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1917-18

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA.

*Brought up  
by Senator Earle  
13-6-18.*

R E P O R T

From The

JOINT COMMITTEE OF PUBLIC ACCOUNTS

Upon the

"EXPENDITURE IN CONNECTION WITH

ESTABLISHING NAVAL BASES"

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MEMBERS OF THE COMMONWEALTH PARLIAMENTARY JOINT  
COMMITTEE OF PUBLIC ACCOUNTS.

(Second Committee)

JOHN THOMSON, ESQUIRE, M.P., Chairman.

MATTHEW CHARLTON, ESQUIRE, M.P., Vice-Chairman.

Senate

House of Representatives

- |                                      |  |
|--------------------------------------|--|
| (3) Senator Thomas William Crawford. | Hlewelyn Atkinson, Esquire, M.P.             |
| Senator the Honorable John Earle.    | James Howard Catts, Esquire, M.P.            |
| (2) Senator George Fairbairn.        | James Edward Fenton, Esquire, M.P.           |
| Senator Allan Menzies.               | (1) The Honorable Alexander Foynton,<br>M.P. |

- 
- (1) Resigned 23rd April 1918.
  - (2) Resigned 22nd May 1918.
  - (3) Appointed 29th May, 1918.

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PROCEEDINGS OF THE COMMITTEE

The taking of evidence in the enquiry into the "Expenditure in connection with Establishing Naval Bases", was commenced on 1st November 1917, and terminated on 2nd May 1918.

The Committee inspected the sites for the Bases at Cookburn Sound, W.A., and at Flinders, Vic; they also inspected Dockyards and Naval Establishments in Sydney, N.S.W.

Altogether 24 meetings have been held in Melbourne, Perth, Flinders and Sydney, and the following witnesses have been examined:-

Abbott, Herbert	Mech. Engineer, Henderson Naval Base.
Abercrombie, Ralph	Acting Director of Navy Accounts.
Anderson, Chas. Hy. John	Mech. Engineer, Dept. of Works & Railways.
Bellamy, Herbert Ernest	Officer in charge of Works, Flinders Naval Base.
Bingle, Walter David	Secretary, Dept. of Works & Railways.
Bomphrey, Arch. Mitchell	late General Manager, Vic. Govt. Dockyard, Williamstown.
Carlin, Ernest Herbert	Asst. Eng. P.W. Dept. W.A. in charge of Harbors & Rivers
Clarkson, Eng. Rear-Admiral Sir Wm.	3rd Member of Naval Board
Cresswell, Rear Admiral Sir W.R.	1st " " " "
Curchin, Henry Wallace	Chief Executive Officer of Commonwealth Ship Building.
Cutler, Arthur Edward	General Manager, Walsh Island Dockyard and Eng. in Chief, P.W.D. N.S.W.
Flucker, Captain James	Dredging Supt. Henderson Naval Base.
Glossop, Captain James, G.F.	Captain-in-charge, Naval Establishments, N.S.W.
Hardwick, William Burden	Pol: Architect, P.W. Dept. W.A.,
Henshaw, Ernest Percival	General Foreman of Works, Henderson Naval Base.
Hill, Thomas	Engineer, Dept. of Works & Railways.
Jeffrey, William McKensie,	Resident Engineer, Flinders Naval Base.

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King, Richard Ralston	Works Supt. Morts' Dock & Eng. Co. Ltd. Sydney.
King-Salter, Julian James	General Manager, Commonwealth Naval Dockyard.
Law, Robert Oswald	Builder and Contractor, Perth.
Masoboy, Herbert	Accounts Officer, Henderson Naval Base.
Murdoch, John Smith	Architect, Dept. of Works and Railways
Owen, Percy Thomas	Director General of Works and Railways
Settle, Joseph Risley	Director of Naval Works.
Swan, William Robert	Suptg. Naval Civil Engineer.
Thorne, Edwin Henry	Accountant, Naval Works Branch.
Walter, Henry Latimer	" Dept. of Works & Railways.
Walton, William	Officer in charge, Henderson Naval Base.

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from

Report  
of the  
JOINT COMMITTEE OF PUBLIC ACCOUNTS

Under the "Committee of Public Accounts Act 1913" upon the  
"EXPENDITURE IN CONNECTION WITH ESTABLISHING NAVAL BASES."

