



LINCOLN

CONSERVATION

Research and conservation of historic decorative schemes in the built environment

2016

Project Name: Paint Analysis HMS Caroline

Client: National Museum of the Royal Navy

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1.0: Outline brief & Method

Fig.1: HMS Caroline berthed in Belfast



HMS Caroline is a light cruiser of the “Caroline Class”, built at the Cammell Laird shipyard in Birkenhead and launched on the 29th September 1914¹. She is the only surviving vessel that saw active service at the Battle of Jutland in 1916. Caroline is included in the National Historic Ships register as certificate no. 430 along with the following key dates relating to her history².

- . **1914** Built by Cammell Laird, Birkenhead as a Light Cruiser and launched by Lady Lawrence Power, wife of Admiral Lawrence Power
- . **1914** Joined the Grand Fleet at Scapa Flow as part of the 4th Light Cruiser Squadron
- . **1916** Participated in the Battle of Jutland and was heavily engaged by a German Battleship without sustaining severe damage
- . **1917** Major refit
- . **1918** Chosen in an Admiralty experiment to launch light aircraft from an on-board platform
- . **1919** Sent to the East Indies Station
- . **1922** Paid off and placed on the Reserve List
- . **1924** Transferred to Belfast, Northern Ireland and converted for use as the Headquarters of the RNVR Ulster Division. Guns and boilers removed and Drill Hall installed on main deck³
- . **1939** Became a Depot Ship for patrol craft based in Belfast
- . **1946** Used once more as the HQ for the RNVR Ulster Division
- . **1958-1993** Training for the RNR (Combined with the RNVR in 1958)
- . **1993** Became the Reserve Training Centre to recruit and train RNR officers and ratings to support the Royal Navy
- . **2011** Vessel decommissioned after being the longest commissioned ship after HMS Victory in the Royal Navy

¹ Dittmar F.J. & Colledge, J.J. (1972) *British Warships 1914 – 1919*. Ian Allen Ltd., London

² National Historic Ships UK (2013) [online]. Available from <http://www.nationalhistoricships.org.uk/register/430/hms-caroline> [Accessed 14th July 2014]

³ Historic Buildings Council for Northern Ireland (2007), 16th Report [online]. Available from http://www.hbcni.gov.uk/hbc_sixteenth_report_f.pdf [Accessed 23rd July 2014]

In May 2013 the Heritage Lottery Fund announced its initial support for the transformation of the vessel with a grant to enable the National Museum of the Royal Navy to draw up a detailed plan for its restoration.

Lincoln Conservation were commissioned by the National Museum of the Royal Navy (through Maytom Associates) to remove a number of complete paint samples from key areas on board to provide the physical evidence for the historic colour schemes used. These areas (numbered 1 – 25) were pre-defined by Maytom Associates and their locations are represented in the 3 dimensional plan provided overleaf. A total of 46 samples were removed, including one additional area not originally planned in the Junior Ratings Mess, where an area of the inner hull has been exposed following the removal of later panelling.

