SG & DEP
Discovery Exp.

Tender due Noon 11th June 23

Messrs. Vosper
Portsmouth.

M. P. 40/23

W
FALKLAND ISLES 1460/3

The above reference to be quoted on all correspondence respecting this Contract.

FALKLAND ISLES.

File carefully in Record Room

REQUISITION No. 1460.

CONTRACT No. 3.

Specification

OF

REPAIRS AND ALTERATIONS TO ANTARCTIC RESEARCH S.S. "DISCOVERY."

MESSRS. FLANNERY, BAGGALLAY & JOHNSON, LTD.,
Consulting Engineers,
9, FENCHURCH STREET, LONDON, E.C.

OFFICE OF THE CROWN AGENTS FOR THE COLONIES,
4, MILLBANK, LONDON, S.W.1,
7th May, 1923.

COPY OF RECOMMENDATION.

FROM:- Messrs.Flannery, Baggallay & Joh

TO:- The Crown Agents for the Colonie

DATED:- 16th July 1925.

Sir,

W/FALKLAND ISLES 1460.
H.M.C.S. "DISCOVERY".

Referring to your instructions that we should peruse the letter dated 13th instant to the Crown Agents from Messrs.Vosp & Co.Ltd. and submit our recommendation thereon, we beg leave t report as follows:- .....

2. We respectfully confirm the opinion previously expressed that under no conditions would be it be wise to permit this ship take the ground during the final stages of her reconditioning, an there are provisions in the General Conditions of Contract which would give us, as your Officials, power to direct the workmanshi and these would in our opinion be sufficient and were always understood to be sufficient to enable us to direct continuous floatation during the latter part of the outfitting accordingly.

3. We note, however, that Messrs.Vosper when Tendering had estimated for a relief of dry dock dues' expedditure during the latter part of the outfitting by their contemplated transfer of the ship from dry dock to a berth adjacent to their Yard where the ship would ground from time to time with the fall of the tide, and that they now ask as a contribution towards the additional expense which they say would fall upon them as compared with their estimated expense when Tendering, the sum of £938, and we gather that the effect of their letter of the 13th. instant may be the withdrawal of their Tender unless the extra amount is conceded and as we assume they are perfectly entitled to withdraw their Tender before it is unconditionally accepted, it will be for the Crown Agents to advise whether the extra amount should be conceded or not

4. The Tender of Messrs.Vosper, even if they are entitled as a condition of not withdrawing their Tender to add the sum of £938, would still, as already noted by the Crown Agents, be very much lower that that of the next Tenderer, and having regard to

P.T.O.

the opinion expressed recently by the Colonial Office that it is undesirable that any Contractor should commence work with a feeli of grievance, we are ourselves inclined to advise meeting the lowe Tenderers in any reasonable way, although, as already stated, the misunderstanding when calculating their cost of the work for Tendering was their own.

5. In the circumstances if you should decide by conceding their demand to avoid any chance of withdrawal of the lowest Tender, it might be acceptable to say that you would add the sum of £938 to their Tender as an ex gracia payment if, upon the completion of the Contract, you were perfectly satisfied in the Crown Agents sole discretion with the manner in which the Contract had been carried out, and as you instruct us to make a submission we respectfully recommend accordingly for the above reasons and

remain,

Your obedient Servants,

MS

COPY OF LETTER.

FROM:- Messrs. Vosper & Co.Ltd.

TO:- The Crown Agents for the Colon

DATED:- 13th July,1923.

Gentlemen,

W/Falkland Islands/1460.
S.S."Discovery".

We are in receipt of your favour of the 12th inst., and are pleased to learn that, subject to the Clauses mentioned in your letter being answered satisfactorily, it is your intention to place the above Contract in our hands.

Taking the points of your letter in order, we beg to reply as follows:-

Respecting your question as to our financial stability, we beg to enclose herewith, a letter from our Bankers received this morning, and which we trust will be found satisfactory.

CLAUSE "A". Referring to the condition of grounding mentioned in clause "A".

The berth we had arranged for the vessel after leaving Dry Dock is within our Works confines, and handy both to our Shipyard and Engineering Works, but unfortunately there is not sufficient water to ensure the Vessel being afloat at all states of the tides. The alternatives are either to keep the Vessel in Dry dock until completion, or arrange a deep water berth some distance from our Works.

It will be understood either alternatives will materially increase the cost of the work, and we respectfully submit that under the circumstances, we may be allowed to add some portion of the amount to our tender. We would propose the sum of £938 (Nine hundred and thirty eight pounds) as a reasonable proportion of our additional cost, and to be extra to our Contract of £31,882.

CLAUSE "B". All work will be carried out under cover as required by the specification - page 29.

P.T.O

CLAUSE "C". Names of Sub-contractors will be submitted.

CLAUSE "D". Alternative arrangements for heating are under consideration, and will be submitted to the Crown Agents in due course.

CLAUSE "E". The removal arrangements will be submitted before the Vessel is removed from her present berth.

In view of the importance of this Contract, the undersigned proposes to call at your Office on Monday afternoon to further discuss any questions that may arise in respect to this letter.

Meanwhile, we are, Gentlemen,

Yours very obediently,

VOSPER & CO. LTD.

MS

W

FALKLAND ISLES 1460/3

The above reference to be quoted on all correspondence respecting this Contract.

FALKLAND ISLES.

REQUISITION No. 1460.

CONTRACT No. 3.

Specification

OF

REPAIRS AND ALTERATIONS TO ANTARCTIC RESEARCH S.S. "DISCOVERY."

MESSRS. FLANNERY, BAGGALLAY & JOHNSON, LTD.,
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7th May, 1923.

FALKLAND ISLES.

REQUISITION No. 1460.

CONTRACT No. 3.

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OF

REPAIRS AND ALTERATIONS TO ANTARCTIC RESEARCH S.S. "DISCOVERY."

DIMENSIONS OF VESSEL.

Length of water line from fore edge of stem to axis of rudder	172 ft. 0 ins.
Breadth extreme	34 ft. 0 ins.
Depth amidships from top of ceiling to top of upper deck beam	18 ft. 6 ins.

Tenderers can obtain further particulars of the vessel, as she was originally constructed, by reference to the *Proceedings* of the Institution of Naval Architects, 1905.

GENERALLY.

The vessel is at present lying afloat in the South West India Docks, London, where she is available for inspection by Tenderers who will be required to take their own particulars and details of work to be done.

The hull and machinery have been fully opened up for detail examination, and have not been reclosed.

DRY DOCKING AND TRANSPORTING.

All drydock dues and charges to be included for the whole time necessary for carrying out the work specified, including use of shores, staging, tools, and necessary appliances.

Vessel to be placed on blocks in drydock not less than 4 ft. 0 ins. high, with 3 ins. soft wood caps on top, and to remain in drydock until main and upper deck planking renewed and completed and all inner and outer bottom planking repairs completed.

Contractors to remove vessel from her present position and will bear all costs and charges connected with such removal, including crew, if required,

for transport to another port, towages, pilotage, foyboats, harbour dues from date of acceptance of tender to date of completion of vessel ready for sea.

In the event of Contractors wishing to use the machinery for transporting vessel to another Port they will be required to close same up at their own expense and make any other arrangements necessary in connection with navigation.

REMOVALS.

Provision to be made for all removals for access to the work herein specified, all such removals being replaced in good condition and any parts which are clearly broken or damaged by the Contractors' workmen are to be renewed at the Contractors' expense.

Contractors to remove from the vessel any articles of outfit, sails, equipment, stores or spare gear as required and to warehouse same and be responsible for safekeeping until vessel is nearing completion, when the gear removed is to be replaced on board after careful overhaul, and made ready for service. Inventory to be carefully checked over.

All old materials not required by the Inspectors for further use to become Contractors' property.

THE FOLLOWING REPAIRS ARE TO BE CARRIED OUT.

Forecastle Deck.

The whole of the fittings to be removed from this deck, including windlass handrails and stanchions, bollards, fairleads, ventilators, etc., and the wood deck to be completely removed and renewed of Moulmein teak to original scantlings, together with covering boards, bow chocks, anchor beds and similar details. Hatches, skylights and similar fittings to be completely renewed in teak to suit new arrangements.

All fittings except windlass to replace on completion.

Upper Deck.

The whole of the upper deck planking to be removed and a new Moulmein teak deck fitted with planks 6 ins. wide by $3\frac{1}{2}$ ins. thick. Margin planks, waterways and covering boards also to renew in teak of same section as at present fitted.

Before fitting the wood deck, two fore and aft steel tie plates are to be fitted, one each side at about line of engine and boiler casing sides, extending as far fore and aft as practicable and through fastened to each beam. These ties to be 24 ins. wide by $\frac{6}{20}$ in. thick, and recessed into the beams to avoid scoring deck planks.

Diagonal tie plates to extend from side ties to mast partners. All tie plates galvanized after being worked for fitting.

All crew accommodation, deckhouses and other fittings to remove for access to above work and new deck fitted to suit new arrangement of deckhouses.

All fittings removed to be carefully overhauled or renewed and refitted as required.

Special stiffening to be introduced in way of heavy winch, at fore end of boiler casing and in other places where considered necessary.

All steelwork exposed for laying new deck is to be carefully scaled to bare iron and coated three stiff coats best red lead oil paint, applied at approved intervals.

Main Deck.

The whole of the existing deck planking margin planks, and waterways to be removed and renewed complete to original scantlings, the decking to be 5 ins. wide by 3 ins. thick pitch pine.

Fresh water tanks, hatchways, ventilators and other fittings to remove as required for access to the work.

Properly framed openings with fitted watertight hatchways to arrange as required for access to stores and other spaces below this deck.

Fastenings.

Upper and forecastle decks to have double fastenings. Main deck to have single fastenings.

All fastenings steel rag pointed dumps galvanized after manufacture. Decks in way of steel ties or beams to have galvanized through bolts pitched about 2 ft. apart. Fastenings to be kept clear of centres of planks. Heads of fastenings recessed into deck with white lead grummets and properly dowelled. Old fastenings to be carefully drawn and holes plugged, to satisfaction of Inspecting Engineers and Naval Architects.

Beams.

Wood beams throughout vessel to scrape and clean up. Provision to be made for new beams, of same material and scantling as existing beams, to be fitted as required to meet new deck arrangements. Scarphed beams will not be permitted, and where new beams are required they must be in one piece. Beams in way of cabins to specially clean off and plane smooth for varnishing or painting as may be required.

The upper deck beams on frames 10, 12, 22, 24 and 32, are defective and are to be removed and renewed to original sizes.

Main deck beams on frames 44 and 46 are soft at ends, these beams to be removed and renewed unless it is found that on cutting same back at ends the defective portions can be cut out and the beams satisfactorily packed up.

The fore and aft bulb angle stiffeners and beam fillings under each side of upper deck to be removed, and are not to be refitted.

Panting beams as originally fitted at level of lower deck stringer are to be renewed in oak and fitted in same position and of same section as originally.

All short fillings not required in new deck arrangements are to be removed and beams in way made good. Fore and aft carlins to fit at all openings well kneed to through beams. Half beams dovetailed into carlins.

Outside Planking.

The inside thickness of main planking to be removed and renewed from the underside of covering board to not less than 3 ft. below the top of the main deck beams, this renewal to extend all fore and aft on both sides, including aft peak and forecastle sides, the new planking to be of pitch pine of same scantlings and fastening as that removed. Remainder of planking to be carefully overhauled down to keel and any planks clear of Greenheart doubling fitted with graving pieces are to be renewed ; any soft wood planks or short lengths in outside plank, extending on bottom from bilge to bilge to 3 ft. above lower edge of doubling, are to be renewed to original lengths in English elm.

Outside Planking Greenheart Doublings.

The whole of the greenheart doubling to be removed with the exception of that portion forward of the foremast extending from the keel to about 3 ft. below the main deck. Special care to be taken in removing this doubling in order that sound portions can be retained for refitting. Any planks having graving pieces fitted or short lengths of plank are to be renewed to original lengths. Several planks have been repaired with timber other than Greenheart; all such planks are to remove and renew in Greenheart.

All outer bottom to plane off smooth throughout, for painting, after being caulked and payed.

Inner Bottom Planking.

The whole of the inner bottom planking beam shelves, stringers and clamps to be removed from the head of the solid floor fillings (at about the half turn of the bilge) to the underside of the upper deck and forecastle head. This removal and renewal to extend throughout the vessel except in way of the heavy diagonal timbers at the forward end of the vessel below main deck. Beam knees and other removals to be made as necessary and same all to be refitted in good condition. In many places brass knees are fitted and naval brass fastenings are to be used for re-securing same.

Lockers, bunker boundaries and other obstructions in engine and boiler space in way of removal and renewal of inner bottom planking to be carried out as required.

The whole of the planking, beam shelves, stringers, clamps, etc., removed as specified above, are to be renewed in pitch pine of same scantling as that removed. All parts removed for access to be thoroughly cleaned, made good and refitted as before.

Listings cut out clear of planking renewals to be filled in and secured with galvanised coach screws.

Contractors should carefully note that the fastenings for the main or inside thickness of outside planking are underneath the outside doubling, being clenched on the main planking and inner bottom planking, so that the removal of the inner bottom planking will also involve removal of outside doubling as above specified for access to new fastenings.

Chain plates and other parts to remove for access and refit as may be directed after annealing and making good.

Fastenings.

Planking fastenings of galvanized steel clenched on heavy galvanized washers, fastenings in way of any brass knees or other brass work are to be of Naval brass. The brass dumps with which the Greenheart doubling was originally secured, are to be used in again as far as practicable.

Treenails to renew where removed, and if treenails can be avoided in any new parts, galvanized steel fastenings to be adopted.

Caulking.

Where planking is not removed for renewal the *old oakum is to be entirely removed* and the seams recaulked with three threads of oakum and payed with pitch. All new work to be caulked with three threads of oakum and payed with pitch, this caulking applying to all decks and inner thickness and

doubling of main outside planking. Very special care to be exercised in caulking all thicknesses of outside planking scarphes and other parts, and in the event of leakages developing after the vessel is undocked on completion of repairs, the Contractors will be called upon to redock and make the vessel tight at their own expense.

TIMBERS.

The timbers are counted from forward to aft, and the beams are on alternate timbers, and for the guidance of Contractors the forward bulkhead of the machinery space is counted No. 50 timber.