I n t r o d u c t o r y

Soon after the Commonwealth had decided to establish an Australian Fleet, Admiral Sir Reginald Henderson was invited to visit Australia and advise upon the best positions for Eries and Sub-Naval Bases, and their equipment. He was also requested to advise and report on any other naval matters upon which he might care to express an opinion, including the location and character of the training schools for preparing the personnel of the Australian Naval Service, and generally in regard to all measures to be taken in the formation of a fleet.

After an inspection of the coast line of Australia the Admiral submitted a scheme which he embodied in a report to the Government in March 1911. This Scheme provided for the establishment of six naval bases, and eleven Sub-bases, including a Primary Base at Cookburn Sound, Western Australia, and a Sub-base for Destroyers and Submarines at Western Port, Victoria.

As considerable works have been undertaken at these two places now known as the Henderson Naval Base at Cookburn Sound, and Flinders Naval Base at Western Port respectively, this Committee deemed it advisable to enquire into and report upon the expenditure incurred thereon, and the rate of progress made.

C O N T R O L   A N D   S U P E R V I S I O N .

Dual Control: Abolition of,

From the commencement of operations up to a recent date the work was carried out under the dual control of the Department of the Navy and (the then) Department of Home Affairs; the former undertaking all work below high water mark, and the latter all work above such line. Officers of the two departments controlled activities in their respective spheres. It was stated in evidence that "There was necessarily duplication where one Department had control of part of the work and another had control of another part." This continued until the creation of the Department of Works and Railways. The construction of all Commonwealth Works is now being transferred to the new department, as was recommended by this

Committee in its report of 7th December, 1916, upon "Establishing a Commonwealth Public Works Department."

Witnesses claim that economy will result from control being centred in one Authority, as compared with the method which had previously existed.

#### Supervision.

Under the Minister for Works and railways the construction of all Naval Works is vested in the Director of Naval Works who with his officers are responsible for carrying on the work under day-labour conditions.

#### Estimates: Compilation of.

Estimates have been made for works without plans or quantities being taken out, and in many cases the estimated cost has been greatly exceeded. One of the reasons advanced for this, is, that it is due to insufficient time being given the Officers responsible for such estimates, to allow of proper details and figures being furnished.

The seriousness of this may best be realized by quoting one witness:—

*Witness*  
Question: Is there any way you can suggest in which the Department or the Government may know with some degree of accuracy the cost of any work which is in contemplation ?

Answer. There is only one possible way of trying to overcome the difficulty, and that is by the Departments putting forward their proposals six months - at least six months in the case of the bigger works - before they have to go before Parliament. The old difficulty has been that we got estimates asked for within a fortnight of them having to go before the House. I can assure you that estimates have been prepared without a scratch on a drawing paper. There has been a sum put down by the light of Nature. We have been forced into that position.

Question. Practically it is a guess at the cost of a week?

Answer. Yes; I do not say that it occurred in this case. We had plans, but we had no quantities.

The matter has been emphasized in previous reports of this Committee that it should be the duty of some responsible person for preparing the estimate and watching that such sum is not unreasonably exceeded during the execution of the work, it thereby being possible to fix responsibility in the case of any undue excess.

A witness thought that this might be helped by a closer relationship existing between the records of the sub-offices and the Head Office.

#### C O S T S

Figures were given shewing the total amount of Expenditure at Flinders and Henderson Naval Bases up to the 31st December 1917 :-

FLIBBERS NAVAL BASE from commencement of operations to 31st December 1917.

Cost of Land transferred Property State to Commonwealth Survey and other charges transferred Property State to Commonwealth value yet in abeyance	2327 so. 1 rd. 36 pobs. 2 JJ " 1400 "	25,377 577 455	
	<u>3967 so. 1 rd. 36 pobs.</u>		26,332
Cost of Buildings, Shore and Marine Works			448,142
Cost of Shore & Marine Plant (exclusive of Floating Craft,			<u>85,674</u>
			561,148

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MEMBERS NAVAL BASE from commencement of operations, to 31st December 1917

Cost of land: about 8000 acres in course of payment	Paid	108,725	
Not agreed upon Estimated 5 <sup>00</sup> to 9000 <sup>00</sup> :- (say)		11,873	
		<u>7,000</u>	127,598
Cost of Buildings, Shore and Marine Works			301,271
Cost of Shore and Marine Plant (exclusive of Floating Craft)			<u>83,169</u>

512,085

Floating Craft utilised for all Basas

393,564

G r a n d t o t a l

21466,747



The greater portion of this total was expended by the Department of the Navy, but it is anticipated that only a very slight further expenditure may take place in one or two items before the accounts of the Bases are closed so far as that Department is concerned, in consequence of the transfer of the Naval Works Branch to the control of the Department of Works and Railways.

