

Account of the qualities and uses of coal tar and coal varnish. With certificates from shipmasters and others / [Anon].

Contributors

Dundonald, Archibald Cochrane, Earl of, 1749?-1831.

Publication/Creation

Edinburgh : Printed by William Smellie, 1784.

Persistent URL

<https://wellcomecollection.org/works/sdddms3u>

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A C C O U N T
18187/P OF THE
QUALITIES AND USES
OF
C O A L T A R
AND
C O A L V A R N I S H.

WITH CERTIFICATES

From SHIPMASTERS and Others.

COCHRANE, A. 9th Earl Dundonald

EDINBURGH:

PRINTED BY WILLIAM SMELLIE.

M,DCC,LXXXIV.

*Bitumen est ferventissimum et violentissimum gluten, cu-
jus haec est virtus, ut ligna quae eo lita fuerint, nec ver-
mibus exedi, nec solis ardore, nec ventorum flatibus, nec
aquarum possint violentia dissolvi, nempe incorrupta est
vis bitumini, aquisque contumax; ideoque ligna conser-
vat, ne combibant humorem noxiam, neque patitur aërem
penetrare, et tineas teredinem aliaque a lignis vitia pro-
hibet, propter quae diuturnitatem operibus maxime prae-
stat.*

*Bernardus Caesius
De mineralibus.*

85656



A C C O U N T, &c.

THE EARL of DUNDONALD, in 1780, discovered a new and easy method of extracting tar from coal; for which a patent was obtained for the term of fourteen years.

Many trials for extracting tar from coal had been made by the late Marquis of Rockingham, near Sheffield, and by various persons at Colebrook-dale, and at Newcastle, under the direction of a German, calling himself Baron Van Haak.

The quantity made by these different attempts was trifling, and the expence of the process so great, that the tar could not be sold to profit by the manufacturers, under twenty-eight shillings *per* barrel. The following description of the uses and qualities, and manner of making use of coal tar, together with a variety of very ample certificates, will, it is hoped, prove satisfactory to the public, who may be supplied from Lord Dundonald's manufacture with tar and varnish, at the price of foreign tar, and of turpentine varnish; and, in one respect, coal tar may be regarded as one-third cheaper than common tar, since an equal quantity of the former covers one third superficies more than the latter.

Coal tar is of a blacker colour than common tar, and entirely free from water; of which there is a considerable quantity in the latter. It needs no mixture of lamp-black for doing the mast-heads, yards, timber-heads, and blacking strokes of ships. It lays

on smoother, with a finer skin, and better gloss than common tar; vessels bottoms payed with it, keep a long time clean.

Tar, when intended for a vessel's-bottom, should be boiled to a proper consistence. It is known by dipping a stone, chip of wood, or any thing else, into the tar; which, when cooled, shews the consistence of the stuff. Coal tar has this advantage over common tar, that it is not apt to boil over; consequently requires less attendance, is less liable to accidents, and may, in the boiling down, have a quicker and stronger fire applied to it. It is recommended not to boil the stuff too much for a vessel's-bottom. It should be of a tough, waxy consistence; but not boiled so as to be brittle.

Directions for preparing Vessels Bottoms, so as to defend them from the Worm.

WORMS will not penetrate into wood that has been properly impregnated and payed with coal tar; for this purpose, if the vessel's bottom be of fir, nothing more is requisite than to bream or fire her well; and, while the plank is yet hot, to lay on raw, or unprepared coal tar, which will sink into the then open pores of the wood, and penetrate to a considerable depth; and, after the seams are caulked, lay on a coat of half stuff, or prepared coal tar. Oak not being of so open a texture as to imbibe a sufficient quantity of tar, or take it to any depth, the method above described may not, for any length of time, be a sufficient preservative against worms in oak bottomed ships. It will be further necessary, that they be sheathed with white wood fir, soaked or impregnated with coal tar. Sheathing thus prepared, will not need to be filled with nails as in the common way, to prevent the entrance of the worm;

no

no more nails being necessary than to hold on the sheathing. A coat of half stuff over all is necessary, as was formerly mentioned. The sheathing nails should be coated or lacquered over with coal tar; which is done by heating the nails in a wire basket, over a stove, or blacksmith's fire, and dipping them quickly, while hot, into coal tar; as the nails cool, the tar dries on their surface. Nails thus prepared, are not subject to rust, or to render the wood what is called iron-sick; consequently the sheathing will not need so frequently to be ripped off and renewed.