The following defective timbers are to be removed and renewed in English, Dantzig or Italian oak of same section as at present and grown to shape. Beech or other materials are not permissible.

STARBOARD SIDE.

No. 2 Timber defective in Tween decks.
" 8 " " " " "
" 12 " " " " "
" 13 " " " " "
" 16 " " " " "
" 20 " " " " " and Lower Hold.
" 23 " " " " "
" 24 " " " Lower Hold.
" 25 " " " Tween decks and Lower Hold.
" 26 " " " " "
" 27 " " " " " and Lower Hold.
" 28 " " " " "
" 30 " " " " " and Lower Hold.
" 31 " " " Lower Hold.
" 32 " " " Tween decks and Lower Hold.
" 33 " " " " " " "
" 35 " " " Lower Hold.
" 36 " " " Tween decks.
" 37 " " " " " and Lower Hold.
" 39 " " " " "
" 41 " " " " "
" 42 " " " " " and Lower Hold.
" 43 " " " Lower Hold.
" 44 " " " Tween decks and Lower Hold.
" 45 " " " Tween decks and Lower Hold.
" 49 " " " " "
" 60 " " " " "
" 61 " " " " "
" 70 " " " " "
" 71 " " " " "
" 72 " " " " "
" 73 " " " " "

PORT SIDE.

No. 3 Timber defective in Tween Decks.
" 13 " " " " "
" 15 " " " Lower Hold.
" 16 " " " Tween Decks.
" 17 " " " " "
" 19 " " " " "
" 21 " " " " " and Lower Hold.

No. 22 Timber defective in Tween Decks and Lower Hold.
" 23 " " " " " " " "
" 24 " " " " " " " "
" 25 " " " " " " " "
" 26 " " " " " " " "
" 29 " " " " " " " "
" 30 " " " " " " " "
" 31 " " " Lower Hold.
" 33 " " " " "
" 34 " " " Tween Decks and Lower Hold.
" 35 " " " " " " " "
" 36 " " " " " " " "
" 37 " " " " " " " "
" 38 " " " " " " " "
" 39 " " " " " " " "
" 41 " " " " " " " "
" 42 " " " " " " " "
" 43 " " " " " " " "
" 44 " " " Lower Hold.
" 45 " " " " "
" 47 " " " Tween Decks.
" 48 " " " Lower Hold
" 49 " " " " "
" 69 " " " Tween Decks.
" 74 " " " " "

The timbers referred to above are to be renewed to their original butts, fastenings being removed and renewed in way as required.

Aft Peak.

The whole of the timbers, timber fillings and horn timbers on both sides of the vessel in the after peak store room to be removed and renewed, together with inner bottom planking outside planking and as previously specified. If on stripping the existing timbers any of them are found to be thoroughly sound, they may be replaced.

Main Keel.

The main keel to be removed and renewed for a length of about 60 ft. the after end of this new length starting at the scarph nearest to 40 ft. from the stern post. The new portion of keel to be same material and scantling as old portion and fastened in a similar manner with galvanized steel fastenings. All removals and renewals as required in way of above work to be provided for.

The false keel on the underside of the main keel to be removed and completely renewed all fore and aft.

Ice Protection Plates, etc.

The steel sheathing plates on bow of vessel, including shoe and protection plates on stem, also iron work in way of stern tubes, post and rudder hangings, to be removed, woodwork in way carefully dubbed and specially prepared for bedding the old parts after they have been galvanized by hot process.

Fastenings Throughout.

All to be tested and slack ones renewed. Black iron fastenings to be renewed. The whole of the fastenings throughout the vessel, on completion, are to be galvanized steel clenched on heavy galvanized rings, excepting where otherwise specified. No black steel fastenings will be permitted.

Shoring, etc.

Satisfactory arrangements should be made during reconstruction for shoring, fitting harpins, ribands, etc., in order that the correct moulded shape of the vessel may be maintained.

Boiler Bearers.

Wood bearers under boilers to be removed and renewed in cast iron or built steel as may be agreed, the seating flanges of new bearers to extend full width of bearer foundations and to be properly insulated therefrom by 6 in. thickness of teak. The boilers to be suitably shored, or removed as may be found most expedient, and all removals and replacements provided for as necessary for carrying out the work.

Masts and Spars.

Fore Mast.—Lower mast to be removed, carefully examined and if found sound to be refitted.

Top mast and topgallant masts to be renewed.

Main Mast.—Lower mast, topmast, and topgallant masts all to be removed and renewed.

Mizen Mast.—The mizen mast and topmast to be removed and renewed.

Deck margins of hardwood to fit at masts partners, and wedging and masts coats to renew.

Spars.—The whole of the vessels spars throughout together with tressle trees, cheeks, and outriggers on masts, bowsprit, jibboom, yards, booms and gaffs, to be removed and renewed, to suit the amended rig finally decided upon for the vessel.

All ironwork on existing masts and spars may, where found suitable and in first-class condition, be fitted to the new spars after being annealed and otherwise suitably prepared. No old woodwork to be refitted to new masts and spars. Any parts subject to chafing to be specially protected.

Rigging.

The whole of the standing and running rigging to be renewed throughout with any missing ironwork or other details to complete same. All wire rigging to be tested to Crown Agents requirements and specification, and to be galvanized steel wire of Bullivant's or other approved make of best quality for the intended purpose. Rigging to be turned up, not spliced at ends round deadeyes, and thoroughly seized with galvanized wire seizing. All deadeyes to be cleaned up, overhauled, renewed where necessary and coated with linseed oil prior to refitting.

Hemp and other running rigging and ropes all to be best of their respective kinds and tested to Admiralty requirements, and special attention to be given in selecting most suitable quality for the various purposes.

Worming, serving and parcelling to carry out the full extent required and not less than on the existing rigging. Leather protection to fit to approval.

The rigging to be finished off complete in all respects to the satisfaction of the Naval Architects and the Master of the vessel.

Sails.

The original sail area of the vessel was found to be insufficient and Contractors will be required to submit, and provide for, an increased sail area the position and lengths of masts being modified as found most suitable and to provide for more head sails. A General Sail Plan shewing the proposed modifications accompanies this Specification for the guidance of Tenderers. Any modifications desired by the Firm should be indicated in their Tender.

The whole of the sails to be renewed throughout complete ready for sea and all to be of best quality canvas to comply with Admiralty requirements and tests.

All thimbles and similar fittings about the sails to be of galvanized iron or brass as may be most suitable for the intended purpose. No black iron to be used.

Wire ropes used in the manufacture of sails are to be wormed, served and parcelled.

Blocks.

All to be thoroughly overhauled, pins and sheaves removed and put into good working condition with new parts as required. Missing blocks to be renewed, no black iron work to be used in any blocks and any iron fittings or sheaves of existing blocks, if not galvanized, are to be removed and galvanized.

Bulwarks.

All to be carefully scraped and cleaned down together with stanchions, any damaged parts to be renewed. Bulwarks in way of existing side houses to be altered as required to conform to the remainder of bulwarks. Mouldings stanchions, etc., to scrape up and properly prepare for painting all fore and aft. Main rail to scrape and clean smooth, new closing lengths to fit each side, and all make good in way of houses removed.

Pin rails to overhaul thoroughly clean off smooth ready for coating and make good in way of houses removed from sides of vessel.

Belaying pins, cleats, sheaves, doublings, mooring pipes and other fittings to overhaul and leave in good condition ready for sea.

Rigging fittings on inside, and outside of bulwarks, rails, etc., all to overhaul and place in good condition and refit.

Fife rails of Greenheart to fit at each mast.

All washport doors to remove, hinges overhaul and renew where necessary, and doors refit. An extra washport to fit each side and positions of doors on each side of main mast to be altered if required, to clear new positions of backstays for main mast. Bulwarks to make good to suit new and altered positions of washports.

Doors to arrange each side for accommodation ladder.

Scuppers.

Throughout to remove with storm valves, renew or overhaul as required, and scuppers refit in good condition, as originally.

Bulkheads.

To remove as required for access to repairs and renewal, planking and stiffening of bulkheads all to carefully overhaul and clean up and restore to the original construction.

Wood boundaries as fitted for previous bulkheads which have been cut away, are to be removed.

Steelwork.

Paint and corrosion on steelwork of bulkheads, bunkers, beams, stringer plates, ties, engine and boiler casings, skylight, and other steelwork to be scaled clean to bare iron and specially prepared for painting. Entrance door frame to engine room to remove and rerivet and door overhaul and refit. Rustbinding has occurred in seams of engine and boiler casing in several places ; such places to be cut adrift, cleaned and reriveted. Caulking throughout to overhaul and make good. Bunkers in engine room to be altered to original arrangements for accommodating additional fresh water feed tanks, evaporator and distiller on Starboard side and workshop on Port side.

Watertight door to stokehold bulkhead to remove, overhaul and refit and test by hose pressure, all work necessary being carried out to satisfactorily stand test. Door to have gear overhauled and fitted for working from deck or below with indicator fitted for position. Screen-plate to fit in bunker in way of W.T. door.

Rudder and Rudder Post.

Rudder post to clean off all parts overhaul and fastenings hardened up or renew as found necessary.

Rudder, together with gear at head, to be unshipped, cleaned off, thoroughly overhauled and replaced in good condition. The present channel section on back of rudder to be removed and an oak piece fitted in its place for increasing width of rudder within limits of lifting into rudder trunk. Tiller and fittings to overhaul and anneal, ball races at rudder head to overhaul and new balls to fit.

Rudder trunk to overhaul recaulk and pay, covering hatch to overhaul and refit, with all details complete in good condition, cover at bottom of trunk to be renewed.

Fayrers or other approved brake to fit to steering wheel.

All gear necessary for lifting rudder afloat to fit as originally arranged.

Stem, Body Post, Keel, etc.

All to be thoroughly cleaned off, scarphs cleaned out and recaulked, and all fastenings overhauled and made good.

Propeller Well.

To be stripped and reconstructed in accordance with the original arrangements, all old caulking to remove and seams to be recaulked. Closing and lifting gear all to refit.

Anchors and Cables.

Bower anchors, kedge and stream anchors, together with all cables to be removed ashore, overhauled, tested at an approved Test House, and any defective cables or studs renewed. Shackle pins all to be driven out for

examination, shackles and pins overhaul and make good and the whole of anchors and cables restowed and resecured on board in good condition ready for service.

Catting gear davits, blocks, falls, etc., all to be made suitable and put in good working order and falls renewed.

Anchors, cables, catting gear, stowage arrangements, slips, etc., all to test to satisfaction in deep water or as necessary when vessel afloat. Chain locker to be thoroughly cleaned out and recoated. Cables also to be hove in by hand.

Lockers and Store Rooms.

All to be thoroughly cleaned out, woodwork scraped clean and prepared for recoating.

Salting.

Openings between timbers throughout, also at the extremities of vessel, from the deadwood to the height of air courses formed midway between the keelson and hold beam clamps, and also the buttocks, to be filled with rock salt, and the spaces between the upper air course and the gunwale to be filled.

Salting to be carried out as work progresses, and filled in solid on completion.

Keelson to be cased in and salted all fore and aft.

Stops to be fitted for retaining salt between timbers.

Air Courses.

An air course to be left, all fore and aft below the clamps of each tier of beams, in the hold, and at each end of vessel. Air courses and coverings to be specially arranged so as not to interfere with maintaining strength of inner bottom planking.

Air courses in way of living spaces are to be arranged in form of easily portable panelling.

Crows Nest.

To be overhauled, repaired as necessary and refitted on main mast or other position as required, with all fittings and means for access.

MACHINERY.

The main engines and auxiliary machinery have been opened up for examination and are to be reclosed in good working order, after making the necessary adjustments, amongst which the following is to be done :—

M.P. Cylinder to be rebored and new piston rings fitted similar to present rings.

L.P. Cylinder to be rebored and new piston and rings fitted, similar to those at present fitted.

All bearings throughout to be carefully adjusted and a gauge supplied for main bearings.

All cocks and valves throughout to be disconnected, removed, opened up, ground in, repacked and refitted.

All steam and water pressure pipes to be removed, annealed and tested and defective pipes renewed. Remainder of pipes to remove, overhaul and refit.

Auxiliary machinery throughout to be overhauled and reclosed in good working condition. Scored or unduly worn steam and water cylinders to be rebored and in such cases new pistons or new buckets and rings to be fitted.

All spare gear to be removed from bulkheads and other parts, carefully overhauled, cleaned and prepared for service, any spare gear found defective is to be carefully noted and credited. Existing spare cast iron propeller blades to remove from tween decks, clean and prepare for service.

Propeller.

The arrangement of lifting propeller as originally fitted, with new shaft bearing on rudder post, lifting gear for thrust and other details to be fitted, to admit of lifting propeller in ice, all materials and details to be as per original arrangements when vessel was built. Existing shaft to be left on board as spare.

Stern gland packing to be renewed.

Condenser.

Tubes and tube plates to remove, interior of condenser thoroughly clean, tube plates and tubes all refit as before, after cleaning. Doors of condenser to scale on water sides and cement wash.

Air, Feed and Bilge Pumps.

All to be overhauled and put in good working order, valves and seats dressed up as required.

Sea Cocks and Discharge Valves.

All to be removed, carefully examined, ground in and refitted.

Packing.

All packing throughout main and auxiliary machinery has been removed whilst vessel has been lying up and all glands throughout are to be repacked with new packing, as originally fitted, including glands of all cocks, valves, etc.

Lubricators.

Oil boxes, lubricators, oil pipes, oilways and other lubricating arrangements are to be thoroughly cleaned out, old oil and syphons removed and new syphons fitted, any defective pipes to be made good.

Indicator Gear.

All cocks to overhaul, clean and repack, indicator gear to be put in good working order ready for taking cards on trial trip.

Telegraphs.

To remove from bridge and refit in good condition and working order on the new bridge house, new leads and wires to fit as required to suit altered arrangements. Engine room telegraph to overhaul, and all placed in good working order.

Gauges.

All gauges throughout to remove, test, overhaul as required and refit in good condition.

Grease Extractor.

To remove, clean, overhaul and refit, together with all connections.

Pumping Arrangements.

A main suction line to fit, connecting by separate 3 in. suctions, each of the sub-divisions in the vessel with the steam pump in engine room.

Branches to be led to gunmetal valve box in engine room, all carefully marked with name plates.

Bilge suction pipes of galvanized iron, fitted with flanged connections and easily accessible rose boxes.