An allocation of the costs exclusive of Plant and Land as between the Department of Works and Railways and the Department of the Navy to 31st December 1917, shows :-

<u>Flinders Naval Base:</u>	<u>Dept. of W. &amp; R.</u>	<u>Dept. of Navy</u>	<u>Total</u>
Cost of Buildings, Shore and Marine Works	£ 173,251	274,891	448,142
<u>Henderson Naval Base:</u>			
Cost of Buildings, Shore and Marine Works	£ 7,247	294,024	301,271
	<u>£180,498</u>	<u>568,915</u>	<u>749,413</u>

The small expenditure of £7,247 by the Department of Works & Railways at Henderson Naval Base is accountable to the fact that until the transfer of the Naval Works Branch took place all work at the Base was under the control of the Department of the Navy, and the figure above stated represents expenditure for the month of December 1917 only.

HENDERSON NAVAL BASE

Henderson Naval Base, is to be, in accordance with Admiral Henderson's report, a Fleet Primary Base, capable of receiving the largest Battleships, Destroyers and Submarines.

Site:

The general location was really determined by Admiral Henderson. He recommended that a site should be chosen somewhere in Cockburn Sound, Western Australia, and the Naval Board, acting on his recommendation, chose the exact position.

A portion of the foreshore of the harbour of Cockburn Sound, lying some six miles South of Fremantle, (Western Australia) and commencing immediately Southward from Woodman's Point, was selected. The area of Cockburn Sound south of Parmelia Bank is about 51 square miles. The approximate water area of the Base from low water mark to the limit of the reclamation is 2 square miles giving a water area of some 844 acres. The land area acquired is approximately 8000 acres.

The foreshore which is composed mainly of limestone and sand is concave in shape and the waters are protected to the West and South West by Garden Island, and John Point.

The Works generally comprise the following:- A channel through the sand banks to give access to Cockburn Sound, Protecting breakwaters, Quay Walls, Locks, Workshops, Stores and Offices.

The works so far carried out are a channel through the Parmelia and Success Banks, ~~and a portion of the excavation and reclamation for forming the Base.~~ and portion of the excavation and reclamation for forming the Base.

Works in hand at present are: The further enlargement of the channel ~~to an additional depth of 2 feet~~ through the sand banks into Cockburn Sound, Excavation and reclamation, The Northern and Southern Breakwaters.

The total cost of the complete Scheme, somewhat smaller than Admiral Henderson's requirements as estimated by the Director of Naval Works (Mr. Settle) will be about £11,000,000.

Proposed Schemes.

(1) The British Engineering Firm of Coode, Mathews, Fitzmaurice and Wilson were commissioned to advise the Commonwealth on the design and construction of the necessary works for the Naval Base, to meet the requirements laid down in Admiral Henderson's report.

Sir Maurice Fitzmaurice, one of the Partners of the Firm, and President of the Admiralty Council on Naval Bases, visited Australia in 1914 for the purpose of investigating the site and preparing a scheme for the Base. The firm finally submitted to the Naval Board a Report on, and a design of, the proposed works in October 1914. The Scheme provided for the site on the concave shore southward of Woodman's Point.

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(2) Subsequently the Naval Board instructed Mr. J. J. King-Salter, General Manager, Commonwealth Naval Dockyard, Cockatoo Island, Sydney, and Mr. W. R. Swan (then) Acting Director of Naval Works, to prepare an alternative scheme for the lay-out of the proposed Naval Base. The Scheme was prepared in collaboration with Messrs Metcalf & Co. Reinforced Concrete Specialists and was submitted to the Naval Board on 16th August 1916. It showed the situation of the Base on a convex shore around Woodman's Point.

(3) On the arrival of the newly appointed Director of Naval Works, Mr. J. R. Settle, in September 1916, a scheme for the Base was prepared by him, generally in accordance with that of Messrs. Goode, Mathews, Fitzmaurice and Wilson, and was submitted to the Naval Board on 30th December 1916. Mr. Settle's scheme also showed the site on the concave shore southward of Woodman's Point.

Of these three schemes the latter by Mr. J. R. Settle was approved by the Naval Board in March 1917, but as it was considered highly desirable to obtain the opinion and advice of the Director of Works, Admiralty, London, as to the merits of the respective lay-outs in the alternative schemes 2 and 3, - the matter was submitted to London on 26th March last.