Coal tar is recommended as the best covering for guns, shot, chain-plates, bolts, and all other iron-work, it being found to be an effectual preservative of cast and hammered iron from rust; for which purpose common vegetable tar will not answer, as it contains an acid that corrodes iron.

It is particularly recommended for doing over shot, and the inside of iron-guns that are laid up in the navy and ordonance wharfs; it prevents them from scaling. At present, the windage of the guns is constantly on the increase; and, by the mutual exfoliation of guns and shot, the guns, in a few years, become unserviceable.

Coal varnish is made of rosin, dissolved in essential oil of coal: This varnish is preferable to turpentine varnish, in as much as the oil that it is made of is lighter and more penetrating than oil of turpentine.

The effect that coal varnish has, when laid on wood, is to close its pores, by filling them with the rosin that is contained in it, rendering, by this artificial impregnation, white, or sap-wood, equal in quality to red wood.

Coal varnish is recommended for mixing with colours to make varnish paints; as it nourishes and preserves wood better than paint prepared with lint-feed oil; which last makes but a superficial coating, or covering, and doth not penetrate the wood.

Coal oil, when rectified, may be used to advantage in painting, to dilute, or thin down lint-feed oil: For the above use it goes one-third farther than oil of turpentine.

Besides the tar, pitch, essential oil, and varnish, already spoke of, there are other articles made, either immediately from coal, or produced in processes that are connected with Lord Dundonald's discovery; such as,

Cinders.

Lamp-black.

Volatile alkali, (vulgarly called Spirit of Harshorn.)

Sal ammoniac.

Glauber's salt,

And fossile alkali, (or barrilla.)

The uses of these articles, in different manufactures, are too well known to require any description here. The editor shall only point out to the public the uses for which he apprehends that coal tar and varnish are principally adapted.

Uses of Coal Tar.

	{	Ships bottoms and sides.
		Do. bends and blacking strokes.
		Do. timber heads and rails.
		Do. mast heads and tops.
		Do. yards and boltsprits.
		Do. buoys and water casks.
		Floodgates.
Wood Work.	{	Jettys.
		Piles.
		Palisades.
		Pale and rail.
		Cart and waggon wheels.
		Shingle roofs, particularly in the West-Indies.
		Espaliers for fruit-trees, and all sorts of wood-work exposed to the air or water.

Ships

	Ships rudder bands.
	Do. chain plates.
	Do. bolts.
	Do. anchors.
	Guns.
	Shot.
	Shells.
	Mooring chains.
Iron Work.	Iron rails in streets.
	Fire-engine, cylinders, and working irons.
	Do. cast-iron pumps, bolts, and nuts.
	Do. buckets and clacks.
	Sheathing, plate, and other nails.
	Spades, shovels, mattocks, hoes, and all other iron-work, made for home use or exportation.

Uses of Coal Oils, Varnish, and Varnish Paints.

Ships sides.
 Decks.
 Masts.
 Paintstroke.
 Sterns and figure heads.
 Gun carriages.
 Powder barrels.
 Boats.
 Coach, house, and sign painting.

There are other purposes for which it is believed that coal tar and coal pitch may be used to advantage ; such as, a cement for docks, sluices, cisterns, and the piers of bridges ; and, as raw coal tar penetrates stone to a considerable depth, it may be used for doing over houses that are built of a porous stone, apt to transmit the rain or moisture through the

the walls of the house. If the colour of the tar should be an objection, the house may be harled, or cast with small gravel and lime, and afterwards white washed. Lime takes better band, or hold, on stone payed with coal tar, than on raw stone. Coal tar may be used for doing over tyles, to prevent them from imbibing moisture, or wasting by the weather.