In addition to the above two gunmetal, fly wheel Downton pumps are to be supplied for fire purposes and pumping out bilges, these pumps to be specially constructed to readily admit of their being taken adrift for clearing of ice, the barrels of the pumps being cast in separate halves vertically with butterfly swivel bolts for disconnecting and securing.

A 3 in. suction to be led from each sub-division direct to the deck for pumping out bilges by hand. Brass hose couplings to fit to each pipe at deck for connections from Downton pumps.

General Service Donkey in engine room to have suction from circulating discharge, and discharge to sanitary tank.

Downton pumps each to have a connection to the valve box in engine-room, thus duplicating hand-pump suctions to all bilges.

200 ft. of suction hose to supply with couplings complete for connection to 3 in. bilge suctions on deck, and to be in not more than 25 ft. lengths, special bell mouth suctions also to provide for draining water from any special department.

Downton pumps each to have sea suctions and discharge to deck for washing decks and fire service, a suitably lagged copper pipe to be carried along bulwarks under pin rail with hose connections at suitable intervals for wash deck and fire hoses, also connection for flushing seamen's head.

A 3 in. gunmetal lift pump tinned throughout, to supply for drawing water from fresh water tanks, pipes also to be tinned.

Special provision to be made for quickly draining all pipes, pumps, etc., of water, to guard against damage by frost.

Water service pipes to be tested to a pressure of 25 lbs. per square inch, and fire main to be tested to maximum capacity of steam pumps.

Main Boilers.

To be thoroughly cleaned down and scaled to bare iron inside and outside, this work involves removal of whole of lagging on shells and ends, and this is all to be refitted on completion of testing, the asbestos non-conducting composition being renewed, together with lagging plates. Lagging plates all to be galvanized steel, carefully fitted and secured by tinsmiths joints and galvanized bands.

The whole of the short water space stays to combustion chambers to be removed in both boilers, holes retapped and new stays fitted, if the threads in plates are found defective on removal of stays, larger-sized stays are to be fitted.

The whole of the plain and stay tubes in both boilers are to be removed and renewed, threads in stay tube holes carefully cleaned up before fitting new tubes.

On completion of cleaning, and above renewals, and before lagging is replaced, the boiler is to be tested by hydraulic pressure to 280 lbs. per square inch, blank flanges being fitted where mountings are not replaced.

All mountings to be removed from boilers, including safety valves, valves and seats dressed up and ground in and all packings renewed. All old studs to be drawn and new studs and bolts fitted throughout. Whistles to be overhauled.

Uptakes, and smoke boxes to be thoroughly cleaned down for examination and recoated.

Funnel to be removed and overhauled and funnel guys renewed of galvanized steel wire rope.

An outer casing with cravat at top to be supplied and fitted to existing funnel and ice melter to fit as originally.

Funnel and its outer casing to be fitted with special hinged connection at casing top for lowering when running under sail power only. All necessary gear for lowering and securing funnel to be supplied and fitted.

Platforms and Gratings.

All to be overhauled, repaired where necessary and left in good condition and extended to electric light engine platform.

Evaporator and Distiller.

An evaporating and distilling plant to be installed capable of making 10 tons fresh water per 24 hours. The whole to be installed and tested in accordance with Admiralty requirements. Duplex evaporation pumps to fit with gunmetal water end. All connections to make with sea, feed and fresh water tanks as required.

Screen Bulkhead.

A light galvanized steel screen bulkhead to be fitted between engine room and stokehold, this bulkhead to be well stiffened and stayed and to have entrance door to stokehold and special hinged doors fitted on Port side for quick access to pumps on that side of engine room.

Neatly-fitted flanged cover plates to fit where pipes intersect bulkhead.

Feed Donkey.

A new duplex feed donkey pump to be fitted of Hayward Tyler's or Mumford's or equal make of ample capacity for keeping boilers supplied when running at full power for an extended period. Pump water end entirely gunmetal, and rods of approved bronze. Feed and suction pipes to alter as required, and a cross connection to be provided to general service pump suction chest. Seatings to arrange to approval.

Lathe.

A 6 in. screw cutting lathe of Drummond's make to supply with full set of change wheels, self-centreing chuck, face plates, angle plate, drivers, full set of tools and all details complete. All belting, pulleys, driving gear and other details to provide. Lathe to fit in workshop to be arranged on Port side of engine room at level of tween decks, and bunker to be altered as required.

THE FOLLOWING ALTERATIONS ARE TO BE CARRIED OUT.

Generally.

The forecastle deck and tween decks to be arranged in a similar manner to when the vessel was originally constructed, this will involve removing windlass from topgallant forecastle and fitting capstan, driven from windlass in tween decks, removing and re-arranging hawse pipes, removing all existing crew's accommodation, fitting new windlass, donkey boiler, galley, skylight and other details.

On Upper Deck.

A new teak deck house to be constructed between fore and main masts, containing Chart House and Library at fore end, Deck Laboratory, Entrance to Ward Room, and Wireless Room.

Teak house to construct abaft fore mast, forming separate entrances to galley and crew's quarters with skylights fore and aft of the entrances.

Existing steel galley house to be removed and a larger house constructed to contain 50 h.p. Steam winch.

Two teak deck houses to construct, one each side of propeller well and rudder trunk to contain W.C.'s, stores, armoury, etc.

In Main Tween Decks.

Stores and lockers to arrange forward of chain locker, and between the aft side of chain locker bulkhead and boiler room bulkhead cabins and accommodation to provide for officers, scientists, petty officers, crew, sick bay, carpenters' shop, galley, stores and other compartments. Abaft the engine-room, stores, sail room and aft peak to arrange.

Below main deck the hold to be sub-divided by W.T. bulkheads with bunkers, stores and other special compartments.

The new arrangements generally to be as indicated on the drawing accompanying this Specification.

ACCOMMODATION.

Ward Room.

To construct in tween decks extending for about 24 ft. fore and aft on the centre line of the vessel for a width of about 12 ft., fitted with two polished mahogany tables with fiddles. All mahogany swivel chairs, large sideboard at aft end with large mirror above.

Bookcases and other detail fittings to provide.

Sides and overheading to be neatly panelled in mahogany. Overheading to be painted flat white. Carpets and curtains to fit as required.

Cabins.

Ten in number to provide for Captain, officers and scientific staff, all opening into ward room. Mahogany sliding doors to fit to cabins with all brass runners.

Captain's cabin to be on starboard side at after end of saloon, and fitted with folding lavatory, Beresford's 8531 or equal approved type, wardrobe, sliding bed with drawers beneath, bookcase, settee with lockers beneath, desk with flat top knee hole locker and drawers each side. Captain's cabin to be finished similar to saloon.

All cabins to have portable baths as used in H.M. Navy.

Remaining cabins each to have folding lavatory, wardrobe, sliding bed with drawers beneath, book rack, settee with lockers beneath, desk with flat top, knee hole locker and drawers each side. Divisional bulkheads of pitch pine substantially constructed and neatly fitted.

Second Engineer's cabin to have two beds, and five Scientists' cabins to have sofa settees capable of being used for beds.

Wood louvres with sliding wood covers to fit in top and bottom parts of all cabin doors.

All cabins and ward-room furniture to be polished mahogany.

Cook and Steward.

To have a separate cabin opening into crew space and fitted with two beds, settee with lockers beneath, wardrobe, porcelain lavatory basin, chest of drawers and other usual fittings.

Carpenter and Boatswain.

To have separate cabin similar to that described for cook and steward. All furniture and woodwork to be of pitch pine neatly finished.

Crew's Quarters.

To arrange in forward part of tween decks, fitted up in pitch pine in a neat and comfortable manner with tables, seats, good locker accommodation, and all usual and necessary fittings for mess gear.

Hammock hooks and other necessary details to provide.

Ward Room Pantry.

To arrange at port forward end of ward-room, and opening into lobby.

To have teak dresser and sink lead covered, plate racks, ample locker and stowage space for cutlery, plate, glass and other pantry gear. Drawers and lockers to provide to fullest extent consistent with good working room. All furnishings of hardwood.

Small brass fresh water pump to fit with suction direct from tanks.

Laboratory.

To fit near forward end of cabin accommodation on Starboard side in such a position that a lift can be fitted for communicating with deck laboratory, and to have not less than 100 sq. ft. area.

To be fitted up in pitch pine with large sink and fresh water supply, shelves, lockers, and other fittings as required for biological appliances and other scientific gear.

One side of room to have large nest of small drawers full width of laboratory and above these, extending to ceiling, bottle storage to be provided. Stools to be provided, also desk and other furnishings for scientific staff.

Dark Room.

To construct adjacent to laboratory. Sink to provide with fresh water pump draining board, drawers, lockers and shelves for photographic gear. Three stools to supply for dark room use.

Storage to arrange for chemical bottles, etc.

Sick Berth.

To provide in forward end of tween decks, and to have wash basin, hammock and cot hangings, stove, bath with hot and cold water supply, wardrobe, lockers and other details.

To arrange forward in tween decks.

Galley.

Stove of " Eagle " or equal approved type and to be specially selected with a view to economy in fuel consumption. To be capable of cooking for fifty hands and all parts readily accessible for cleaning and overhaul.

A copper water boiler of large capacity to fit near base of funnel with necessary filling arrangements and draw off cocks. Galley to have arrangements for readily melting ice, with drain to fresh water tanks and draw off cock in galley.

Funnel to have a direct lead, and where funnel passes through deck a special insulator to be fitted.

Dresser, sink, lockers, drawers, shelves, pan racks, coal box, fresh and salt water pumps to provide.

Galley to be specially insulated on sides and in way of stove. Floor to be covered with tiles, laid in cement.

Carpenters Shop.

To construct at fore end of tween decks and fitted with large carpenter's bench with vice and other fittings.

Sail Lockers, Boatswain's Stores, etc.

To arrange as originally at aft end of vessel in tween decks, with suitable means of access.

On Upper Deck.

Teak deck house to construct between fore and main masts, containing chart room and library, laboratory, entrance lobby and wireless room. This deck house to be constructed of two thicknesses of teak, each 1 in. thick, the inner thickness being laid diagonal and the outer thickness fore and aft with felt and white lead between and both thicknesses clenched together with closely pitched copper fastenings. Coamings not less than half width of main beams with double rabbets for side planking. Stiffening to be specially strong and well secured and brass stay rods to fit. Fore and aft coamings to be bedded on beams, end coamings to be halved into deck, all coamings dovetailed at corners. All fastenings in deck house construction of brass or copper, no iron screws or fastenings will be permitted.

Roof of deck house to serve as Navigating Bridge and to be of teak, not less than 2½ ins. thick and supported on oak beams about 3 ft. apart, deck to extend beyond sides of house so as to give good navigating platform well out towards side of ship for at least half the length of the deck house.

Chart Room and Library.

To be neatly and comfortably fitted up with large chart table with drawers for charts below, sofa settee, with lockers below. The chart room is also to serve as a Library and good book shelves are to provide with glass doors throughout.

Deck Laboratory.

To be fitted up in a similar manner to laboratory in tween decks and to have a lift communicating. The deck laboratory will be used for rough work and receiving specimens of dredgings.

A strong table to be fitted with slate top.

Entrance Lobby.

To be neatly arranged with wide mahogany staircase and handrails both sides.

Lobby to be neatly panelled in hardwood.

Brass nosings to fit to stairs. A teak portable hood to be fitted to shelter entrance door.

Wireless Room.

To arrange at aft end of deck house to accommodate a ..... K.W. Marconi Wireless Installation, having a transmitting range of not less than ..... miles at day time.

Wireless installation will be supplied to Contractors, and is to be fitted by them. Copper earthing plates to fit on bottom of vessel to satisfaction of Marconi Co.

Silence chamber to fit, well insulated.

All tables, drawers, lockers, seats, operator's chair, and other details to fit for fully equipping the room and for receiving and fitting the installation. A sliding bed with drawers below to be fitted.

All furnishings throughout to be of polished mahogany.

An extra cabin to fit alongside Wireless room and equipped in a similar manner to Officers' cabins.

Upholstery.

All rooms to be suitably upholstered in best quality carriage repp.

Entrance to Crew Space and Galley.

A separate small teak deck house to arrange on fore deck, this house to be constructed in same manner and of same scantling as midship deck house. Ladders of pitch pine with brass nosings and wood handrails.

A portable teak hood to be fitted to shelter entrance doors.

W.C.'s, Store Rooms, etc.

Two new teak deck-houses to construct on aft deck, each side of rudder and propeller wells, constructed in similar manner and scantling to large midship deck house, and to be arranged with two W.C.'s, armoury and stores.

W.C.'s to have all necessary flushing arrangements, soil pipes with gunmetal storm valves. All pipes to be lagged with asbestos rope and canvas. Dry earth pans or other alternative arrangements to provide for use in very cold regions. Provision to be made for easily clearing storm valves and similar fittings, and soil pipes to discharge both sides so arranged that discharges can be made on either side.

Armoury to have racks for rifles and other small arms in addition to lockers and other fittings as required.

Deck store to fit in suitable manner for general gear with shelves and lockers as required.

Navigating Bridge.

To arrange above midship deck house and overhanging same about 2 ft. each side to give wide platform, the beams of deck house being extended through for this purpose.

Steering gear, telegraph, steering and standard compasses to be fitted on this Bridge.

Rails and stanchions to be of gunmetal all round Navigating Bridge with two rails in depth, the top rail being of teak of good section.

Teak wood weather boarding to fit across front and along sides of Bridge. Weather screens, awnings and dodgers to be fitted.

Storm Rails.

Of teak to fit to sides of all houses, and engine and boiler casings, of substantial construction, secured by brass knobs of heavy pattern.

Flag Lockers.

To fit in convenient positions in deck houses, with pigeon holes properly lettered.

Skylights.

Of teak, specially heavily constructed throughout, and suitable for bad weather in the Antarctic. Glasses to be two thicknesses of $\frac{1}{2}$ in. plate with 4 in. air space between. Small sections to arrange for ventilation in winter weather and remainder for use in hot climate.

All hinges of brass with straps not less than half width of skylight. Teak storm covers to be fitted, all $1\frac{1}{2}$ in. thick.

Provision to be made for readily battening down skylight or companion way openings in the event of same being carried away.

Skylight to ward room about 7 ft. square.

Skylights to galley space and crew space each about 4 ft. square, and in addition skylights to be fitted on forecastle deck alongside galley hatch.

Guards to fit to all skylights.