The location of shops, buildings etc; will in the opinion of the Director of Naval Works (Mr. Settle) be decided in about five years time, as the positions shown on his lay-out was merely tentative.

Referring to Plans, Mr. Settle stated :-

*Mal*

"On arrival at Fremantle, I broke my journey for a fortnight, and very carefully investigated the works at Henderson Base. I asked the men in charge if they were working to any definite plans, and they said there were no definite plans, but they were working, to some extent, in accordance with the scheme of Sir Maurice Fitzmaurice. They showed me that scheme, and a model they had of the Base. I asked them, "Are you working with a definite object?" and the reply I received was, "Only with the definite object of going on generally with work that will fit in with Fitzmaurice's scheme, or some other scheme." Upon my arrival in Melbourne, and after consultation with the First Naval Member, from whom I received no instructions whatever, I set to and prepared a design, -and submitted it, with my report, on the 30th December 1916. The Naval Board considered the report and design, and on the 7th March, 1917, they informed me that they had approved of the scheme I had submitted, but that I was to carry it out in a certain order. Since then, I have given instructions to the officer in charge of the Works at Henderson Base as to the items which are to be proceeded with."

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## ACCOUNTS AND AUDIT.

Speaking generally the system of accounts is standardized at both Bases. The system used both for Labour, Materials and Records is carried out by means of cards, and the total cost of a building or work is further dissected into the various trades. The Officer in charge has authority to order materials required for the Works. Materials required for work are drawn on requisition from the Storekeeper, who keeps a record of all issues and receipts, the former being passed on to the Accounts Branch for costing. The men's time is recorded on the "docket" system. Returns accompanied by vouchers are made monthly by the Accounts Officer to the Head Office in Melbourne.

There is no resident Paymaster at Henderson Base, vouchers being passed by the Accounts Office there, are paid by the Accounts Officer of the Commonwealth Department of Works and Railways in Perth; this Officer keeps the appropriation Ledger, thus the present system necessitates keeping precisely the same information at the Base. The Committee were told that during the past three years an independent audit has not been made of the accounts, no officer of the Auditor General's Department having visited the Base during that time.

In regard to the stock of materials in store there is a yearly stock-taking by the Storekeeper and his staff, and this is checked by an independent Officer.

## STAFF: RESPONSIBILITIES OF.

The Director of Naval Works, in defining the duties of the responsible heads of Departments to show that there was no overlapping of responsibilities, said:

*With*  
"The officer in charge of works is responsible directly to me for the whole of the work carried on. He is responsible for any act carried out under his instruction by any subordinate. The dredging superintendent is responsible to the officer in charge for the dredging operations as a whole. The craft are supposed to be efficient as tools - the dredging superintendent sees that the craft are worked properly. He sees that the craft are moored rightly, worked rightly, and kept in efficient order as a ship. He sees to the moorings, cables, buoying, and to all items of that nature. The mechanical engineer is responsible to the officer in charge of works for the efficient upkeep of boilers, engines, and all auxiliary steam machinery, also for any repair required to the hull; but with regard to that he takes no initiative unless it is first reported to the superintendent of dredges. He is responsible for the whole fabric of the ship as a ship. The mechanical engineer is in charge, not only of the floating plant, but the land plant also." The duties of the General Foreman of Works cover the supervision of all shore works including excavations, with the exception of mechanical engineering and survey works.

### TRIAL SHAFT.

On account of the geological formation of the whole of the land and the under water portion immediately off the shore at Woodman's Point, the land being of a very porous limestone character, Sir Maurice Fitzmaurice requested that a pit 30' x 15' should be sunk on the land to 50 feet below low water level to test the suitability or otherwise of the strata for the construction of a graving dock.

A trial shaft was therefore sunk a short way inshore, according to these instructions.

It was abandoned at a depth of 36'10" in consequence of the influx of water in September 1914 after having cost a sum of £4,500.

A shaft 5' in diameter to a depth of 35 or 40 feet was put down by the West Australian Government at Fremantle on the eastern end of the inner harbour for a similar purpose, work had to be abandoned on account of quicksand. The cost was less than £200.

### EXCAVATING PLANT:

The Excavating Plant at the present time consists of 2 steam crane navvies (18 tons) 2 steam cranes (3 tons) 6 Locomotives, and a number of muck waggons to a value of £25,618:- The cost of removal per cubic yard from commencement of operations to 2nd March 1918 is 3/3d.22 by hand labour and 1/11.88 by steam navvies. The quantities removed were 181,112 and 350,412 cubic yards respectively.