Coal tar, notwithstanding its supposed inflammability, has, by an accident that lately happened at Mr Cuninghams distillery, at Balmireno, in Fife, been found to be a preservative of wooden buildings, or shades, from fire.—Some experiments calculated to ascertain the power that coal tar may have in certain situations of preventing wood from being consumed by fire, shall soon be communicated to the public.

COAL

C O A L T A R

C E R T I F I C A T E S.

Copy of a letter addressed to EDWARD PARK, Agent to the British Tar Company at Culross, by Mr JOHN HALL, Captain of the Swan Tender, in the Service of Government.

S I R,

I AM favoured with your letter, respecting the coal tar bought of you in October last. You will please to acquaint the Company, that, from the experience I have had of it, it certainly claims the preference to Norway, Swedish, Russian, or plantation tar for a ship's bottom.

I cannot yet say any thing of it for ropes; but without the addition of pitch, it is good stuff by an hour's boiling. Persons conversant with carpenter work, will easily conceive the advantage derived from its being so readily prepared for a ship's bottom, without the addition of pitch.

The Swan's bottom has not been payed above three months; if, in some months hence, I discover any peculiar advantage respecting worms, or its duration, I shall not fail to communicate it, though I should imagine the experiment tried at Sheerness with it against the worms, would have been sufficient to establish its reputation. I am, &c.

SWAN Tender,
Leith Roads,
Jan. 23. 1783. }

(Signed)
JOHN HALL.

Copy of a Letter, Mr Thomas Knox Merchant, Law-Valleyfield, Fifeshire, Scotland, to the Agent for the British Tar Company.

S I R,

22d February 1783.

I RECEIVED your's, desiring to be informed, If the coal tar bought of you in October last, had been used and approved of? In answer to which, I have to inform you, that, soon after I got it, I caused to be payed with it, the Sloop Margaret, viz. her bottom, sides, timber-heads and rails. The vessel has, since then, been five months abroad at Riga, and met with much bad weather on her return home; notwithstanding of which, the tar upon both bottom and sides is nearly as clean, fresh, and good, as when laid on. From the above trial, I am clearly of opinion, that your tar is preferable, for vessels bottoms and sides, to common tar. You will please to communicate the contents of this letter to the gentlemen concerned, who have my best wishes for the success of so useful an undertaking. I am, &c.

(Signed)

THOMAS KNOX.

Copy of a Letter, Mr Charles Hutton, Mariner Culross, to the Agent for the British Tar Company.

S I R.

25th February 1783.

I IN April 1782, I caused one side of the sloop Peggy, below the bends, to be payed with coal tar, the other with common tar. The bends, sides, timber-heads and rails with coal tar. Soon after the vessel was payed, I sailed for Gottenburgh. On my return, was unluckily captured by an American privateer. The vessel was in my possession after she was payed about three months. The coal stuff on the bottom adhered or stuck on as well as any stuff could possibly do, and was quite clean. I having examined

ned her bottom very carefully, when at Gottenburgh, the coal tar with which the sides were done, looked as well as the day it was put on. Upon the whole, I have no difficulty in declaring, that I reckon coal tar preferable for vessels bottoms and sides, to foreign tar; and likewise that the clear varnish, prepared by the Company, of which I have made several trials, is equally good as turpentine varnish for vessels sides, or painting of wood work. I am, &c.

(Signed)

CHARLES HUTTON.

Copy of a Letter signed by Messrs Marshall and Gray of Kincardine, Ship-builders in the Frith of Forth.

Kincardine, March 11. 1783.

MR MARSHALL ship-builder, and Mr Peacock ship-owner, having payed over the new brig called the Elizabeth, of this place, with coal tar, desire to set forth and vindicate, That the coal tar is far preferable to the foreign tar, for the reasons as follow, viz.

One barrel of coal tar will go as far as one and one half of foreign ditto.

2dly, It sinks into, and sticks considerably closer to the wood, than the foreign tar does.

Also, That the coal varnish is far preferable to any boiled oil and rosin whatever, for ships sides, not only for its sticking on, but for its gloss and durability.

Mr Gray ship-builder, has tried the coal tar on two vessels, and desires to set forth the same approbation as above.

