way of givin effect to it, except that we had to arrive at a decisregarding the conditions so that there should be no terforence with the railway telephone circuit. In first instance, it was proposed to put new wires on

Posts. Department requested us to put the wires on the rows for the whole distance, and that was agreed It necessarily took some time to complete the reconstrons I belove that at that time the Postal Department was not ready to begin the installation There was no undue delay occasioned so far as the Radway Department was concerned. crease the poles, and the Postal Department paid us the sum of £21,800 for the erection of extra poles. We plactically own the line, and the Postal Department pay as los the ordinary maintenance of its wires We have practically agreed on the payment by the Pestai Department of a rent of 10s, a mile per au-num for each single wire tun on our poles. That rentai will ower (a) the ordinary maintenance of the postal with exclusive of the repair of any extensive damage brought about by an act of God, such as a cyclone or a thunderstoom and a renewal of a wire should it become useless through corrosion or other defects; (h) resteration of communication in the event of interruptions to the portion of the postal circuit on the railway poles While every reasonable effort will be made to promptly remove any fault, no responsibility can be promptly remove any mant, no responsibility can be accepted for any inconvenience which may be occasioned during the temporary interruption of the line. I am quite satisfied that that arrangement will not interface with the railway business so long as the conditions are carried out by the Postal Department in erecting its wires. I understand that the Postal Department will carry out its own work We undertake to maintain the line with certain exceptions, such as damage to the line by storm or the wearing away of They sometimes chafe at the insulators. Any undur west and ten to the line will have to be repaired at the expense of the Postal Department, apair from the cental that it will pay for ordinary maintenance and patrol No formal agreement has been diafted, but the conditions are contained in menoranda between the departments A formal agreement will probably be prepared before the work We will own the line and our wires, is begun We will own the line and our wand the Postal Department will own its wires. this line were later discarded, the additional poles for which the Postal Department has been charged £21,800 would have to be handed back to it. Under the conditions provided, I think that the line will be There are two other matters worked satisfactorily There are two other matters to which I wish to refer. The Commonwealth Railways Commissioner is quite agreeable to make available at Cook a portion of the railway land for the Postal Department's buildings, and the housing accommodation required for the staff of that Department, and will be prepared to undertake the erection of those premaes to current being supplied for the Railway Departments telegraph circuit from the accumulators to be installed at Cook, subject to a certain tental charge, particulars of which have not yet been definitely decided. The Postal Department's suggestion is that such rental shall be based on the annual charges of the number of encurts served by the accumulators, while the Raitway Department's suggestion for this charge is based on the number of cells used. Those two items will be finalized when the agreement is completed. They are really small matters.

24 In Similar Lynch. Any delays that have occurred in setting this matter so ar as the Railway Department is concerned were in regard to matters aftering the Postal Department. We have attended at all time to its requests. We have attended of the tear of indiction. We made inquiries, and satisfied ourselves that the metallic circuit was necessary. The postal officers is given which is incomplete, and so far its know their case to delay on the part of the Railway Department. In such cases as this it is usual to have a formal agreement drawn up by the Crown Solicitor.

his from took to Kalgoothe. Subsequently the I take it that in this case the Commissioner will require a formal agreement. According to the specifications for the erection of telegraph lines, there is a certain spacing provided for poles twenty poles to the mile. The Postal Department specifies from 25 to 27 poles to the mile, spaced equally apart. The extra poles are necessary because they carry a greater number of wires. In this case the noise will be 3 chains apart instead of four as under our specification. When the arrangement is completed, there will be four lines running, one for the use of the Railways Department, one for the Eastern Extension, and two for the Postmaster-General's Department. The line when completed would probably carry two or three extra wires. In that event it might be necessary to strut more of the poles. We are, under this arrangement, only strutting eight poles to the mile. Poles are strutted generally with tie wire or twisted cable, strutted on both sides of the pole at right angles to the line. The wires themselves virtually form a strut for longitudinal strain. I believe that the system will work satisfactorily for our purposes.