It is estimated that there are 10,000,000 cubic yards of excavation in the whole scheme at the Base including the work which has already been accomplished.

The Officer in charge (Mr. Walton) considered that at the present rate of progress it will take forty years to complete.

practical suggestions received were that a reduction in cost could be effected by an increase in plant, thereby permitting a reduction in overhead charges of about 3d per cubic yard.

It was considered that twelve steam navvies at least with attendant locomotives and waggons, were requisite for the work to be economically and expeditiously accomplished. The approximate cost of this Plant would be as follows :-

10 Steam Navvies, say,	£30,000 to £40,000
8 Locomotives	12,000 to 16,000
500 side tip Waggons say	35,000 to 40,000.

This estimate is based on the assumption that the work is required to be done in ten years.

### DREDGING

The following was stated in evidence to the Committee, viz:

To provide an Entrance to the Base it is necessary to dredge channels through the Parmelia and Success Banks.

Dredging is at present being carried out to provide a channel 200 feet wide by 20 feet deep. (This is now practically completed) and it is estimated that there are 10,000,000 cubic yards to shift to complete the full scheme, which shows a channel 37 feet deep on Parmelia bank and 30 feet on the Success Bank with a width of 600 feet on each.

At the present rate of progress it is considered that this work will take 15 years to complete.

The plant now in use consists of 2 Bucket dredges and 1 Suction dredge with 3 steam hopper barges, 3 Dump hopper barges and 1 Tug to the total value of £258,766.

Dredging operations have to be suspended in bad weather owing to working in unsheltered waters. The time lost was stated by Witnesses to be from 20 to 50 per cent.

The cost of working all dredges and attending Plant from commencement of dredging operations, to 30th January 1918 including overhead charges was 13.90d. per cubic yard. The quantity of material raised during that period was 1,263,073 cubic yards.

There are three main ways by which the work may be expedited, viz:- (1) Working longer hours. (2) Working additional shifts. (3) Additional Plant.

At the present time two shifts are being worked i.e. ninety six hours per week. With reference to working a third shift it would not be advisable from the point of economy; as it is considered that the efficiency of this night shift would not be more than 55% of the day shift.

In connection with the third alternative of procuring additional plant, Mr. Settle said that great difficulty had been experienced when endeavouring to do so and negotiations had been going on with this end in view, but so far unsuccessfully: they are still being continued.

Mr. A. E. Cutler stated to the Committee, it was probable that the H.S.W. Government may be prepared to dispose of some suitable dredgers to the Commonwealth.

*Recommendations suggested for by the Department  
as shown in H. of S copy may be made  
2/1/1918*

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For more economical and efficient operations Mr. Abbott the Mechanical Engineer at the Base recommended 2 or 3 extra self filling suction dredges of from 2000 to 5000 tons capacity, and capable of lifting that amount in approximately one hour.

The (pre-war) cost would be about £70,000 and £200,000 respectively.

The advantage possessed by dredges of this class are that they are able to lift more material in a shorter time and able to work in weather where a bucket dredge could not do so.

Mr. Cutler also favoured a suction dredge where the water is rough as being far superior to a bucket dredge.

FLINDERS NAVAL BASE.

FLINDERS NAVAL BASE is to be in accordance with Admiral Henderson's Report, a Destroyer and Submarine Base, also a Naval Barracks and Torpedo School. It is proposed to include a small Floating Dock in the equipment of the Base.

The Works generally comprise the following :-

Naval Barracks  
Wireless Establishment  
Workshops for the training of Cadets and Stokers.  
Rifle Range.  
Wharfrage accommodation.  
Dredging of an approved Channel through Hann's Inlet up to the Wharf.

The Works already done, and in Progress :-

Barracks, School and Stores, - buildings completed for the transfer of Williamstown Naval Depot.

Wharfrage Accommodation - Completed; Executive Office's Residence Completed; Dredging of approved channel in progress; Main Roads and Surface drainage practically completed; Railway Siding, and connection to the Victorian Government Railway completed.

The Buildings erected provide for the housing and training of 78 Officers and 684 men as a first complement to be located there; this accommodation to be subsequently extended to provide for 316 officers, and 2,052 men, as requirements grow.

Admiral Crewswell said that as regards living accommodation

the base will be ready to receive the first complement of men as soon as the water supply and sewerage have been provided.

The fitting up of workshops and machinery is not at present in an advanced state.

S I T E: c

An area of land was acquired for purpose of the Base at Hann's Inlet, Westernport, Victoria, in pursuance of the recommendations contained in Admiral Henderson's report.