(Signed) JOHN MARSHALL.
JAMES GRAY.

I have boiled the said tar into pitch; and, after being boiled, I could not scrape it off, on account of its being so tough and penetrating into the plank.

(Signed) DAVID PEACOCK.

Copy of a Letter, Mr John Grieve of Grange Coal-works, to the Earl of Dundonald.

MY LORD,

Grange, 12th April.

A Few days ago, I accidentally met PATRICK MILLAR, Esq; banker in Edinburgh, at North Ferry; and your coal tar becoming the subject of conversation, I told him, that, from some experiments I had made, I was of opinion, that it would preserve iron as well as wood, a great while, from canker. Mr Millar being desirous that I should make further trials of it, I shall be obliged to your Lordship to order for me a barrel by the bearer.

I am, my Lord,

Your Lordship's

Most obedient humble servant,

(Signed) JOHN GRIEVE.

Copy Letter from Mr John Marshall, Ship-builder Kincardine, to the Agent for the British Tar Company.

S I R,

20th April 1783.

CAPT. HELMSLEY failed from this place before your letter came to hand. His brig is all done with the coal tar. He has a very great opinion of it, and thinks it is very good in quality for the purpose of ships bottoms and blacking yards, booms, &c.

I am, &c.

(Signed) JOHN MARSHALL.

N. B. Captain Helmsley's ship's name is the Jane of Bridlington, of 400 tons burthen.

Copy of a Letter from Captain Robert Mudie of the Resolution private Ship of War of Leith, to the Earl of Dundonald.

MY LORD,

Leith, May 3. 1783.

A Sudden call to Montrose prevented me answering your Lordship's letter, which I had the honour to receive; but I was not inattentive to the business it related to. Immediately on the arrival of your sloop, (the Coal Varnish,) I went to all
the

the brewers in Leith, and used my influence with them to take part of the cinders; and, previous to my setting off northward, got two ships then docking to use your tar for their bottoms, &c. Likewise, in my tour north, I omitted no opportunity that occurred, with my brethren of the sea, at Perth, Dundee, Arbroath, and Montrose, to enforce the superior quality of your coal tar; which I did, from a consciousness of its having the qualities I enforced.

Captain Hall, of the Swan tender, is here at present, after having had the trial of your tar and pitch, for seven months, on his ship's bottom, is determined not to use any other, where your's can be got.

Captain Hall is a man of superior knowledge, in his profession, to many; therefore his opinion carries more weight than others. He has been assiduous with me, in going round to the English ship masters, at present in the port, to establish the character of the coal tar; and any of them who may load up the Frith, will certainly call at the works and supply themselves. Your Lordship may rely on every exertion in my power for the good of so useful a manufacture; and permit me to be, with the most perfect respect,

Your Lordship's

Most obedient humble servant,

(Signed) ROBERT MUDIE.

Copy Certificate, Alex. Morrison, Shipmaster Aberdeen.

May 20. 1783.

I ALEXANDER MORRISON, shipmaster and owner of the Peggy of the port of Aberdeen, do hereby certify, that I have made use of, for my sloop's bottom, sides, and deck, during these two years past, the coal tar made by Lord Dundonald, at Culrofs, which I find preferable to any sort of foreign tar, for the following reasons.

That it sticks on better, hardens wood more, and

B

goes

goes greatly further in paying, than any stuff I know of. Vessels bottoms payed with it, keep a very long time clean. Nine gallons, wine measure, payed my sloop's bottom, 36 tons burthen. She was payed near two years ago, and her bottom is still in good condition. Further, I do certify from my experience of it, that coal tar is an effectual preservative of bolts and iron-work from rust.

(Signed) ALEXANDER MORRISON.

T A R sent to N O R W A Y.

*Order for Tar by Mr Thomas Meldrup Danish Consul.
Leith, May 21. 1783.*

THE EARL of DUNDONALD will be so good as to order five barrels of his coal tar to be sent down to Thomas Meldrup, Danish Consul, Leith, any time this, or the ensuing week; as the vessel he means to send it by to Norway, sails about that time. Likewise will please to send a few gallons of clear varnish.