Deck Lights.

To fit in upper and forecastle decks for lighting cabins, crew space and all compartments below decks and to have two thicknesses of heavy plate glass with 4 ins. clearance between, with dead lights on under sides. These

deck lights to have gunmetal frames or an approved arrangement of hardwood frames and to be in number and disposition as required for good lighting and kept reasonably clear of obstructions.

Decklights to fit in Bridge Deck for good light to Laboratory.

Provision to be made for removing deck lights when required and fitting galvanized cowl ventilators, with brass rims and screw adapters.

No lights to be fitted in sides of vessel.

Portlights.

To fit in deck houses for lighting all spaces, these portlights to be made in similar manner to decklights referred to above, and are to have gunmetal frames and deadlights, and to be in number as necessary for efficient lighting.

Lighting of Laboratory on deck to be specially good.

Topgallant Forecastle.

To arrange on deck and below generally in accordance with original design to which vessel was built and to include capstan on forecastle head on heavy foundation and capable of being worked by hand spikes or by gearing from windlass below deck. Teak hinged sounding platforms on each side, with chains, belly bands and all usual fittings.

Below forecastle head, a new steam and hand windlass to provide, with gearing to drive capstan.

Boiler of horizontal marine return tube type under aft starboard side of forecastle, for supplying steam to windlass. Forecastle space to specially prepare for receiving this boiler and deck, above and below, to be specially insulated and protected by galvanized steel.

Hawse pipes, chain pipes, bow stoppers, galley hatch and other parts to renew to altered arrangements of windlass and forecastle.

Lower Hold.

The space between the collision bulkhead and the stokehold bulkhead is to be properly sub-divided, the aft end being arranged for bunkers giving a capacity of about 150 tons forward of the stokehold bulkhead. Coaling arrangements to provide generally on lines originally arranged.

The space forward of bunkers to be sub-divided into fresh water stowage, stores, provision and spirit rooms generally similar to the original designed arrangement. Each space to have racks, shelves, bins, etc., as required for complete equipment.

A ceiling of 2½ in. red pine to be laid in bottom of hold and bunkers as far fore and aft as practicable, this ceiling to extend level with top of centre keelson, out to top of bilge keelson, to each side of vessel, a substantial platform to be provided with limber boards and water courses as required. Special limber hatches to fit in ceiling for access to bilge suction strums.

Bulkheads.

Additional bulkheads to be fitted for sub-dividing lower holds into bunkers, store rooms, etc., as above specified. These bulkheads to be of pitch pine, 3 ins. thick made up of two 1½ in. thicknesses, one thickness laid diagonally and the other fore and aft, with thick felt laid on lead paint between the two thicknesses and all properly stiffened, clenched and caulked and made water tight.

The above class of bulkhead to be fitted fore and aft on centre line throughout, cross bunker to collision bulkhead and for transverse sub-divisions of lower hold, and living spaces in tween decks. Arrangements of boundaries and stiffening to be specially submitted.

A compartment to be selected by Consulting Engineers and Naval Architects is to be filled with water to height of load line for testing bulkheads, and if this test proves unsatisfactory, other compartments will be required to be filled and all leakages and deficiencies made good.

Heating Arrangements.

Slow combustion stoves of approved pattern and with approved gas preventers to be fitted in ward room, and on mess deck for suitably heating all compartments and as originally arranged.

Contractors to include an alternative arrangement for heating living spaces by means of steam or hot air and proposed method to be stated in Tender. Details to be specially submitted.

Lagging Under Decks, etc.

Undersides of decks, bulkheads and other parts to be lagged same as when vessel was originally built. In addition the main deck to be lagged on its underside in a similar manner to the upper deck and the boiler room steel bulkhead to be lagged throughout on its fore side.

The sides of the vessel in living spaces also to be lagged in a similar manner to undersides of decks.

The topgallant forecastle to be lagged under deck and at sides in a similar manner to the living spaces.

Wagon Cloth and Awning.

To fit as provided in the vessel when originally constructed.

Ladders.

To renew throughout of teak to both sides of Navigating Bridge and forecastle and fitted with brass handrails and nosings to stair treads.

Accommodation Ladder.

Of teak to suit either side of vessel and fitted with platforms top and bottom, leather protection pads, manropes, stanchions and all gear complete. All ironwork to be galvanized.

Windlass.

Of Reid's or equal good make, steam and hand type, fitted in Forecastle tween decks and to have Capstan head on Forecastle deck. Two independent lifters to suit vessel's cables, machine cut gears throughout, all bearings gunmetal and adjustable. Piston rods and valve spindles of approved bronze. Link gear of specially heavy type. Cable stoppers to be fitted.

Drums to fit suitable for warping, and assisting with deep sea soundings, and details to be specially submitted.

Steam and exhaust pipes solid drawn copper, well lagged. Steam and exhaust valves gunmetal. Steam for this windlass to be taken from main and auxiliary boilers.

Steam valve to be operated from deck and below.

Auxiliary Boiler.

Of horizontal marine return tube type, about 6 ft. long and 6 ft. diameter, 155 lbs. working pressure, and built to Lloyd's class. All mountings to be of Dewrance's make gunmetal throughout. Two small duplex feed pumps to fit, with gunmetal water ends. Lagging to be asbestos and composition 2 ins. thick, secured with galvanized steel plates and bands of same material, lagging to cover all exposed parts.

A copper steam pipe to be led under main deck, and well lagged, to connect with auxiliary steam line from main boilers for supplying steam to winch, electric light engine, and pumps in engine room. Necessary gunmetal isolation valves to be provided.

Fresh water feed tank of galvanized steel, to fit in close proximity to this boiler, with suctions from two duplex feed donkeys, each having gunmetal water ends and fittings. An ice melter to fit round base of funnel with drain to feed tank.

Funnel to be of galvanized steel as high as practicable for good draught, deck specially protected in way and funnel readily portable and fitted with hinges for lowering.

Seamen's Head.

To arrange under port aft end of forecastle, all in accordance with vessel's arrangements when originally built.

Winch House.

To construct of steel at fore end of boiler casing on upper deck, to accommodate 50 H.P. winch. Large plates to bolt on house sides forming doors for ready access to repairs.

Doors to fit in front of house to facilitate leads of ropes, etc., in addition to good strength being provided in case of bad weather.

Seatings and other parts to be specially stiffened and winch satisfactorily tested to its full power before vessel accepted.

Steam Winch.

To fit of Clarke Chapman's or equal approved make, with drums extended outside winch house for warping as may be required. Side frames, gears and similar parts to be cast steel and gear wheels helical machine moulded.

Winch to be trawler type to take 3,000 fms. of $1\frac{3}{4}$ wire on each drum. To be specially submitted.

All bearings throughout of gunmetal and adjustable. Piston rods of approved bronze, also valve spindles, latter increased in diameter at wearing parts. Link gear of specially heavy construction. Both halves eccentric straps interchangeable. All brass steam and exhaust valves, solid drawn copper steam and exhaust pipes. Gunmetal branch pieces to fit where pipes pass through any structure.

Drums suitable for assisting with warping and deep sea soundings.

Boats.

To be in number as follows :—

One small motor launch.
Two whale boats.
Two dinghys.
One pram.

Motor Launch.

Carvel built of teak, 30 ft. long, having a speed not less than 10½ knots per hour, this launch to be used for pursuing whales with a view to marking same, and it is specially necessary that the motor should be silenced to reduce noise to a minimum, and to the satisfaction of Inspecting Engineers and Naval Architects.

Stem and stern post of English oak, keel and hog of American elm, timbers of American elm.

Fastenings throughout to be of copper.

Motor to have cover fitted and arranged for starting up on petrol and running on kerosene. Dual ignition gear to be fitted. Air intakes to specially protect against water entering.

All fuel tanks of brass with sweated tinsmiths joints.

Approved life saving apparatus to be fitted to this launch. Details to submit.

Folding hood to be fitted to shelter engine space and seating space. Motor to test to full B.H.P. for four hours before fitting on board.

Launch to be tested afloat for two hours, on completion, during which time six runs to be made on an approved Admiralty measured distance. Turning powers to be fully tested.

Two Whale Boats.

Each 25 ft. 0 ins. long by 6 ft. beam, carvel built of Wych elm planking and fitted with masts, sails, centre board and other details and in all other respects in accordance with British Admiralty requirements for this class of boat and its complete equipment.

Dinghys.

Two Carvel built of teak 18 ft. long, with American elm timbers, Hog and Keel and English oak stem and stern posts and copper fastened throughout.

Thwarts, seat boards, etc., to be of teak. A full equipment of oars, rowlocks, gratings, footboards, lifting gear and other usual and necessary gear to be included.

Pram.

To be of Norwegian type, clincher built, about 14 ft. long, constructed of English Wych elm and copper fastened throughout.

Thwarts, seats, oars, rowlocks and other usual and necessary equipment to be provided.

Swamping tests to be carried out on all boats and copper buoyancy tanks added as required.

Detachable Motors.

Two detachable petrol motors of "Evinrude" or equal good make, to be supplied with tanks, propellers and equipment complete and each suitable for attaching to any of the whalers or rowing boats. To have high tension magneto ignition well protected from spray and dampness.

Silencers of large capacity to ensure quiet running required for following whales.

These motors to be of first class quality in all respects, and to have special stowing arrangements for guarding against deterioration when out of use.

Detail specification to submit, together with plans and full particulars, giving speed of whale boats with these motors fitted.

Motors to test for four hours at full power in position on one of whalers.

Davits.

To fit for each boat, and all arranged readily portable, blocks to be galvanized steel of approved make with brass bushed sheaves, falls to be long enough to use winch for hauling on same when required.

Suitable davit with spreader blocks and falls complete to supply for handling accommodation ladder and capable of being used on either side of vessel. Griping spars, bands, belaying bollards, guys and all usual and necessary details to supply and fit for stowing boats in davits and on chocks.

Boat Skids.

Boats to be carried on oak skid beams at level of bridge deck, and two turned oak stanchions to fit to each through beam in addition to stanchions at rail. Planking to fit to Board of Trade requirements on skid beams. These beams will also be used for stowing ship's deck gear and other equipment, including stowage for petrol and paraffin in drums in special welded and galvanized steel lockers.

Fresh Water Tanks.

Of galvanized steel having a total capacity of not less than 30 tons, made up of five tanks, each having six tons capacity.

Tanks to be specially strongly constructed and stayed internally.

All tanks to have levelling pipes and shut off cocks to each, arrangements to provide facilitating access to tanks at all times and manholes to fit in easily accessible positions. Air, filling and suction pipes to provide as required. Pads to fit in way of all connections and mountings. Doublings to fit in way of manholes.

Overflows to fit in convenient positions where they can be readily seen and undue pressure guarded against when filling tanks.

Ice Tanks.

Two large ice tanks, of galvanized steel, to fit on deck in convenient positions abreast engine and boiler casings, these tanks to have steam heating coils of copper, and a drain to fresh water tanks.

Three large rectangular bolted manholes to fit in top of each tank. Tanks to be same capacity as existing ones and specially carefully secured.

Pads and shut off valves to fit at all connections.

Feed Water Tanks.

A new feed tank to fit on Starboard side of engine room same size as at present on Port side. Tank to test on completion with 20 ft. head of water. Levelling pipe to fit connecting to Port tank, and all suction and filling arrangements to be as on Port tank. Starboard bunker bottom to alter as required for fitting new tank, and new bunker bottom of steel plate to be fitted.

Steering Gear.

A steam and hand steering gear of Reid's or equal approved make, to fit on bridge deck. Gears all machine cut, and bearings of gunmetal adjustable throughout. Piston rods and valve spindles of approved bronze, latter specially increased in wearing parts.

A stand-by hand gear also to be fitted, capable of being worked through purchases from rudder head.

All wires to be renewed in best flexible galvanized plough steel wire rope of Bullivant's make.

Steering rods and wires to have special provision for taking up slack by means of galvanized stretching screws. Ends of wires to be turned round eyes, and seized, not spliced.

All leads to overhaul, re-arrange as required, with additional leads to suit new arrangements.

Existing hand gear on bridge to remove.

Relieving tackles to tiller to be renewed, with blocks complete, and led to winch end drums.

Gallows.

To fit on both sides of vessel abaft forecastle head and strongly braced, and of same type as used in largest class of trawlers for dealing with heavy work. Sheaves and pulleys to have gunmetal bushes, and pins to be easily portable and self oiling. A strong davit also to fit on each quarter.

Fairleads.

Four heavy trawler fairleads to fit in approved positions on cast iron pedestals.

Fairleads to have ball bearings.

A heavy teak pad to fit on deck under each pedestal.

Navigating Lamps.

Existing navigation lamps to be overhauled and restored to Board of Trade requirements, and on completion the vessel is to have two complete sets of navigating lights, one of these to be suitable for electric light and other for oil. Both sets to be of copper with Dioptric lenses.

Screens, halyards, etc., as required for fixing and handling all lamps, to fit in suitable positions.

Electric Installation.

All compartments of ship and engine room to be lighted on the latest and most up-to-date system of electric light.

A self contained direct coupled enclosed type compound forced lubrication engine and dynamo to supply and instal of approved make.

Steam supply to engine to be direct from boilers by a separate connection and exhaust led to condenser, by means of a separate pipe with branch exhaust to waste steam pipe.

Switch board of marble of latest pattern, hinged to admit access to back of board with all connections easily accessible, fitted up with brass volt and ampere meters, etc., the whole being enclosed with triplex glass lock-up doors in front.

Wiring throughout on the double wire system 2,000 Megohm grade wire Admiralty quality lead covered.

Armoured wire to be introduced where necessary.

All portable cables brass armoured.

Ward room, cabins, crew space, laboratories, galleys, lavatories and all other spaces, including store rooms below deck, armoury, sail room, engine and boiler space to have a sufficient number of 16 c.p. lights for good lighting throughout, each sleeping cabin to have one fixed and one portable light. Four of the lights in engine room and stokehold to be portable. Plug connections to provide for portable fans in all living rooms, laboratories and galley, and 24 portable fans 12 in. diameter to be supplied.

Electric lights to all navigating lights, telegraphs and compasses.

An 18-inch diameter Admiralty pattern searchlight to fit with automatic feed, and so arranged that it can be fitted in two positions on vessel to be agreed later.

Two weather proof connection boxes to fit in convenient sheltered positions amidships and aft for connecting two cargo clusters each with five 16 c.p. lamps and 100 feet portable armoured cable.