Hann's Inlet is an arm from the main waters of Port Western, the Base being situated between 6 and 7 miles in a direct line as the crow flies from the Southern Ocean.

The exact site was chosen by the Naval Board. The land area acquired was 2327 acres 1 rood 36 perches in addition to 1640 acres of transferred property, making a total area of 3,967 acres 1 rood 36 perches.

Much evidence was tendered to the Committee regarding the suitability of the Site. Because of the extensive mud flats at low water and the shallow channel to the head of Hann's inlet, a question which arises in the mind of a layman, is, why was not some spot with a deep water frontage chosen in preference?

Expert opinion, however, was unanimous in upholding the choice of the site, as taking into consideration the special purpose for which the Base is required it is essential that "still water" be provided, and in more exposed positions this could only be obtained by the building of protecting sea walls.

Sir Maurice Fitzmaurice in his report of December 1913 "has gone into the question of the position of the base, at great length, so that he might be able to satisfy himself that the best site had been chosen." His conclusion was that "after roughly estimating the cost of works at each place, Hann's Inlet has been wisely chosen as the cheapest site for a naval base in Port Western, assuming that it is used for destroyers and Submarines only."

PLANS:

The Third Naval Member, Admiral Clarkson, stated that complete plans for the Base were prepared when work commenced for all the buildings and for levelling the parade ground. He said:

"Likewise plans were drawn in connexion with dredging, and other works. We discussed that as a board, and instructed the Director of Naval Works to put in hand fair plans, which he did, Plans, - I will not say plans of the completed work, because it will never be completed -, of other works far ahead of actual requirements were prepared at an early stage. In the case of the workshops, for instance, I prepared complete plans, which, I thought, would answer requirements for many years to come."

According to the same witness: estimates of the completed cost however were not furnished, these being framed from year to year for the amount of work which it was proposed should be carried out during the year.

Notwithstanding Admiral Clarkson's statement in regard to the completion of these plans, officers of the Department do not seem to have been made aware of their existence. One responsible witness said that he had only Admiral Henderson's report and instructions received from time to time from the Naval Board to work on as he knew of no completed comprehensive scheme.



Another witness was of the opinion that during the latter stages of the work it had been carried out more efficiently and more economically owing to the fact that the officers in charge have been furnished with fuller details of the work which they have to do.

**ACCOUNTS:** The accounts, stores, timekeeping and costing are controlled in practically the same manner as that already set out in relation to Henderson Naval Base, with an amplification, particularly in regard to stores, of the card system. There is no Paymaster at the Base, the accounts are paid by the Department in Melbourne.

**DREDGING:** The dredging necessary to be carried out at Flinders consists of a channel and turning basin from deep water to the Base at the head of Hann's Inlet.

~~The channel is being dredged to a depth of 10'6" at low water, with a width of 150' at the bottom. The original proposition was to dredge a straight channel up to the Base from Western Port, but it was decided to make use of the existing channel to a certain extent, and thus save expense. The turning basin is also to be dredged to a depth of 10'6" at low water, which means that about 360,000 to 400,000 cubic yards will have to be removed.~~ d

The Plant at present in use is one Bucket dredger, six single ended barges, and one tug boat.

One witness in referring to the cost of dredging by the Bucket dredger said: "~~It was estimated that~~ 335,000 cubic yards have been dredged at a cost of about 1/- per cubic yard. During the month of October 1917 76,000 cubic yards were dredged at less than 6d. per cubic yard."

Mr. Settle stated that in regard to tugs:-

"We had to start with a tug what was handed over to the Department. It was previously a passenger vessel. We carried out very extensive alterations to it, trying to adapt her as a tug. We require the towing hook right amidships on any vessel used in our work, so that it can swing on its centre. Apart from that fact the "Togo" is wrongly principled. It was never intended or built for the purpose for which we had to use it, but still we struggled on with it. It was only by constant representations and official reports to the Naval Board that I would not take any further responsibility for the "Togo" as a towing vessel that the Board authorized me to get other tugs. We advertised for them and received three replies. We accepted the offer of the "Otter", a small tug, which we are still using. The other vessels were not considered suitable. The "Otter" is a very small tug. We had to pay heavily for her, and we put up with the "Togo" until we could stand it no longer. I heard that the Adelaide Steamship Company had a tug, and probably others that might be suitable, and I sent an officer to Adelaide to look out for suitable vessels. He recommended the hiring of the "Defiance". We had it under charter for three months, and only returned it to the owners on the 12th December last. We used it with the "Otter". The "Defiance" and the "Otter" are both suitable for our work, but they are not of the power that I would have chosen had I had a number of vessels to choose from. However, they were the only tugs we could get, and they were most suitable in comparison with the "Togo".