(Signed) THOMAS MELDRUP.

Copy of a Letter, John Mitchell, Engine-keeper to Lord Dundonald.

MY LORD, Culross, 21st May 1783.

AS your Lordship desired me, about six months ago, to pay over the iron-works of the buckets and clacks belonging to the pile of pumps in the engine pit at Culross, with coal tar, in order to try if it would prevent them from being corroded or wasted by the engine-water. I have now to inform your Lordship, that I have obeyed your orders, and find that coal tar defends iron-work from rust. I chanced not to have occasion to change the clack that I put in, sooner than at the end of four months; at which time the iron-work was as sound as when put in, and entirely free from rust. Had the coal tar

tar not been made use of, I know from experience, that the iron would have been considerably wasted in the above time.

I am, your Lordship's
humble servant,
(Signed) JOHN MITCHELL.

*Inquiries by Mr John Burrell, Land Steward to his
Grace the Duke of Hamilton, concerning Coal Tar,
and its Uses.*

Hamilton, 4th May 1783.

JOHN BURRELL wishes to be informed, If Lord Dundonald thinks his fossil tar will answer in place of white lead and oil, for preserving of wooden pallisades, pales, and rails? What prompts John Burrell to make inquiries into this matter is, his own conjecture, that, if it be good for the preserving of ships hulls, it must certainly be good for the purpose he wants it. He likewise wishes, that Lord Dundonald would be pleased to let him know, What he thinks the paying over a square yard will cost? If it answers the purpose intended, and can be done at a reasonable rate, John Burrell will soon have occasion for a large quantity.

Answer to the above Queries by LORD DUNDONALD.

THAT, from the experience he has had of it these three years by past, he finds it to be a much more effectual preservative of wood, than any species of paint. Coal tar penetrates to a considerable depth into wood, hardens it, and shuts up its pores, rendering it impervious to air, water, or insects. Fir-wood payed with it acquires a hardness on its surface equal to oak. One gallon wine measure, cost of which is eight-pence, pays with one coat twenty-six superficial yards of fir-wood. One gallon and five pints, cost of which is thirteen-pence, pays

with two coats, twenty-six superficial yards of fir; so that the superficial yard, when done with two coats, just costs one half-penny, exclusive of the expence of laying it on.

Copy of part of a Letter from Captain John Helmsley of the Jane of Bridlington, to Mr Renton Wharfinger, Leith.

[St Petersburg, 15th June 1783.

THE ship has been exceeding tight ever since she was caulked and payed at Kincardine. I may very safely say, that we have drunk more water than she has made; which is a very great happiness. I approve very much of the coal tar for the purpose I got it for. I think it will answer exceeding well for ships bottoms, as the water seems to make little or no impression on it; and, for any kind of blacking, nothing can equal it. I am, Sir,

Your esteemed friend,

J. HELMSLEY.

Copy of a Letter, Mr John Syme Ship-builder Leith, to LORD DUNDONALD.

MY LORD,

Leith, 18th July 1783.

IHAVE the pleasure to inform you, that your coal tar is now very much in request here. I have used it to above twenty ships this season; and, although it was difficult to prevail on many of them, I have no doubt but that they will always use it again, and prevail on others to get the better of their prejudices.

I am respectfully,

Your Lordship's

Most obedient servant,

(Signed) JOHN SYME.

Copy

Copy of a Letter from John Marshall, Ship-builder Kincardine, to LORD DUNDONALD.

MY LORD,

27th July 1783.

I WAS duly favoured with your's, desiring to be informed, How many vessels I had payed with coal tar this season? In compliance to your Lordship's request, I have to inform you, that all the vessels, both old and new, that I have graved since December last, have been done with coal tar. I cannot, at present, remember the precise number; but the names of such as I do recollect, are the subjoined list. The coal tar continues to be approved of here as much as ever.

I am, your Lordship's

Most obedient humble servant,

(Signed) JOHN MARSHALL.

List of Ships payed by John Marshall with Coal Tar.