Switches, bayonet and lamp fittings, portable cables, connection boxes, guards over lights in stores and engine room, cargo clusters and other fittings to be brass, of Admiralty most modern pattern.

Separate motor to fit for driving lathe.

Current to supply for Lucas sounding machine on aft deck and all wiring and connections as necessary.

A small 3 h.p. electric motor winch, in a watertight casing, to be fitted on starboard side and of approved make, with all leads, drums and fittings as necessary for dealing with hydrographical instruments.

A detailed specification to submit before work is begun.

The engine and dynamo to be sufficiently powerful to run whole installation at the same time, including Wireless and searchlight, and a six hours full load trial to be carried out to the entire satisfaction of naval architects and inspecting engineers.

Emergency Electric Installation.

A dynamo of sufficient power for driving lights in vessel and supplying current for Wireless installation to be provided and fitted, with special connection to main switch board. This dynamo to be driven by a small paraffin motor of approved type and make, direct coupled to the dynamo, and fitted with dual ignition, in addition to being arranged for starting up on petrol.

Independent petrol and paraffin tanks to be fitted, the latter sufficient for 12 hours running at full power, and to be of brass or copper.

Positions of electric light installation to be arranged on board, and bunkers or other structure to be modified as may be required and strong seatings constructed.

Engines and dynamos to be bedded on sheet lined " Mascolite " 1 inch thick.

Secondary Lighting.

Oil and candle lamps of brass to fit to each cabin and living space as required for good lighting, brass oil lamps also to fit to engine room and stokehold in number as required. One spare globe to supply to each oil lamp and one spare container fitted complete for each four lamps.

Galvanizing.

All light ironwork about decks and vessel generally and all parts previously specified to be galvanized, are to be galvanized by hot process.

Painting.

All parts to be thoroughly painted or varnished as required throughout, with a sufficient number of coats to ensure well finished surfaces. All paying surfaces to be coated with thick red and white lead paint. Final coat of paint to be applied to exposed parts after trials are completed.

Masts and spars to coat with special spar varnish.

Teak deck houses left bright and varnished.

Outer bottom below water to have three full coats of coal tar, and top sides to be painted three full coats of best quality black varnish.

Trial Trips.

Before vessel proceeds on her official trials at sea all main and auxiliary machinery throughout to be satisfactorily tested under steam in Harbour, and any adjustments found necessary by the Inspecting Engineers are to be carried out.

On completion vessel to be tried as directed on an approved Admiralty measured distance under Admiralty conditions, with fresh water tanks full, all equipment on board and at least 50 tons bunker coal on board. Six runs to be made on the mile at full power.

After above trials a continuous run of six hours' duration to be made during which time, speed, revolutions and pressure to be maintained as on measured distance and consumption carefully measured by Contractors.

Indicator cards to be taken on each run on measured distance, and afterwards as directed, and handed to Inspecting Engineers and Naval Architects.

Steering and manœuvring powers of vessel, ahead and astern, to be tried, and all auxiliary machinery throughout vessel to be satisfactorily tested.

During the six hours run and after measured mile trials, all sails to be spread and all running rigging rove and tried in position.

After trying all sails in position, spare sails are also to be spread to replace working ones.

Full costs of labour and materials for trials to be borne by Contractors.

The ship will then be taken by the Contractors to sea for a Sailing Trial trip of not less than 12 hours duration, and on completion of same the ship is to be drydocked and cleaned by the Contractors for final inspection before acceptance by the Crown Agents. The cost of Sailing Trial trip and subsequent drydocking to be stated separately by Tenderers.

Drawings.

Before proceeding with the work of alterations, new masts, spars, sails, and rigging and alterations in engine room, general and detail drawings are to be prepared by the Contractor at his own expense and submitted to the Inspecting Engineers and Naval Architects before proceeding with the work.

Any plans required by the Inspecting Engineers and Naval Architects during the course of the work and inspection are to be supplied as part of the Contract.

On completion four sets of fully dimensioned plans of the vessel, indicating vessel as altered complete are to be supplied, one set being tracings on cloth and the other three sets being velograph prints on tracing cloth.

These plans to include, among others, a complete general arrangement on a scale of $\frac{1}{2}$ inch to the foot, showing longitudinal and cross sections and deck plans, also outside view of vessel with sails, spars, awnings and all details, pipe arrangements, details of engines and boilers, boats, curves of displacement, centres of buoyancy, midship section areas, metacentres and tons per inch.

A framed and glazed drawing of pumping and ballast arrangements, general arrangements, and deadweight scale to be fixed in chart room. Running instructions for motors and explanatory drawings for special parts to be supplied as required.

All drawings to have the following requisition number stencilled in the top left hand corner :—" Falkland Isles 1460." Each set of finished tracings as specified above to be secured to a split wood roller and placed in a japanned circular box fitted with padlock and key, and the lid to have the vessel's name and requisition number painted on.

Stability.

On completion, vessel to be inclined for stability in the presence of Naval Architects and Inspecting Engineers, and curves of statical stability to be supplied for light, load and ballast conditions, under sail, and results handed to Inspecting Engineers and Naval Architects (four copies of tracings) before delivery of vessel.

Model.

A neatly finished French polished full model to supply on completion, made to a scale of $\frac{1}{4}$ inch to a foot, showing masts, spars, sails, rigging and all deck fittings and details as constructed.

Each Sleeping Cabin to be provided with :—

1 best quality spring mattress for each bed.
1 hair mattress for each bed.
1 camp stool with strong teak frame.
2 quilts for each bed.
Carpet for floor.
Mats as required.
2 mattress covers for each mattress.
Curtains complete for door and bed.
2 pillows (best) for each bed.
4 pillow cases for each bed.
4 blankets for each bed.
2 pairs linen sheets.
1 lifebelt for each bed.
1 hot water can (copper).
1 mirror.
1 chair.
1 water bottle and glass.

Generally.

This Specification is intended to include all usual requirements for a vessel of this class, and all work specified is to be considered, and carried out, with a view to specially adapting the vessel for Antarctic conditions. Where reference is made to original arrangements or to the vessel as originally designed, the methods described in the Specifications included in Transactions of the Institution of Naval Architects, 1905, are to be followed and no arrangements inferior to those specified will be allowed in carrying out the repairs and alterations as per this Specification.

Any reasonable modifications in the arrangements of accommodation, and other parts, desired to be made before the work on same has been commenced, are to be carried out without extra cost.

All mahogany to be British Honduras mahogany, and all greenheart to be obtained from British Guiana.

All timber used in repairs and alterations to be the best of its class and thoroughly well seasoned and free from objectionable knots, shakes, sap and other defects. Repairs and alterations, including completion of deck houses and all caulking on weather deck to be carried out under cover. A temporary waterproof cover could be used subject to its being approved by the Inspecting Engineers and Naval Architects.

INVENTORY AND OUTFIT.

The following items of Inventory and Outfit are stated to be on board the vessel, and these will require careful checking by the Contractors on taking over the vessel in conjunction with the Naval Architects and Inspecting Engineers :—

Engine.

10 box spanners.
7 open jaw spanners.
2 pairs tin shears.
1 ratchet brace.
1 breast brace.
1 stay tap and wrench.
1 soldering iron.
1 drill spanner.
1 hand hammer.
1 box liners.
1 die nut $\frac{1}{8}$ in.
1 pair pliers.
2 tube expanders.
9 twist drills.
Quantity of condenser ferrules.
2 safety valve springs.
2 relief valve springs.
11 smiths' tools.
3 eyebolts.
3 shackles.
2 triangular scrapers.
6 pairs small brasses.
24 air pump valves.
7 small valves.
10 pump valves G.S.
2 pairs winch brasses.
6 brass cocks.
2 winch eccentric studs.
12 small piston rings.
1 glass spring.
2 brass pump rings.
1 air pump ring.
2 crosshead brasses.
1 bar plastic metal.
6 coir brooms.
3 pairs tongs.
2 tube brushes (worn out).
3 steel wedges.
2 ladles.
6 open jaw spanners (old).
5 chisels (old).
2 marline spikes.
2 rolls lead wire.
3 ring spanners.
16 open jaw spanners.
2 sledge hammers.
1 copper hammer.
1 cold set.
3 wire brooms.

1 ball lamp wick.
1 blow lamp.
1 salinometer pot.
3 oil feeders.
5 large spanners.
24 ft. brass rod.
20 ft. brass tubing.
8 hand lamps.
1 thermometer.
3 brass pump rings.
3 oil boxes.
1 funnel.
1 brass cock.
2 oil feeders.
1 crucible.
1 wood mallet.
1 ball asbestos cord.
1 bag twine.
8 firing shovels (very rusty).
1 length iron wire (very rusty).
1 box gauge glasses.
5 engine room lamp glasses.
1 1-gall. oil measure.
1 box Silverite.
1 brass pump bucket.
1 D. E. wrench.
1 box dies and taps (very rusty).
6 broom handles.
1 bag spelter.
1 coil asbestos rope.
3 coir brooms.
1 tin vaseline.
1 tin graphite.
1 bag jointing.
1 ball condenser cord.
3 bags packing.
4 scalers tools.
2 ft. brass rod.
4 pairs tongs.
2 shackles.
1 drift.
1 cold set.
3 sheets tin.

CABIN.

4 feather pillows.
12 glass tumblers.
7 water bottles.
10 soup plates.
6 breakfast plates.
9 dinner plates.
4 porridge plates.
6 cheese plates.
1 tea cup and saucer.
6 egg cups.
5 serviette rings.
4 table spoons.

3 dessert spoons.
6 dinner forks.
5 dessert forks.
5 cheese knives.
3 dinner knives.
1 soup ladle.
1 tin opener.
5 bunk curtains (Chart Room).
12 cheese plates.
1 oval dish.
2 vegetable dishes.
4 feather pillows.
6 dinner plates.
1 cabin bell.
1 enamel coffee pot.
1 teapot.
1 teaspoon.
7 enamel pie dishes.
1 scale and set of weights.
1 weighing machine.
6 looking glasses.
1 coal shovel.
1 soup tureen.
1 cruet.
3 opal lamp shades.
4 spring mattresses.
4 mattresses with covers.
6 settee cushions.
2 camp stools.
1 set racks for cabin.
1 chair cushion.
2 water cans.
1 settee cushion and pillow.

GALLEY.

1 stewpan.
1 enamel coffee pot.
4 bread tins.
1 baking tin.
4 mess tins.
1 collander.
1 water filter.
3 boilers.
1 dough tin.
1 meat saw.
1 enamel saucepan.
1 iron saucepan.

LINEN.

11 tablecloths.
26 sheets.
6 white quilts.
9 coloured quilts.
26 pillow slips.
26 serviettes.
12 white blankets.

14 coloured blankets.
23 pantry cloths.
26 bath towels.
6 chamber towels.
5 mattress covers.
1 door curtain.
3 bunk curtains.
5 port curtains.
24 settee and chair covers.

DECK.

Tunnel grease	9—14 lb. kegs.
	3—28 „ drums.
Raw oil	1—5 gall. drum.
	1—1 „ in 5 gall. drum.
Boiled oil	2—1 „ „ „
Red lead	1—28 lb. keg.
	1—10 „ in 14 lb. keg.
Stone colour paint	2—56 „ kegs.
	1—10 gall. drum.
	1— 5 „ „
	1— 2 „ in 5 gall. drum.
Patent varnish	1—14 lb. keg.
	1— 1 gall. tin.
Black paint	3—56 lb. kegs.
Teak colour paint	1— 1 cwt. keg.
	1— 2 gall. in 5 gall. drum.
Stockholm tar	1— 5 „ „ 10 „ „
	1— 4 „ „ 10 „ „
Red composition paint	1—10 „ drum.
	1— 4 „ in 5 gall. drum.
Red lead powder	1—28 lb. keg.
Mast colour paint	1— 1 gall. in 5 gall. drum.
Boiler fluid	1— 5 „ drum.
Terebene	1— 1 pint can.
Carbolacene	1—10 „ drum.
	1— 1 „ in 5 gall. drum.
Bitumastic	1—10 „ drum.
White lead	3—56 lb. kegs.
White paint	2—28 „ „
Engine oil	2— 5 gall. drums.
	1— 2 „ in 5 gall. drum.
Manilla Rope, 3″	1 part coil.
„ $3\frac{1}{2}$″	3 „ coils.
„ 4″	1 „ coil.
„ $2\frac{1}{2}$″	1 „ „
Tarred hemp rope, $2\frac{1}{2}$″	1 part coil.
Wire spans	2.
Wire runners	1—$1\frac{1}{2}$″ and 1—$1\frac{3}{4}$″.
Ratline	$\frac{1}{2}$ coil.
Running gears	3 assorted.
Lamp glasses	10 „
Brass gimbal lamps	17.
Saloon lamp	1.

2 bags code flags, each 26.
Engine oil, 40 galls.
8 binnacle lamps.
1 Morse lamp.

1 hose coupling.
1 stern light.
1 boat binnacle (broken).
4 globe lamps.
1 cabin lamp.
1 extra burner for same.
2 red globe lamps.
1 anchor light.
2 red sidelights.
1 lead line.
1 lead and line.
2 masthead lights.
2 stern lights.
2 lengths canvas hose (old).
1 „ rubber „ „
1 Nunn buoy.
1 bale oakum.
½ barrel resin.
11 coir runners.
1 piece carpet.
1 deck awning.
2 bridge dodgers.
1 forestaysail.
1 bridge awning.
1 main staysail and down hauls.
1 topsail gaff.
1 main staysail.
1 windsail.
1 fore topmast staysail.
1 inner jib.
1 spanker.
1 staysail fore topmast.
4 pairs handcuffs (very rusty).
3 whitewash brushes.
2 axes.
2 coils wick.
1 water can.
10 fms. Manilla rope, 4″.
30 „ „ „ 2″.
3 tackles complete with blocks.
1 guy and pennant.
6 hanks Hambroline.
6 hanks Marline.
1 coil spun yard.
7 lbs. seizing wire.
12 bass brooms.
3 paint scrubbers.
12 coir brooms.
5 „ „ handles.
30 Bath bricks.
1 gall. varnish (mahogany).
28 lbs. patent dryers.
7 „ green paint.
5 „ yellow „
4 paraffin stoves.
1 length 4″ Lanyard rope tarred.
1 coil ¾″ wire rope.
2 wire spans.