The "Togo" was purchased by the Commonwealth from Messrs Broomby & Dent of Launceston for £7500 about July 1916.

and is now in use by the Director of Naval Auxiliary Services. The "Lefiance" was hired from the Adelaide Steam Tug Company for a period of three months at £4 per day; the total amount paid in hire was £364. The "Utter" is the only tug now in use at Flinders and has been hired from Henry Moss of Melbourne from 30th July 1917 at £100 per month. The above rates of hire are merely for the rent of the vessel only.

Recently a suction dredger has been built by Messrs Thompson & Coy of Castlemaine at a Contract price of £24,307 and successful trials have now been completed. It is estimated that the contract price will be exceeded by less than £2,000.

The specified capacity of the dredger is 500 tons of mud or 300 tons of clay per hour; and it is estimated that the cost of dredging will be about 3d per yard. A responsible witness stated that for the amount of work to be done by the dredge the purchase was not warranted as "unless the dredging at Flinders Base can be extended and enlarged, the suction dredge which was built specially for Flinders will not pay for itself, as it cannot be removed from Western Port not having been built in a hull. The dredge has been built on the principle of the sluicing dredgers that are employed on the gold-fields."

The witness thought that only on condition that it be decided to dredge the base to a depth of 25 feet was the expense warranted, provided the dredge proves suitable for the work.

The dredge should have been delivered under the contract, within nine months from the acceptance of the tender, and notwithstanding a Penalty clause, the dredge ~~was~~<sup>was</sup> twelve months overdue.

#### Quarters for Officers and Men, Stores, etc.

Provision is made for quarters for Senior Officer, <sup>Some</sup> Junior Officer, Married Warrant Officers, and Barracks. ~~Some~~ of these are already erected, also Necessary Office accommodation for administrative purposes, stores, Drill Hall, --- Lecture School, Surgery, Bakery, etc. etc.

In a return furnished to the Committee by the Dept. of Works and Railways detailed estimates are shown for 35 different structures the total estimated cost to complete these works is, in 34 cases greatly exceeded, the lumped figures being, original Estimate May 1915 £111,032:- Estimated Total cost to complete £179,368:- equivalent to an increase of 61.5%.

According to the same authority the percentage of increase of materials over the same period is 48.1, and of Labor 30%.

#### Wharf.

A wharf has been built, the front arm of which is 750 feet long, and the south arm 250 feet.

The cost of timber construction is	£17,148
" " " concrete retaining wall	4,433
" " " excavation to drive piles	<u>5,066</u>

A total of .. .. £26,651

This works out at 17/9d per square foot.

Referring first to the cost of this work a witness said that a portion of the work (excavation) was a farce and a waste of £5,000. He instances a heavy railway wharf being constructed at Fort Melbourne for 9/- per square foot and estimated that the cost of a light wharf, such as has been constructed at the Base, at 8/- per square foot.

A Civil Engineer was confident that the excavation work was unnecessary.

The present Director of Naval Works said that "an experienced man would never have constructed the wharf as it has been built." It has been constructed inside what is practically a "dam" and "he hoped that it would satisfy all requirements but would not like to hold himself responsible for it in regard to its details or its costs."

#### ROADS.

Roads completed at the base total a length of 6,976 yards at a cost of £28,039;

They are of varying widths (mostly 24 feet, and designs, some being with footpaths, kerbs and channels.

#### PARADE GROUND.

Extensive excavations at a cost of £33,236 were carried out in cutting away a hill and removing it to the flat for the purpose of making a parade ground. This in the opinion of one witness was extravagant, as a certain amount of the excavation was unnecessary.

#### RETAINING BANKS.

On the north and south sides of the Inlet leading to the Base retaining banks have been built. They are 3.2 miles in length and are constructed of mud on the one side and iron stone gravel on the other with a protection of facine work and boulders. The cost of these banks is £26,428, and runs into 6/- per cubic yd.

A witness said that "the price is shocking as at about 2/- per cubic yard he would expect to make a profit upon it." Furthermore he was of opinion that they were not all necessary as they serve no purpose; roughly speaking about 5% of them could have been done without.