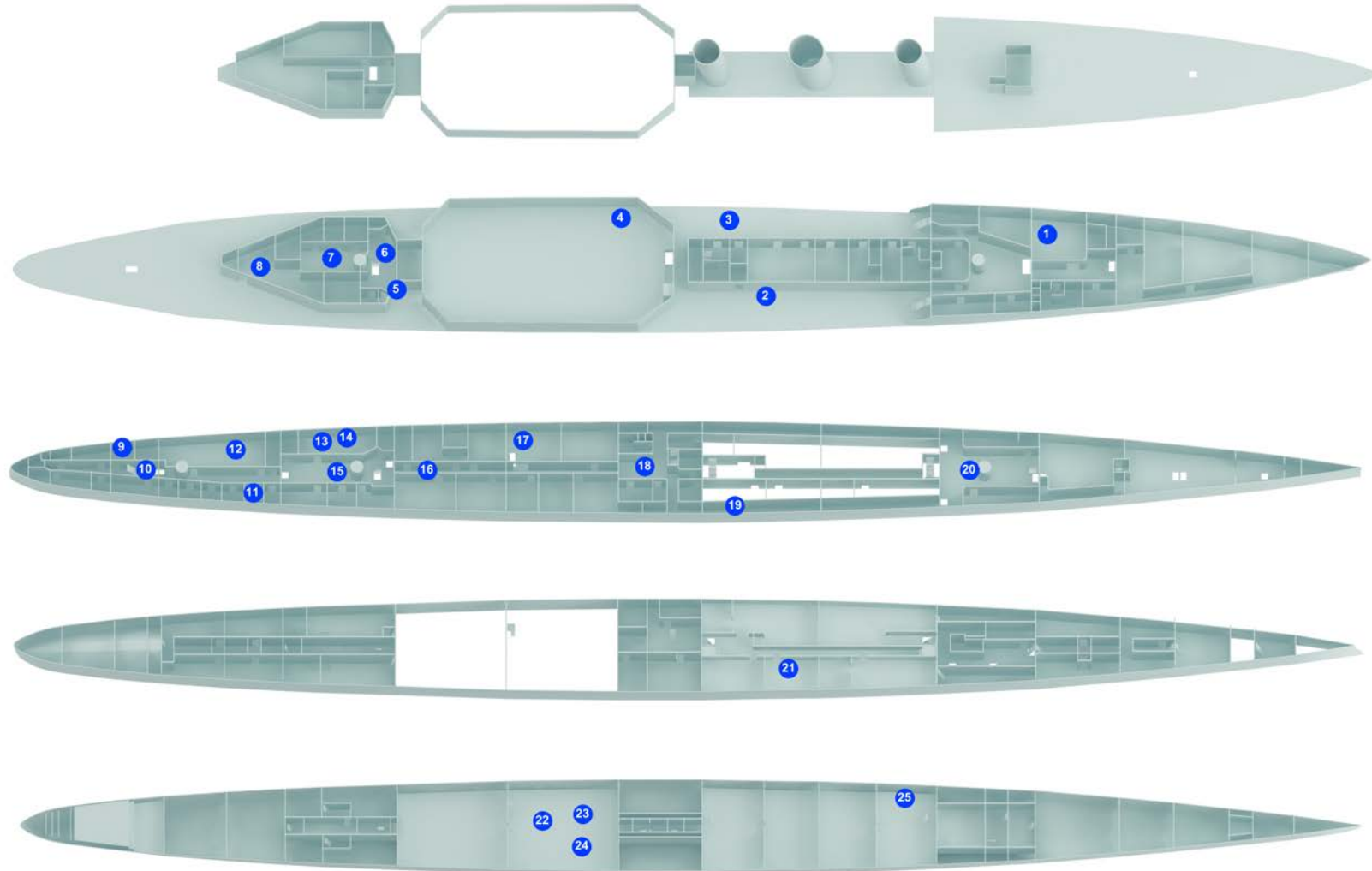
A sample location list is also provided at the end of this report outlining the areas sampled with a direct reference (numbered in bracket) to the areas defined by Maytom Associates.

All samples were mounted in cross section in polyester resin and polished back to reveal the stratigraphy of the paint layers applied over time. All samples were examined under a high-powered binocular microscope using a variety of different lighting techniques. Simulated daylight provides an indication of the colours used and highlights dirt layers between applied coats of paint; this helps to distinguish primers from top coats and provides an indication of long periods between the application of subsequent paint schemes. Ultra-violet light causes certain paint and varnish films to fluoresce in a characteristic manner defining the type of paint used (i.e: lead, zinc, modern alkyds and

organic varnish resins). This technique also helps to date the paint layers when coupled with an understanding of paint technologies used over time.

This illustrated report will provide a series of annotated photomicrographs, normally displayed at X100 magnification and should be read with the earliest layers at the base of the image with subsequent layers applied above – similar to an archaeological record.