12 port glasses.
30 lifebelts (old. Do not recommend keeping).
1 carpenter s cramp.
1 cross cut saw.
3 cargo baskets.

Medicine Chest.

The contents of the medicine chest are at present stored with Messrs. Sparks Treharne & Co., and these will require careful overhauling in readiness for fitting in a medicine locker, which is to be constructed in the ward room or other convenient position in the vessel as may be agreed. This locker is to be sub-divided for bottles and fitted with drawers and lockers for the separation of the various articles.

Navigating Instruments.

The following are in the possession of Messrs. Kelvin, White & Hutton, 11, Billiter Street, London, E.C., and Contractors are to make provision in their Tender for overhauling the whole of the items enumerated below in readiness for replacing on board in good condition ready for service.

1 standard compass.
1 steering compass.
1 telltale compass.
2 boat compasses.
3 clocks.
1 aneroid.
1 chronometer.
1 Azimuth mirror.
1 telescope.
1 binoculars.
1 Morse lamp.
2 pair parallel rulers.
2″ dividers.
2 Azimuth tables, 0 to 78.
21 directories.
2 ships numbers.
1 code signals.
1 lights and tides of the world.
1 tidal streams.
34 supplements.
1 spirit compass.
3 cherub logs.
9 tins sounding tubes.
4 log rotators.
3 governors for log line.
1 Bassnett sounder.
1 Wigzell sounder.
1 mechanical fog horn.
2 engine indicators.
1 thermometer.
2 megaphones.
1 40 fm. log line.

THE FOLLOWING ITEMS OF INVENTORY AND OUTFIT ARE TO BE SUPPLIED BY CONTRACTORS :—

1 teak meat safe.
2 harness casks with brass hoops.
8 teak deck buckets, brass hooped, fitted in teak stands.
8 lifebuoys and lines with vessel's name painted, to hang on wide hooks on rail.
6 squeeges with handles.
6 paint scrubbers with handles.
2 bannister brushes.
6 deck scrubbers with handles.
6 deck brooms with handles.
1 full set of carpenter's tools in lock-up box, value not less than £10 nett.
2 lengths of copper riveted leather hose to reach any part of vessel, and fitted with gunmetal couplings for casing side connections and gunmetal nozzles.
Lifebelts for whole of crew.
4 hair brooms with handles.
4 black lead brushes.
6 holystones.
6 triangular deck scrapers.
6 mops with handles.
12 paint brushes (assorted).
8 14″ cork fenders with ropes.
4 galvanized iron buckets.
1 wood water funnel.
4 chain hooks.
1 serving mallet.
2 serving boards.
1 grindstone and trough.
1 brass signal gun on bridge deck.
1 mechanical fog horn.
1 log slate.
1 japanned box for ship's papers.
1 chronometer with Kew Certificate, fitted in suitable box with lock and key.
2 blue ensigns with badge of Colony.
1 Burgee with vessel's name.
4 canvas buckets with lines.
2 crowbars.
3 sets of caulking irons for decks.
3 caulking mallets.
1 cwt. oakum.
1 pitch pot and ladle.
2 cwt. Jeffreys' Marine glue.
3 red globes.
3 black shapes.
12 spare glasses for circular deck scuttles.
24 spare rubber rings for circular deck scuttles.
12 pieces glass suitable for deck skylights.
2 pairs lamp scissors.
1 portable 4″ Downton hand pump and suction hose complete.
4 teak upper deck planks.

4 pitch pine main deck planks.
1 Bolt No. 1 Admiralty quality flax canvas.
1 „ „ 2 „ „ „ „
1 „ „ 3 „ „ „ „

Cutlery (Ward Room).

24 table knives (stainless) with plated handles.
18 cheese knives „ „ „ „
2 pairs of meat carvers.
2 steels.
24 table forks, large.
18 table forks, small.
18 pairs fish knives and forks.
2 soup ladles.
2 sauce ladles.
9 table spoons.
12 soup spoons.
18 dessert spoons.
18 tea spoons.
12 egg spoons.
4 salt spoons.

Note.—Suitable boxes to provide.

Glass (Ward Room).

4 wine decanters with stoppers.
18 soda water tumblers.
24 tumblers.
24 sherry glasses.
12 port glasses.
12 claret glasses.
12 champagne glasses.
12 liqueur glasses.
4 water bottles.
2 pickle jars and covers.
4 salt cellars, large.
18 custard glasses.
9 glass dishes, assorted sizes.
2 sugar basins.
2 bowls for sifted sugar.
4 preserve dishes, double.
4 butter dishes.

China and Earthenware (Ward Room).

18 soup plates.
24 dinner plates, large.
24 dinner plates, medium.
18 cheese plates.
12 salad plates.
6 meat dishes, assorted sizes.
2 salad bowls.
2 cheese stands.
18 breakfast cups and saucers.
18 tea „ „ „
18 coffee „ „ „
18 breakfast plates.
18 tea plates.
4 cake plates.

18 egg cups.
8 pie dishes, assorted sizes.
6 pudding bowls.

Note.—China and earthenware to have badge as directed.

Table and Bed Linen, etc.

2 sets Holland covers for sofa seats and chairs.
2 cloth table covers, each table.
1 American cloth cover, each table.
6 damask table cloths.
24 table napkins.
24 towels.
12 bath towels.

Pantry Furnishings.

4 double block tin dish covers, assorted sizes.
6 tea trays, assorted sizes.
2 bread trays.
1 bread platter and knife.
1 crumb brush and tray.
2 knife trays, double.
1 plate basket.
1 plate brush.
1 cork mat for bathroom.
1 dinner gong.
1 dinner bell.
18 napkin rings, nickel, numbered.
2 Berkefeldt filters, large.
1 pair wood salad servers.

Miscellaneous.

1 Salter's spring balance, 56 lbs.
2 japanned tin candle boxes.
4 cork screws.
2 double ink stands.
2 tin funnels.
2 sets of shoe brushes, each set in box.
2 clothes brushes.
2 slop pails, enamelled iron.
2 sets of dinner mats.
2 dusting brushes.
2 bannister brushes.
2 dustpans.
24 glass cloths.
24 knife cloths.
24 dusters.
24 pantry cloths.
12 chamois leathers.
12 selvyts.

Engine and Boiler Room Outfit.

1 set of mandrils for all bearings fitted with white metal.
1 set Whitworth stocks, dies and taps ($\frac{1}{4}$″ to 1″) fitted in lock-up box with three taps to each size.
1 grindstone and trough.
Two hanks of Indicator cord.
6 oil feeders.

4 brass oil syringes, 2 with bent nozzles.
4 mats for engine room.
4 hand hammers.
2 each lead and copper hammers.
12 chisels, assorted.
12 files, assorted.
1 set of chain blocks (30 cwt.).
4 airing stoves for boilers.
Portable electric drill capable of drilling $\frac{3}{4}$" holes in $\frac{3}{4}$" thick plate, with portable cable complete.
1 set of tools for tubing surface condenser.
28 lbs. bolts and nuts, assorted.
1 pinch bar.
Complete set of tools for scaling and cleaning boiler.
1 metallic salinometer and pot.
1 $\frac{1}{2}$-ton Weston chain block.
1 pair rope blocks for bottom ends, etc.
18 tube brushes.
2 tube brush rods.
2 tube scrapers.
1 turkey oil stone in box.
10 square feet wire gauze.
10 square feet thin brass.
4 sheets tin.
30 square feet rubber insertion.
15 square feet asbestos insertion.
1 cwt. white metal as used in main engine bearings.
1 ladle and melting pot for white metal.
1 adjustable hack saw and 12 blades.
1 complete set for working and one set of spare metallic filament lamps and one set carbon filament lamps.
1 linesman's tool box for electric installation, complete and fitted with ample outfit of tools and materials for the work.
1 galvanometer and battery.
1 blacksmith's fire.
12 ash buckets.
1 2 cwt. anvil.

SPARE GEAR.

The Contractors will quote separately in their tenders for the principal parts of main engines, boiler, auxiliary machinery, masts, spars and sails as named below, liable to require renewal from wear, tear or accident, with the approximate price of each part separately stated and being the amount at which the Contractors will be prepared subject to market fluctuations, to supply each part to the order of the Crown Agents.

	£	s.	d.
MAIN ENGINES.			
2 connecting rod top end bolts and nuts	2	5	.
2 connecting rod bottom end bolts and nuts	2	5	.
2 main bearing bolts and nuts	2	5	.
1 set of coupling bolts of each pattern fitted	4	.	.
1 set of feed and bilge pump valves	3	10	.
1 set of H.P. piston rings	15	.	.
1 set of M.P. piston rings	22	.	.
1 set of L.P. piston rings	35	.	.
14 lbs. bolts and nuts, assorted, suitable for condenser doors, pumps, etc., to approval		15	.
Iron of various sizes, 1 cwt.		14	.
Crank shaft	135	.	.
Thrust shaft	125	.	.
1 propeller shaft and nut complete ... (with internal shaft.)	495	.	.
2 propeller blades, Stone's bronze	230	.	.
2 sets wood for stern bushes	10	.	.
1 pair connecting rod brasses	10	10	.
1 pair cross head brasses	9	10	.
1 set double bar link brasses	8	10	.
1 eccentric strap complete (top and bottom halves interchangeable)	11	.	.
1 air pump rod and nut complete	9	15	.
1 valve spindle with gunmetal nuts and tumbler block	6	10	.
1 set check valves	3	10	.
12 junk ring studs as fitted	1	16	.
12 cylinder cover studs as fitted	1	16	.
12 valve chest cover studs as fitted	1	10	.
50 condenser tubes	8	15	.
Condenser grommets sufficient to pack all tubes	1	15	.
200 condenser tube ferrules	2	10	.
1 cylinder escape valve and spring	2	10	.
1 H.P. piston 1 M.P. piston 1 L.P. piston } without rings	93	.	.
1 piston rod complete with guide shoe	15	10	.
Eccentric rod and brasses	7	10	.
1 double bar link quadrant complete for one engine	14	5	.
1 H.P. piston valve and rings	9	10	.
1 M.P. „ „ „ „	18	.	.
1 L.P. slide valve	24	10	.
1 main bearing, top and bottom halves	14	10	.
1 feed pump ram and nuts	13	10	.
1 bilge pump ram and nuts	9	.	.
	1681	19	.

Spare Gear—*continued.*

	£	s.	d.
	1681	19	.
Main Engines—*continued.*			
1 set of air pump valves	4	.	.
1 piston rod gland, bush and neck rings	3	10	.
1 valve spindle gland, bush and neck rings	2	5	.
1 air pump rod gland	1	5	.
1 feed pump rod gland	1	5	.
1 bilge pump rod gland	1	5	.
1 thrust collar	12	10	.
1 main stop valve (valve only)	2	.	.
1 intermediate stop valve (valve only)	1	10	.
1 set pump link brasses, back (two halves)	2	10	.
1 set of pump link brasses, front (two halves)	2	10	.
Metallic packing for two piston rods...	1	5	.
Metallic packing for two valve spindles		15	.
Feed Donkey.			
1 rod and bucket complete			
2 complete sets water valves and springs			
2 sets of piston and pump rings	13	4	.
1 set of brasses complete			
1 slide valve and spindle complete			
Electric Light Steam Engine.			
1 complete set of brasses and glands			
1 set Governor springs			
1 valve and spindle complete			
1 piston and rings complete	38	15	.
1 eccentric rod and strap with bolts and nuts			
1 piston rod with crosshead slipper, nuts, &c.			
1 forced lubrication pump and plunger complete			
Dynamo.			
1 armature, complete with commutator, packed in tin lined case ...			
1 set of brush holders	66	.	.
3 sets brushes			
2 bearing bushes			
Electric Light Paraffin Motor.			
1 piston with rings complete			
1 inlet valve and spring			
1 exhaust valve and spring			
1 crank shaft			
1 set crank shaft bearings	43	10	.
1 set bottom end bearings			
1 set crosshead bushes			
7 lbs. bolts and nuts various			
1 magneto complete			
	1848	18	11

SPARE GEAR—*continued.*

	£	s.	d.
	1848	18	
DYNAMO (EMERGENCY).			
1 armature complete with commutator, packed in tin lined case ...			
1 set of brush holders	65	.	.
3 sets brushes			
2 bearing bushes			
MAIN BOILERS.			
Half set tubes plain and stay	93	10	.
6 tube stoppers	9	.	.
12 zinc plates	2	10	.
12 gauge glasses and one set gauge glass protectors for each boiler	7	10	.
1 set of firebars, bearers and furnace fittings complete	53	10	.
6 sets mudhole and manhole door joints	2	10	.
2 sets firebricks	10	10	.
2 tube brush rods	1	4	.
1 set firing tools	4	.	.
1 set caulking tools		15	.
12 tube brushes	1	8	.
1 safety valve (valve only) and spring	1	12	6
2 tube expanders	4	10	.
2 tube scrapers	1	5	.
1 pressure gauge	1	7	6
1 bolt, nut and dog for each door fitted	1	10	.
STEERING GEAR.			
1 complete set of brasses and glands for all parts			
1 valve spindle complete			
1 set of pistons and rings for each cylinder	16	10	.
1 set of wheel chains (*i.e.*, four lengths)			
1 piston rod complete with crosshead, &c.			
1 eccentric rod and strap			
WINDLASS.			
1 complete set of brasses and glands for all parts			
1 set of pistons and rings for each cylinder			
1 valve spindle complete	27	10	.
1 piston rod complete with crosshead, &c.			
1 eccentric rod and strap			
EVAPORATOR AND DISTILLER.			
1 set of coils for each	16	10	.
GENERAL SERVICE DONKEY.			
1 rod and bucket complete			
2 complete sets water valves and springs	10	15	.
2 complete sets piston and pump rings			
1 slide valve and spindle complete			
	2211	15	.