#### CROP & CULTIVATION.

Admiral Creswell said :-

"We wanted clear, sweet grass land about the Base, and to get this it was necessary to drain, clear, and plough the land. It seemed to me that if we were ploughing the land, we might as well put in a crop, which would contribute something towards the cost of the reclamation."

The area under cultivation is 240 acres.

The costs were :-

Cultivation	£2,577
Erection of stables	416
Fencing	138
	<hr/>
	£3,131

The agricultural plant at the base on 30th September 1917 represented an outlay of £256, exclusive of the cost of four horses £120 :-

The crop taken off was about 25 tons of hay for the first year, and about 200 tons for the second year.

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## C O N C L U S I O N

From the evidence it is clear that Admiral Henderson's Scheme for the establishing of Naval Bases in Australia has in the main been accepted by the Commonwealth.

The Public Accounts Committee are of opinion that such work as is being carried out at present at Flinders and Henderson Naval Bases should be more vigorously prosecuted.

It was stated that at the present rate of progress it would take 15 years to complete the dredging and 40 years to complete excavations, reclamations and construction of Moles contemplated at Henderson Base.

The Committee consider that this hesitating method of carrying out authorised works results in a waste of public money, and with a view to providing expedition, efficiency and economy recommends as follows :- viz:

## R E C O M M E N D A T I O N S.

### C O N S T R U C T I O N O B J E C T I V E.

The Committee have been unable to find any definite evidence that the Authorities know exactly what their objective is in regard to Base Construction. This should be remedied, as a fundamental reform.

### DIRECTOR OF NAVAL WORKS:

The Director of Naval Works should be advised of the ultimate object of Base Construction together with the stages to which the work is to be carried at various estimated dates. He would then always know the relation of present work to the completed base and so anticipate future work and adapt his methods accordingly.

### S T A F F.

It appears to the Committee that a serious error of judgment was committed by the Naval Board in recommending the appointment of the first Director of Naval Works, and considerable loss was sustained in consequence thereof.

Evidence was also adduced pointing to the unsuitability of the General Foreman of Works for his position at Henderson Naval Base.

The Committee consider that greater care should be taken in making important appointments.

### P L A N S, S P E C I F I C A T I O N S a n d E S T I M A T E S.

Complete plans, specifications and estimates of costs should be prepared for works to be constructed prior to their authorisation and all work should be carried out according to such plans.

## CO-ORDINATION OF WORK SHOPS.

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To provide for the economical working of the Bases the Committee recommends that men experienced in the control of ship-building yards should be consulted and asked to report on the general location of shops, stores, etc..

## PLANT AND MACHINERY ETC.

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To economically and expeditiously carry out the works, particularly at Henderson Base, a full complement of Machinery, including dredges, barges, and especially Steam Trawlers with necessary equipment should be provided.

In arranging for the design and purchase of Machinery and plant, business acumen is demanded to obviate such mistakes as came under notice at Flinders. The purchase of a Suction Dredge at a cost of about 226,000 which cannot owing to her construction be removed to any other port, is unwarranted and as the decision is only to excavate to a sufficient depth to provide for destroyer and submarine boats at Hann's Inlet, the amount of material to be removed is not sufficient to warrant the expenditure. Another instance is the purchase of the Tug "Togo", at a cost of 27,500, which was found to be unsuitable for the work for which it was obtained. (For evidence of want of practical knowledge and foresight see References in the Report to Quarters, Wharf, Unnecessary Wharf Excavations, Parade Ground, and Retaining Banks at Flinders Base; also the sinking of a trial shaft at Henderson Base.)

## IMPROVED WORKING METHODS.

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Some definite method should be adopted to encourage all employees in whatever capacity to submit ideas, methods, and devices for more economical and efficient working. (This recommendation has no reference to any sweating or speeding up systems.)

## COMPARISON OF WORKING COSTS.

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Where practicable actual working costs at each Base in various sections, and similar works elsewhere, both operative and administrative, should be periodically compared.

A U D I T

In order that a complete check may be kept on items of Expenditure and their allocation to each job it is recommended that an Officer from the Auditor-General's Department make an examination of all accounts at the Bases at least once a year.

---

M. Shannon

Vice Chairman.

12<sup>th</sup>.  
2 = JUNE, 1918

24<sup>th</sup>

1917-18

Proof please  
R. A. Brownowski  
13-6-18.

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA.



Report

from the

Joint Committee of Public Accounts  
upon the

Expenditure in connection with Establishing  
Naval Bases.

Presented pursuant to <sup>Statute</sup> ~~the~~ ~~Orders~~ to be printed, 13<sup>th</sup> June, 1918.

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