<i>Names.</i>	<i>Masters.</i>	<i>Whence.</i>	<i>Burthen.</i> Tons.	
Elizabeth	Peacock	Kincardine	300	New.
W ^m . & James	Sands	ditto	100	ditto
The Jane	Helmflej	Bridlington	400	Old.
Jannet & Jane	Higgins	Kincardine	55	ditto
John & Thomas	Stein	ditto	130	ditto
	Millar	ditto	60	ditto
	Sime	ditto	70	ditto
	Burnet	Newcastle	100	ditto
Petroleum	Turkan	Culrofs	30	ditto
	Scotland	Kincardine	60	ditto
	Murray	ditto	50	ditto
	Millar	ditto	55	ditto
The Peggy	Hutton	Culrofs	70	ditto
New Peggy	Hutton	ditto	75	ditto
	Thompson	Kincardine	150	New.
	Thompson	ditto	35	Old.

Certificate, James Gray Ship-builder Kincardine.

28th July 1783.

THESE do certify, that I cannot particularly name the quantity of coal tar used, nor the number of vessels graved with it under my direction; but, upon the whole, I am of opinion, that there has been between fifty and sixty vessels payed with it by me and my neighbour Mr Marshall. No other tar but coal tar is now used in this corner for vessels bottoms. It has given satisfaction to all who have used it.

Witness my subscription.

(Signed) JAMES GRAY.

*Copy of a Letter from Mr Charles Renton Wharfinger,
Leith, to William Copland, Esq; of Collieston.*

August 1. 1783.

THERE are some of the ships now arrived from St Petersburg, whose bottoms were payed with Lord Dundonald's coal tar, boiled into stuff for the purpose, before they left this port, to proceed upon said voyage. They are as clean and tight as when they sailed; neither has weeds of any kind grown on them, nor any thing else adhered to them. This was not the case with them formerly when done with vegetable tar, or any other stuff; they being always grown over with a kind of grass of a considerable length, with a quantity of earthy stuff, and with a kind of shell fish sticking to them, which obliged them to be cleaned before they went to sea again. This was not only expensive, but likewise detained them from proceeding to sea so soon as they otherwise would have done.

I have

I have no manner of doubt, and it is now the opinion of some of the sensiblest of our seafaring people, that this tar will answer the purpose of coppering, as it stands the water so well, and is undoubtedly destructive to both vegetable and animal life. I trust and hope, that it will turn out very beneficial both to the country and to the nobleman who has spent so much time and money in bringing it to the perfection he has done. I am, Sir,

Your most humble servant,

(Signed) CHARLES RENTON.

Copy Certificate, Mr John Syme, Ship-builder Leith.

11th September 1783.

THESE are to certify, that I have used the coal tar made at Culross by the Right Honourable the Earl of Dundonald, and have payed the bottoms of about twenty vessels with it since the month of November 1782, and it has given general satisfaction to all the ship-masters. Some of the ships have been at St Petersburg and Portugal, and the bottoms of the vessels were as clean as when new laid on, when they arrived here.

(Signed) JOHN SYME.

Copy Certificate, Mr George Unthank.

24th October 1783.

I George Unthank, master of the Lord Cornwallis of the port of Gainsborough, do certify, that I purchased a half barrel of coal tar at Whitby, about three months ago, with which I payed my sloop's bottom. The tar is excellent stuff for a vessel's bottom, as it both sticks well on, and keeps long clean.

(Signed) GEO. UNTHANK.

*Copy Certificate, Captain John Helmsley.**Hull, November 3d 1783.*

THESE are to certify, that I John Helmsley, master and owner of the ship Jane, belonging to Burlington, Yorkshire, have made use of the coal tar lately made and promoted by the Earl of Dundonald, in North Britain, bordering on the frith of Edinburgh, have experienced it, and found it to be of the greatest utility for preserving and keeping ships bottoms clean from grasse, &c. and would recommend it to all people belonging to, or occupying the sea, to be of infinite service, both for keeping clean and preserving ships bottoms, and likewise for the best of blacking, such as yards, masts, stanchens, timber-heads, harpons, &c.

(Signed) J. HELMSLEY.