Spare Gear—*continued.*

	£	s.	d.
	22	11	15
Circulating Engine Spares.			
1 complete set of brasses and glands of all kinds			
1 crank shaft			
1 eccentric strap and rod			
2 sets of piston rings			
1 valve and spindle complete	47	10	
1 set main bearing, crank pin and crosshead bolts and nuts ...			
1 impeller and spindle complete			
1 set impeller bearings complete			
Steam Winch.			
1 complete set of brasses and glands for all parts			
1 complete set of piston rings	54	15	
1 piston and rod complete with crosshead, &c.			
1 eccentric rod and strap			
Auxiliary Boiler Spares.			
Half set tubes, plain and stay	12	10	
3 tube stoppers	3	17	6
6 zinc plates	1	5	
6 gauge glasses		5	
3 sets mudhole and manhole door joints	1	6	
2 sets fire bricks...	3	10	
2 tube brush rods	1	4	
1 set firing tools	3	10	0
6 tube brushes		14	
2 feed valves	1	2	6
1 safety valve (valve only) and spring	1	7	6
1 tube expander...	1	10	
2 tube scrapers	1	5	
Motor Launch.			
1 cylinder			
1 piston			
1 set of piston rings for each cylinder			
1 inlet valve			
1 inlet valve spring			
1 exhaust valve			
1 exhaust valve spring			
1 crank shaft			
1 lay shaft			
1 lay shaft valve cam			
1 main bearing brass (2 halves)			
1 lay shaft timing wheel			
1 crank shaft timing wheel			
1 circulating pump with spindle			
1 lubricating pump complete			
1 upper half crank case			
	2350	1	6

Spare Gear—*continued.*

	£	s.	d
Motor Launch—*continued.*			
1 lower half crank case	2350	1	6
1 propeller			
1 propeller shaft, bronze			
1 stern bush for stern tube			
10 ft. high tension wire			
1 complete set of springs			
1 starting gear spring			
1 starting gear chain			
1 starting gear clutch			
12 sparking plugs			
1 magneto, same as fitted			
1 connecting rod, top end bush			
1 connecting rod bottom end bearing (two halves)			
One lay shaft bush			
1 set brasses (or bushes) for all parts 1 set of gear wheels 1 main shaft complete } For reversing gear	194	12	
Detachable Motors.			
1 cylinder	2	15	
1 piston	1	2	
1 set of piston rings for each cylinder		4	3
1 inlet valve	–	–	–
1 inlet valve spring			
1 exhaust valve			
1 exhaust valve spring			
1 crank shaft	2	5	
1 lay shaft	–	–	–
1 lay shaft valve cam	–	–	–
1 main bearing brass (two halves)		14	6
1 lay shaft timing wheel	–	–	–
1 crank shaft timing wheel	–	–	–
1 lubricating pump complete	2	2	6
1 propeller	2	10	
10 ft. high tension wire		8	3
1 complete set of springs		3	6
12 sparking plugs	3	6	
1 magneto, same as fitted	4	19	
1 connecting rod top end bush	–	–	–
1 connecting rod bottom end bearing (two halves)	1	2	0
1 lay shaft bush	–	–	–
Sails.			
1 outer jib sail			
1 middle jib sail			
1 fore topmast stay sail			
Foresails.			
1 fore course			
1 lower fore topsail			
1 upper fore topsail			
1 fore topgallant sail			
	2566	8	6

Spare Gear—*continued.*

	£	s.	d.
Mainsails.	2566	8	6
1 main course			
1 lower main topsail			
1 upper main topsail			
1 main topgallant sail	462	.	.
Mizen Sails.			
1 mizen trysail			
1 spanker			
1 mizen gaff topsail			
Spars.			
1 jibboom			
1 bowsprit			
1 fore top mast			
1 fore topgallant mast			
1 fore yard			
1 fore lower topsail yard			
1 fore upper topsail yard			
1 fore topgallant yard			
1 fore gaff			
1 fore trysail boom			
Main topmast			
Main topgallant mast			
Main yard	1368	.	.
Main lower topsail yard			
Main upper topsail yard			
Main topgallant yard			
Main gaff...			
Main trysail gaff			
Mizen topmast			
Mizen gaff			
Mizen trysail gaff			
Spanker boom			
Rudder.			
1 rudder complete	132	10	.
1 ball race			
2 sets balls for race			
1 pintle, complete with nut			
	4528	18	6

PARTICULARS OF AUXILIARY MACHINERY

Feed Donkey.

Makers Hayward-Tyler & Company Ltd

Sizes $5\frac{1}{4}$" × $3\frac{1}{2}$" × 5"

Electric Light Steam Engine.

Makers Robey & Co Ltd

Sizes of Cylinders 4 3/4" × 5"

Revolutions per minute

Steam Driven Dynamo.

Makers To approval

Output 10 K.W.

Electric Light Paraffin Motor.

Makers Parsons Motor Co Ltd

B.H.P. at 850 *revolutions* 14

Number and Sizes of Cylinder 2

Emergency Dynamo.

Makers To approval

Output 10 K.W.

Electric Installation.

Contractors Voshel & Co Ltd

Steam Steering Gear.

Makers Carron Company

Sizes of Cylinders $5\frac{1}{2}$" × 5"

Steam Windlass and Capstan.

Makers Thomas Reid & Sons

Sizes of Cylinders 6" × 10"

Size of Capstan 12" diameter

Steam Winch.

Makers No arrangement

Sizes of Cylinders

Evaporator and Distiller.

Makers Richardsons Westgarth & Co Ltd

Makers of Duplex Pump Hayward Tyler & Co Ltd

Sizes of Duplex Pump 3" × 2" × 3"

Auxiliary Boiler.

Makers Vosper & Company Ltd

Heating Surface 285 sq. feet

Grate Surface 10.2 sq. feet

Motor Launch Engine.

Makers Parsons Motor Co Ltd

B.H.P. of Motor 30

Detachable Motors.

Makers The Evinrude Motor Co (England)

B.H.P. 6

Speed of Whale Boat when fitted with Detachable Motor 5½ knots.

In the event of further defects developing in the opening up of this vessel for repair, as herein specified, we would be prepared to carry out further renewals beyond those specified at the following rates :—

	£	s.	d.
(*a*) Additional drydock dues would be at the rate per day of ...	4		
(*b*) Outside planking, inside thickness under doubling, fitted, fastened and finished per cubic foot	2	2	6
(*c*) Outside planking, inside thickness clear of doubling, fitted, fastened and finished, per cubic foot	1	18	
(*d*) Outside planking Greenheart doubling, fitted, fastened and finished, per cubic foot	2	17	
(*e*) Inner bottom planking fitted, fastened and finished, per cubic foot	1	18	
(*f*) Oak timbers fitted, fastened and finished, per cubic foot ...	2	5	
(*g*) Main keel fitted, fastened and finished, per cubic foot... ...	3	1	
(*h*) Centre keelson fitted, fastened and finished, per cubic foot ...	1	13	
(*i*) Bulwark stanchions fitted, fastened and finished, per cubic foot	1	19	
(*j*) Bulwark planking fitted, fastened and finished, per cubic foot	1	7	
(*k*) New foremast if found necessary, fitted, complete, with old iron work from existing mast	142		

In the event of the order being placed in our hands we propose to carry out the repairs and alterations to the vessel at our Portsmouth Works.

The materials in the first column of the table following would be obtained from the Firms whose names we have set opposite them in the second column, viz. :—

Material.	*Name.	Situation of Works.
Oak for timbers	Houghtons	Dursley
Teak for Decks	Doward Bros	Southampton
Pitch pine planking	Lenanton	London
Greenheart doubling ...	Ditto	Ditto
Steel plates	South Durham	Stockton
Rivets	Rivet Bolt & Nut Co.	Glasgow.
Steel forgings	Vospers	Portsmouth.
Steel castings	Hadfields	Bilston
Gunmetal	Vospers	Portsmouth
Copper pipes	Birmingham Battery	Birmingham.
Boiler stay bars	Howell	Newport Mon:
Boiler tubes	Stewart & Lloyds	Glasgow.
Canvas for sails	Lucas	Portsmouth
Hemp rope for rigging ...	Wrights	Birmingham

*If own make proposed it should be so stated.

CROWN AGENTS FOR THE COLONIES.

GENERAL CONDITIONS OF CONTRACT.
No. 4.
FOR THE CONSTRUCTION OF VESSELS.

Definitions.

1. In these Conditions and in any Specification or Special Conditions annexed hereto:—

(a) The words "Crown Agents" shall mean the Crown Agents for the Colonies.

(b) The word "Engineer" shall mean (and include) the Naval Architect and the Consulting Engineer or Engineers appointed by the Crown Agents for the time being of the works under this Contract (or if none shall have been appointed then the Engineer-in-Chief for the time being of the Crown Agents and any deputy duly authorised by them or him).

(c) The word "Colony" shall mean the Colony or Protectorate for which the work is intended.

(d) The word "Contractor" shall mean the person, firm or company whose Tender for the work referred to shall be accepted by the Crown Agents.

(e) The word "work" shall mean the vessel or vessels or materials and equipment of every kind, in every stage of their preparation, together with all the machinery, gear, fittings and things mentioned in the Specification, including such steam or other trials and tests of every description and such preparations for shipment or navigation to the Colony as are mentioned in the Specification.

Contract not to be sublet.

2. The Contractor shall not without the written consent of the Engineer assign or sublet this Contract or any part thereof, nor allow any portion of the work to be done otherwise than in his own establishment and any such consent shall not relieve the Contractor of his liability under this Contract.

Contractor to indemnify the Crown Agents.

3. The Contractor shall indemnify the Crown Agents against all claims at any time on account of patent rights or royalties, whether for manufacture or for use in the Colony.

Alterations, additions and deductions.

4. The Crown Agents or the Engineer shall have the power of requiring reasonable alterations in, additions to, or deductions from the work or any of its details, and if such alterations or additions do not involve extra expense no payment shall be made in respect of them. If the Engineer considers that the alterations or deductions diminish the value of the work to be done the Contractors shall allow a reduction in the contract sum of such amount as the Engineer shall certify to be reasonable.

Payment for extra work.

5. The Contractor shall not receive payment beyond the contract sum for any work which he may consider should be paid for as an extra unless such work shall have been ordered in writing by the Crown Agents or the Engineer as extra work, or unless the Contractor shall have claimed in writing that it should be paid for as an extra, and the Engineer shall have certified in writing that the claim is reasonable and proper.

Extension of time for additional work.

6. In the event of additional work or alterations being ordered, the Crown Agents shall extend the time for delivery to such extent (if any) as the Engineer may certify to be reasonable and proper.

Discrepancies between Drawings and Specification.

7. Should there be any discrepancy between the Contract Drawings and the Specification or any inconsistency or omission in either of them, reference must be made to the Engineer for an explanation and the Contractor will be held responsible for any errors that may occur in the work through neglect of this precaution.

Work to be delivered complete.

8. The Contractor shall deliver the whole of the work complete in all its parts and furnished with every necessary detail and fitting notwithstanding any omission or inconsistency in the Contract Drawings and Specification.

Engineer to approve methods.

9. Before proceeding to execute any work, the Contractor shall obtain the Engineer's approval of the manner in which the Contractor proposes to execute each portion of the work and shall furnish such Drawings or information as the Engineer shall require.

Contractor to take all risks.

10. The Contractor shall take all risk of accident or damage to the work from whatever cause arising and shall be responsible for the sufficiency of all means used by him for the fulfilment of the Contract and shall not be relieved from such responsibility by any approval which may have been given by the Engineer.

Inspection and testing.

11. The Contractor shall afford the Engineer all proper and reasonable facilities for examining, inspecting and testing the materials, machinery and workshop used or intended to be used for the purposes of this Contract and shall also supply free of charge such apparatus, materials, tools or labour as may be required from time to time for the purpose of such examination, inspection and testing.

Work to be to satisfaction of Engineer.

12. The work is to be executed in strict conformity with the Contract Drawings and Specification. The materials and fittings of every kind used are to be free from defects and unless otherwise specified are to be of the best description of their respective kinds. The workmanship is to be of first class character and finish such as the Engineer shall require.

Powers of Engineer.

13. The Engineer may adopt any means he may think fit to satisfy himself that the materials specified are actually used and he shall have power throughout the Contract to inspect in any manner he may think fit, without giving previous notice, the entire work or any part thereof at every stage of progress and wherever the work or any part thereof may be in progress; to amend and alter anything he may think fit; to reject any parts of the work which he may disapprove. If any work is so rejected, the Contractor shall at once execute it afresh to the entire satisfaction of the Engineer.

Notice prior to inspection.

14. The Contractor shall give the Engineer due notice in writing previous to any of the work being ready for inspection.

As to incompetent foremen, etc.

15. The Engineer may object to the employment in or about the execution of this Contract of any foremen or workmen deemed by the Engineer to be incompetent and after the expiration of one week from the receipt of written notice of such objection, the Contractor shall not employ such foremen or workmen about the work but shall in place thereof employ some competent foremen or workmen.

Packing.

16. The Contractor must provide and include in his Contract sum the cost of all necessary packing including cases, materials and labour. He will be held responsible for the work being so packed as to ensure as far as possible its being free from loss or injury on arrival at its destination in the Colony.

Engineer's Certificates.

17. Until the Engineer shall have given his Certificate of approval, none of the work must be despatched for shipment and should any defects be discovered before shipment, they must be immediately remedied by the Contractor at his own expense notwithstanding any previous approval by the Engineer.

Place of delivery

18. The work is to be delivered free on board vessels lying in any dock alongside any pier or wharf or in any part of the stream or is to be delivered afloat as the case may be at any of the ports named in the Tender as the Crown Agents may direct; the cost of such delivery must be included in the contract sum. Should the Crown Agents require delivery to be made at a port in the United Kingdom not named in the Tender, the Contractor shall only receive the exact cost of delivery at that port. The work will remain at the Contractor's risk in all respects until delivery has been taken when the Crown Agents' risk will begin.

Dock and Harbour dues.

19. All dock and harbour dues and charges (including Port of London port rates and Clyde dues) where charged, are payable by the Contractor and must be included in the Contract.

RAILWAY MATERIAL, COAL, COKE, AND OIL, TO BE USED TO GENERATE HEAT OR TO PRODUCE POWER.—All Dock, Harbour dues and charges (including Port of London port rates and Clyde dues) are payable in full at all ports by the Contractor.

OTHER STORES, London and Bristol.—Eleven-twelfths of published consolidated rates for Dock and Harbour dues, Wharfage, etc., are payable by the Contractor and in the case of London 75 per cent. of the London port rates.

SOUTHAMPTON.—Dock charge for labour is payable by the Contractor.

OTHER PORTS.—75 per cent. of the charges is payable by the Contractor.

The exemption certificates necessary to secure reductions will be forwarded by the Crown Agents' Shipping Office.

Freight arrangements.