25. To Mr. Gregory,—We have to be very careful with this line because it operates our cleetrie staff work. Its utilization by two departments would be a considerably cheaper proposition than the erection of two separate lines. The proposal is certainly an economical arrangement, and I am quite satisfied that it will not detrimentally affect the railway telephone service. The approximate cost of creeting our telegraph linewill be from £120 to £130 a mile. We have two wires, one of copper and one of galvanized iron. I will supply the extra cost later. Copper wire is the better conductor of electric current. The resistance is greater in the galvanized iron wire. It was not considered necessary to go to the extra expense of providing a copper wire of the galvanized troo wire. It was not considered necessary to go to the extra expense of providing a copper wire on the galvanized circon wire being just as a good and quite

as adisfactory for our purpose.

26. To Mr. Cook.—In the first instance we contemplated erecting two wires on a line of twenty poles to the mile. This would be quite sufficient for our work, because we would not require later more than two extra wires at the most; but to conform with the specifications of the Postal Department, and in order to carry a larger number of wires, if necessary, we creeted 27 poles to the mile. We have at present a staff of men who patrol and maintain our lines. They are called district lineamen. These men will keep the extra wires, as well as our own, in repair. It would not be possible, without incurring great expense, to have twe separate staffs patrolling and repairing the line, and for that reason we charge the Postal Department an annual rental covering the work carried out by our

27. To Mr. Scabrook.—The poles taper, and are holow. I cannot, from memory, give their exact diameter. There will be one short cross-arm of about 3 ft. 9 in, to curry the railway wires. The 7s-in, cross-arm will carry the wires of the Postal Department. The line will be strong enough to carry any extra wires which may be required later by the Postal Department. The total length of the line is 1,051 miles. The erection of the extra wires is a matter for the Postal Department. The poles are creeted and the extra wires have to be installed on them. The Postal Department comploys skilled workmen for this class of work, and they will no doubt be employed in this case.

district linesmen.

28. To Mr. Meibrath.—There are few interruptions on ur telephone work on this line. I understand, from reading the evidence, that the Eastern Extension is to have the use of one of the lines to be erected by the Poatal Department. The Railways Department has not been consulted upon this matter so far as I know. I do not know the conditions under which the arrangement with the Eastern Extension has been made. I presume that the Destal Department will lease one of its wires to that company. My opinion that this line will permit of safe working even if used by two departments is based on consultation with the expects of the different States,

with our own telegraph people, and with the Postal Department. Extra poles were provided on this line to meet the request of the Postal Department to run serveral wires along the transcontinental runte. I believe that its idea was that if the coastal line werd discarded at some future date extra wires could be placed on the transcontinental line, and thus save the cost of expensive renewals on the coastal line, the clieve it is about twelve or eighteen months ago that the coastal line was wearing out to a great extent, and that the cost of repairs was heavy. For this reason the Postal Department wished to run its wires on the Commonwealth poles along the transcontinental line. If this line were at any time dismantled the extra poles would be handed over to the Postal Department. The full cost of the crection of poles and their maintenance has been charged to the Postal Department. If necessary the line could carry additional wires.

29. To Senator Lynch .- When new railways are projected we do sometimes, but not always, confer with the Postal Department. We build a telegraph line to suit our own purposes unless the Postal Department has made a request for its use. It is not necessary for as to consult the Postal Department regarding railway telegraph lines, although we are greatly guided by its specifications and designs, so that if at any time we wish to sell surplus material the Postal Department may purchase them, or we may purchase material from the Postal Department. If any mutual advantage were to be gained we would consult the Postal Department respecting the erection of a telegraph line. We have not ontered into any negotiations with the Postal Department regarding the construction of the broad-gauge line from Port Augusta to Red Hill. Of course, we may do so before the line is begun. It would be advisable for public departments in the public interests to con-sult one another when new railways are being built. There is no doubt that if the Postal Department wishes to consult us it will do so, but up to the present no negotiations have been entered into respecting the proposed line from Port Augusta to Red Hill.

(Taken at Melbourne.)

FRIDAY, 12TR FEBRUARY, 1926.

Present:

Mr. MACKAY, Chairman;

Senator Lynch Mr. Lacey
Mr. Cook Mr. McGrath
Mr. Gregory Mr. Seabrook.