N. B. At the time of granting the above certificate, the Jane had made two voyages over seas, the one to St Petersburg, the other to Memel.

Copy Certificate, James Cunningham and David M'Ritchie, Tacksmen of the North Queensferry Boats.

THESE are to certify, that, in March last, we caused pay the bottom of the George new ferry boat, the one half with coal tar, made by the Earl of Dundonald at Culross, the other half with common Norway tar.—By inspection, of this date, we find, that wherever the coal tar has been laid on, the plank is fully filled and coated with it, clean, and free from weeds, &c. But that, wherever the common tar was laid on, the plank is either bare of
stuff,

stuff, and water soaked, or foul, and covered with
grafs.

Nov. 15. } (Signed) JA. CUNNINGHAM.
1783. } DAV. M'RITCHIE.

*Copy Certificate, David Wishart, and Owners of the
Brig Betfy and Brothers of Leith.*

December 20th 1783.

THIS is to certify, that I David Wishart, master
of the brig Betfy and Brothers of this place,
had said ship payed with coal tar, made by the Earl
of Dundonald at Culrofs, in March last, since which
time she has made two voyages to St Petershurgh,
and is now mostly in the same state as when she
went out the first voyage. Whereas, when former-
ly payed with other stuff, I found her to be very
foul after performing one voyage; on which ac-
count, I think it the best stuff that can be laid on
a vessel's bottom, and would recommend the use of
it to every shipmaster in Great Britain,

(Signed) DAVID WISHART.

WE Peter and Francis Forrester and Co. mer-
chants here, owners of said ship, are also convinced
of the utility of the Earl of Dundonald's coal tar,
and confirm Captain Wishart's attestation in every
respect.

(Signed) P. & F. FORRESTER & Co.

Copy

*Copy Certificate, Robert Nicholson Ship-carpenter of the
Jane of Bridlington.*

Leith, 24th December 1783.

I Robert Nicholson ship-carpenter in Leith, failed from Leith-roads on the 3d of May last, as carpenter on board the Jane of Bridlington, Captain John Helmsley master, we proceeded to St Peterburgh, and from thence to London, as our first voyage; from London we failed again to Memel, and from that to Hull, where unloaded our second carriage, from thence we failed to Shields, and loaded coals, and from that to London, where I left the ship. The Jane had her seams and bottom payed at Kincardine in April, before she failed on her voyage to St Peterburgh, with the coal tar made at Culrofs, by the Right Honourable the Earl of Dundonald, and, notwithstanding her having performed said voyages, when I left her at London, her bottom and seams were as tight and clean, free of weeds, grass, or Barnacles, as when she left the frith of Forth. I would, therefore, recommend it to all shipmasters, as by far the best stuff for preserving and keeping clean ships bottoms that ever I yet saw or heard of. I also payed the water-ways and cover-boards of said ship, and found that it penetrated so much into the wood, that I was obliged to give it three coats before it would stay on the surface, on which account, it must be an excellent preservative for wood, and would recommend it as such to every person that may have occasion for it.

(Signed) ROBERT NICHOLSON.

Copy

*Copy Certificate, Mr George Ritchie.**Leith, January 7. 1784.*

THIS is to certify, that I graved the ship Friend-ship of Leith, under my command, in June last, with the coal tar from the works at Culrofs, belonging to the Right Honourable Earl of Dundonald. Since then, the ship has made three voyages to London, and finds that no grafs nor vermin has grown on the ship's bottom; and that two barrels of the said tar will go as far in graving a ship's bottom, as three barrels of any other tar that I have used.

Therefore, would recommend it to any other ship-master, that, upon trial, they would find it much to their interest graving their ships bottoms with said tar.

(Signed) GEO. RITCHIE.

*Copy Certificate, Walter Goalin Ship-builder.**North Leith, January 8. 1784.*

THIS is to certify, that I have payed several vessels bottoms with coal tar; and some of them having made voyages through the northern Islands, and others to Spain, I found, at their return home, their bottoms was clean, and no barnickles, nor vermin of any kind on any of them.

WALTER GOALIN.