20. Except as to vessels which are navigated afloat to the Colony and any portions of the work which may be conveyed in them freight for the conveyance of work to the Colony will be engaged by the Crown Agents. Shipping particulars must be sent as soon as possible by the Contractor to the Crown Agents' Shipping Office at 130, Leadenhall Street, E.C. 3, whence instructions will be issued for delivery to a ship. Should the work not be delivered in accordance with such instructions, the Contractor shall be liable to the Crown Agents for any loss or expense which they may incur by reason of non-delivery. The Crown Agents shall, however, have the power to delay delivery for any reasonable period to suit their shipping arrangements and the work will remain at the Contractor's risk in all respects until delivery has been taken.

Invoice and shipping particulars.

21. Directly the work is ready for shipment the Contractor must give notice in writing to the Crown Agents' Shipping Office and must forward to the Crown Agents, 4, Millbank, S.W.1, four copies of the invoice and three copies of shipping particulars showing the number, marks, measurements, weight (gross and net) and contents of each package. The invoices must be made out on special forms supplied by the Crown Agents from whom copies can be obtained on application. Packing particulars should be made out on Contractor's own forms. Invoices should follow the wording and order of the tender form whenever this can be done without being misleading as to the nature of the goods or the package in which they will be found. They must give full trade description of each article. When section letters, page numbers, item numbers or other identifications are given in the form of tender these must be quoted on the invoices. If the work is shipped by instalments, separate invoices and shipping particulars must be rendered for each instalment and must enumerate only what is included in that instalment.

Packing'

22. Unless payment by instalments is specified in the Special Conditions of Contract payment will be made to the Contractor within a reasonable time after the Bills of Lading have been received by the Crown Agents provided that the Engineer shall have given his certificate that the work has been completed to his entire satisfaction and subject to any deductions to which the Contractor may become liable under this Contract. When payment by instalments is provided for in the Special Conditions of Contract the Contractor must forward to the Crown Agents at 4, Millbank, S.W. 1, an account in duplicate of each of the instalments, except the final one (which shall be forwarded in quadruplicate) and an instalment, whether it be the final or an intermediate instalment, will only be paid upon the Certificate of the Engineer that each instalment has been earned and that the work has been executed in accordance with the Contract and to his entire satisfaction. Subject to the grant by the Engineer of the said Certificate the final instalment will be paid within a reasonable time after the work has been completed in accordance with the Specification and the General and Special Conditions of Contract and has been delivered in the port of delivery and such instalment will be subject to any deductions to which the Contractor may become liable under this Contract.

Vesting in Crown Agents.

23. When payment is made by instalments the work and all materials from time to time intended and appropriated thereto shall upon payment of the first instalment become and be the property of the Crown Agents subject to the provisions of this Contract. Provided that upon the due completion of the work all such materials as shall not have been actually used for the purposes of this Contract shall be relinquished to the Contractor. Immediately upon the payment of the said first instalment the Contractor shall affix the name of the Crown Agents upon the work in such conspicuous manner and place or places as may be directed by the Engineer and shall not remove the same without the consent of the Engineer.

GENERAL CONDITIONS OF CONTRACT No. 4—(*continued*).

Insurance.

24. When payment is made by instalments the Contractor shall until delivery has been taken by the Crown Agents at his own expense keep the work or such parts thereof as shall from time to time be constructed insured in the name of the Crown Agents and to their satisfaction against all risks to which the same shall for the time being be subject in such first class Insurance Office or Offices as may be approved by the Crown Agents in an amount at least equal to the full value of the work in respect of which payment is claimed. No money shall be paid to the Contractor hereunder except upon production and delivery to the Crown Agents of the Policies of Insurance which ought to be effected by the Contractor and the receipts for the payment of the premiums thereunder and in case the Contractor shall neglect to effect or to keep up any such insurance the Crown Agents may effect and keep up such insurance and deduct the expenses thereof from any moneys payable to the Contractor hereunder. In case the work or any part thereof shall be destroyed, damaged or lost, the Crown Agents shall receive the moneys paid in respect of the insurance and at their option either (*a*) such money shall be applied in rebuilding or reinstating the work so damaged, destroyed or lost in accordance with this Contract or as near thereto as in the opinion of the Engineer the circumstances will admit or (*b*) this Contract shall be determined, in which case the Crown Agents shall pay to the Contractor such amount as the Engineer shall certify to be fair and reasonable in all the circumstances.

Contract time for delivery.

25. The Contract time for delivery shall be the period or periods named in the Tender or agreed upon with the Crown Agents reckoned from the date on which the work is ordered by the Crown Agents.

Contractor to give notice of delay.

26. Should the Contractor anticipate at any time during the execution of the Contract that he will be unable to deliver the work within the Contract time, he must give notice accordingly in writing to the Crown Agents explaining the cause of the delay.

Deductions for delay.

27. Failure to deliver within the Contract time will in addition to any other liabilities incurred by the Contractor under this Contract subject the Contractor to a deduction from the Contract sum as and for liquidated damages and not as a penalty of one per cent. per week on the value of any work which may be in arrear unless the Engineer shall be of opinion that such delay has arisen from causes which were unavoidable and could not be foreseen or overcome by the Contractor, in which case the Engineer shall certify the extent, if any, to which the deduction should be remitted and they shall be remitted accordingly, but any deductions not so remitted shall remain in full force. Delays in the supply of materials to the Contractor will not be admitted as a ground for the remission of deductions except so far as they may be certified by the Engineer to have arisen from strikes or other causes which could not be foreseen or overcome by the manufacturers or vendors of such materials.

Drawings, etc.

28. Any drawings, tracings or descriptions specified must unless otherwise specified be furnished by the Contractor with the first consignment of the work to which they refer and no payment will be made by the Crown Agents until such drawings, tracings and descriptions have been furnished to the satisfaction of the Engineer.

Insolvency of Contractor and provisions in case of default.

29. Should the Contractor become bankrupt or insolvent or should he suspend payment or compound with his creditors or from any other cause whatever become unable or fail to carry on the Contract with efficiency, the Crown Agents shall have power to declare the Contract at an end and the Contractor shall only be paid for such portion of the work as shall have actually been executed at the date of such declaration, after deduction of any sum leviable under the conditions of the Contract. The Contractor shall in addition be liable to pay to the Crown Agents or the Crown Agents shall be entitled to further deduct the value of any expense, loss or damage (including any excess difference between the Contract price of the work to be done under this Contract or such portion thereof as may not have been executed at the date of such declaration as aforesaid and the price which the Crown Agents may have to pay for similar work provided in lieu of such portion as may not have been so executed) which the Crown Agents may be put to or sustain by reason of or in connection with the Contractor's breach of Contract. If at any time the Contractor shall in the opinion of the Engineer not be executing the work with due diligence or shall be otherwise making default in the performance of this Contract the Engineer may give to the Contractor written notice requiring him to remedy such default to his satisfaction and the Contractor shall forthwith comply with such notice and in case the Contractor shall not within seven days after the receipt of such notice have duly complied therewith to the satisfaction of the Engineer then and in any such case the Crown Agents (in addition and without prejudice to any of their other rights or remedies under this Contract):—

(*a*) May make good such default or cause the same to be made good in such manner as the Crown Agents may think fit and the expenses thereby incurred (as certified by the Engineer) shall be paid by the Contractor to the Crown Agents or may be deducted by the Crown Agents from any moneys payable or to become payable to the Contractor under this Contract or

(*b*) May determine this Contract and thereupon the Crown Agents may take possession of or remove and dispose of for their own benefit the work in its then state and all material then being the property of the Crown Agents under this Contract (together with the benefit of any sub-contracts for any part of the work) without making any further payment to the Contractor than such (if any) as the Engineer shall certify ought to be paid to him having regard to his default and all the circumstances of the case, or

(*c*) May without determining this Contract take possession of the work in its then state and all materials intended for it and complete the work (in the Contractor's yard) in accordance with this Contract and the costs incurred by the Crown Agents in the exercise of any of the powers contained in this sub-clause (as certified by the Engineer) shall be deducted from any moneys then payable or thereafter to be payable to the Contractor hereunder and if such moneys shall not be sufficient the deficiency shall be made good and paid by the Contractor to the Crown Agents.

Discrepancies in Conditions.

30. Should there be any discrepancy between the General Conditions and any Special Conditions or Specifications of this Contract the Special Conditions or Specifications shall be followed in preference to the General Conditions.*

No personal liability on Crown Agents.

31. Nothing in these General Conditions or in any part of the Contract shall be deemed to impose any personal liability on the Crown Agents or on any of them or on any of their officers or servants.

Members of House of Commons.

32. In pursuance of the Act 22 Geo. III. Cap. 45 no Member of the House of Commons shall be admitted to any share or part in the Contract or to any benefit to arise therefrom except so far as Section 3 of the Act applies. This section runs as follows:—

"Provided always and be it enacted that nothing herein contained shall extend, or be construed to extend, to any "contract, agreement, or commission, made, entered into, or accepted, by any incorporated Trading Company in its corporate "capacity, nor to any Company now existing or established and consisting of more than ten persons where such contract, "agreement, or commission shall be made, entered into or accepted for the general benefit of such incorporation or company."

Contract an English one.

33. This Contract shall be deemed an English Contract and shall accordingly be governed by and construed according to English law.

Marginal notes.

34. Marginal notes hereto are for the purposes of convenience only and shall not affect the construction or interpretation of this Contract.

Fair wages clauses.

35. The Contractor shall pay rates of wages and observe hours of labour not less favourable than those commonly recognised by employers and trade societies (or in the absence of such recognised wages and hours, those which in practice prevail amongst good employers) in the trade in the district where the work is carried out. Where there are no such wages and hours recognised or prevailing in the district those recognised or prevailing in the nearest district in which the general industrial circumstances are similar shall be adopted. Further the conditions of employment generally accepted in the district in the trade concerned shall be taken into account in considering how far the terms of fair wages clauses are being observed. The Contractor shall be responsible for the observance of the fair wages clauses by the Sub-contractor (if any).

36. The Contractor shall cause the preceding condition to be prominently exhibited for the information of his workpeople on the premises where work is being executed under the Contract. Printed copies of such notice will be supplied on application to the Crown Agents. In trades where it is the practice, the Contractor shall also cause to be exhibited or be available for inspection a copy of any signed agreement determining the rates of wages and hours of labour commonly recognised by employers and trade societies in the district.

37. The Contractor shall keep proper wages books and time sheets showing the wages paid and the time worked by the workpeople in his employ in and about the execution of the Contract and such wages books and time sheets shall be produced whenever required for the inspection of any officer authorised by the Crown Agents.

Certificates to be final.

38. Any decision, certificate or determination made or given by the Engineer in pursuance of this Contract shall be final and conclusive for all purposes and shall be binding on the Crown Agents and the Contractor.

Arbitration.

39. Any question, dispute or difference between the Crown Agents and the Contractor arising out of this Contract shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1889, or any statutory modification thereof.

Dangerous goods.

40. Packages containing dangerous goods (see Section 446 Merchants Shipping Act, 1894) must be marked by the Contractor as provided in the Statute and specially reported to the Crown Agents' Shipping Office, attention being also drawn to them in the shipping particulars.

INSTRUCTIONS TO FIRMS TENDERING.

The original Form is to be filled up complete in every respect and delivered, properly sealed, by hand or by post, not later than noon on the date named on the face of the form in the special green envelope when such is provided for the purpose. If no date is specified, the form should be returned as soon as possible.

The duplicate form is intended to be retained by the firm.

Both forms should be returned to the Crown Agents at once if the firm is unwilling or unable to tender.

The Crown Agents do not bind themselves to accept the lowest or any tender and they reserve to themselves the right of accepting any tender wholly or in part.

Copies of any drawings referred to in the Specification can be seen at the Crown Agents' Offices and can be obtained from Mr. W. J. Harrison, 7, Cartaret Street, Westminster, S.W., on a payment of a sum not exceeding 2s. 6d. per drawing.

OFFICE OF THE CROWN AGENTS FOR THE COLONIES,
4, MILLBANK, LONDON, S.W.1.

* The following are the matters which will more usually form the subject of special conditions:—
Payment by instalments (cl. 22); provision of a sum to cover additional work (if any); amount of liquidated damages (cl. 27).

FALKLAND ISLES.

REQUISITION No. 1460.

SPECIAL CONDITIONS OF CONTRACT.

PAYMENT. (Clause 23 of General Conditions).

Payment of the Contract sum will be made in four equal instalments in the following manner :—

One fourth when the inner planking has been stripped, defective timbers removed as specified and new materials in the yard ready for working, and other work proportionately advanced.

One fourth when all deck erections have been removed, decks lifted and defective timbers, planking and decking renewed, and the remainder of the work proportionately advanced.

One fourth when all new deck houses have been fitted, masts and spars ready for fitting, work on rigging and sails well advanced and salting completed.

One fourth when the vessel has been completed, equipped and tried in all respects in accordance with the Specification, and has been delivered with steam up ready for sea and all Certificates handed over in the Port of Delivery.

DEDUCTIONS FOR DELAY (Clause 27 of General Conditions).

In lieu of the 1 per cent. specified in clause 27 the deduction which the Contractors will be subject for failure to deliver within the Contract time will be £40 per week.

FALKLAND ISLES.

REQUISITION No. 1460.

TENDER

S.S. "DISCOVERY."

TO THE CROWN AGENTS FOR THE COLONIES.

GENTLEMEN,

We are willing to carry out the repairs and alterations to the above vessel and to deliver her free alongside our Works at Portsmouth with equipment and outfit for same, all in accordance with the terms and Conditions of the annexed Specification and Special and General Conditions of Contract for the sum of £ 31 882 (Thirty one thousand, eight hundred and eighty two pounds)

2. The above price includes a sum of £ 180 for carrying out a trial trip under sail and subsequently drydocking the vessel as specified.

3. The total cost for spare parts as set forth on pages 40 to 45 of this Specification would be £ 4528 : 18 : 6 This amount is not included in the above price for repairs and alterations.

4. We have duly completed the list of Schedule prices for additional work and have filled in the names of Suppliers and Makers proposed for materials.

5. The above-named sums to cover all costs and charges in connection with the full and proper executions of the provisions of the Contract.

6. In the event of our Tender being accepted we would undertake to complete the vessel, with steam up ready to start on its voyage, within 26/30 weeks from date of order.

Signature Vosper & Co Ltd.

Address Broad Street Portsmouth

Date 13th June 1923

Waterlow & Sons Limited, London Wall, London.

MS
W.B.