James George Kilpatrick, Supervising Engineer, Lines Construction Branch, Postmaster-General's Department, sworn and examined.

30. To the Chairman.—1 prepared the estimate of the cost of the proposed conversion of the Perth to Adelaide telegraph route. As Mr. Crawford told the committee, the total gross cost is estimated to be £187,010, and I have prepared the following statement showing a dissection of the figures he submitted.

mitted.		
Total gross cost to Department £167	,010.	
Material-	_	_
. Copper Wire-	£	£
(a) 3 300 lb. for 1,051 miles (Port Augusta-		
Kalgoorlie, for Postmaster-General's		
Department), count to 282 tons (ap-		
proximate). Cost, at £15.5 per single		
mile (approximate)	32.844	
(b) 1 200 lb, for Commonwealth Railways		
(1,051 miles), equal to 94 tons. Cost.		
at £10.25 per mile	10,773	
at 3510.25 per lane	10,110	
(c) 1 200 lb. for Eastern Extension Com-		
pany (Kalgoorlie-Perth), 365 miles.		
equal to 33 tons. Cost, at £10 25 per		

Icon Wire I 190 bb G I wire (Port Augusta-Kalgoorlie) 1.9.01 miles, for Commonwealth Railways, equal to 188 tous (approximate) Cost, at £4.8 per Eight per mile on existing poles to strengthen them for added load. Cost, at £4 per mile for 1,051 miles, equal to £4 x 1,051 78-in , 3 in , x 3 in , 26 per mile (average, 100), at £4 3 per mile, equal to £4 3 x 105i Other Material ther Material -Wring stores for copper wire, i.e., spindles, in sulators, bolts, tapes, bunders, sleeves, &c Wiring stores for galvanized from wire Material for transpositions, i.e. bands, transposi tion bolts, &c. 68.611 Total material Labour ubour – Erecting additional crossarm, running wires, staying poles, transposing wires, &c. 180,600 msu hours at 2s. 6d. per hour llowoures to Labour – Child endowment, camping, travelling ncidentals— Cartage, treight Administration— 11.998 £3,921 6,614 Material . . Labour ... 1.030 11.565 Erection of New Building (Cook) -For staff and repeaters 4dditions to Existing Buildings-3,000 Port Augusta Transfer of Apparatus-Eucla-Cook Port Augusta 793 Total cost of new work now to be undertaken Add cost of work done by Commonwealth Railways and already publ for by Postal Dapartment, 1c., five additional poles per mile on Commonwealth Railway route (1,031 miles) Cost of dismanting and recovering old line material 199 572 167,010 Less value of old line material to be recovered £22,824 Payment already made (see above) 24,844 47,669

It is impossible to prepare a firm estimate of the cost of copper wire because the market is always fluctu-The prices of 200-lb. and 300-lb. wire are approximately the same per mile, the smaller quantity of material in the latter being almost counter-balanced by the greater work entailed in drawing it. Iron wire costs approximately £26 5s. per ton. Contracts for all material are obtained by public tender. The wire will be delivered at Perth, Kalgoorlie, and Port Augusta, and being valuable material, it cannot be left along the route but must be handed over to a gang or placed in store. We have some 300-lb, wire in stock; the department does not use great quantities of it. The 400-lb, wire will be sent direct from the factory to the job. The stay consists of a wooden block in the ground, and a serew bolt from which an iron wire runs to a ring on the pole. By screwing up the bolt the stay can be tightened and the pole kept rigid. The wooden arms cost about 1s, 3d cach un-bored, they will be bored in the departmental workshops in Perth or Adelaide. It is more economical to do that than to buy the arms ready for use. We invite public tenders in the various States for the supply of these arms which may be of jarrah, stringy bark, blue gum, karri, or any other suitable wood We take into consideration the cost of freight from the mills to the job, and if the quality of the timber is satisfactory, the lowest tender is accepted. Western Australian arms will probably be the cheapest for Austranan arms will proparity be the cheaper for this job because of the saving of freight. In regard to the "other material," we require different wiring stores for copper wire and galvanized iron wire. The 47.358 reason is that the galvanized iron wire is heavier,

Not cost now to be incurred . .

119,342