Sample locations: sample sites are numbered 1 – 25 and are recorded as such (in brackets) above every microscope image within this report



2.0: Research Results

Fig.2: Sample 1.1, photomicrograph sick bay bulkhead (1)

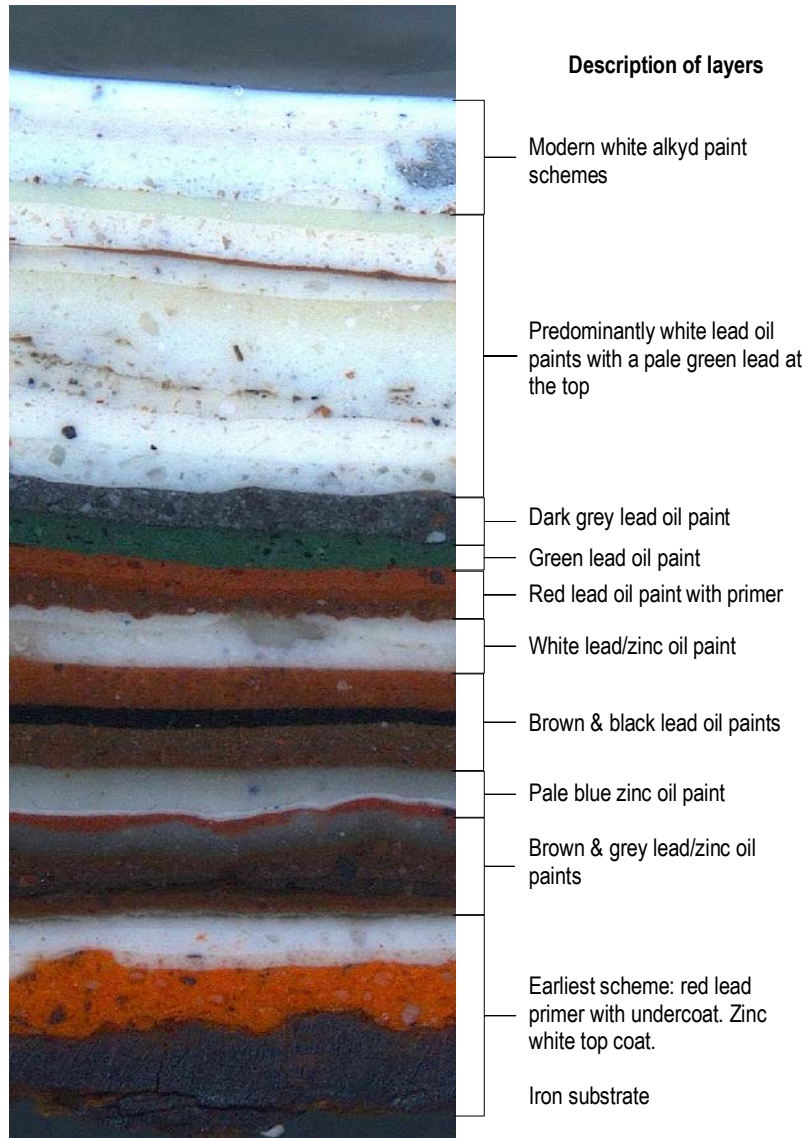


Fig.3: Sample Location



The earliest scheme detected is a zinc white oil paint at the base of the image left (fig.2), followed by several schemes in greys, black, browns and green. The last lead oil paint scheme is a pale green, probably dating to the late 1950's / early 1960's. It is feasible the initial zinc enamel white scheme could be coeval with the WW1 period. Enamels were introduced in the late nineteenth century⁴ and became very popular as a hard wearing and colour fast alternative to varnished oil paints by the 1920's.

⁴ Standeven, H.A.L (2011) *House Paints 1900 – 1960*, Getty Conservation Institute, USA

Fig.4: Sample 1.2 photomicrograph, sick bay doors, external face (1b)

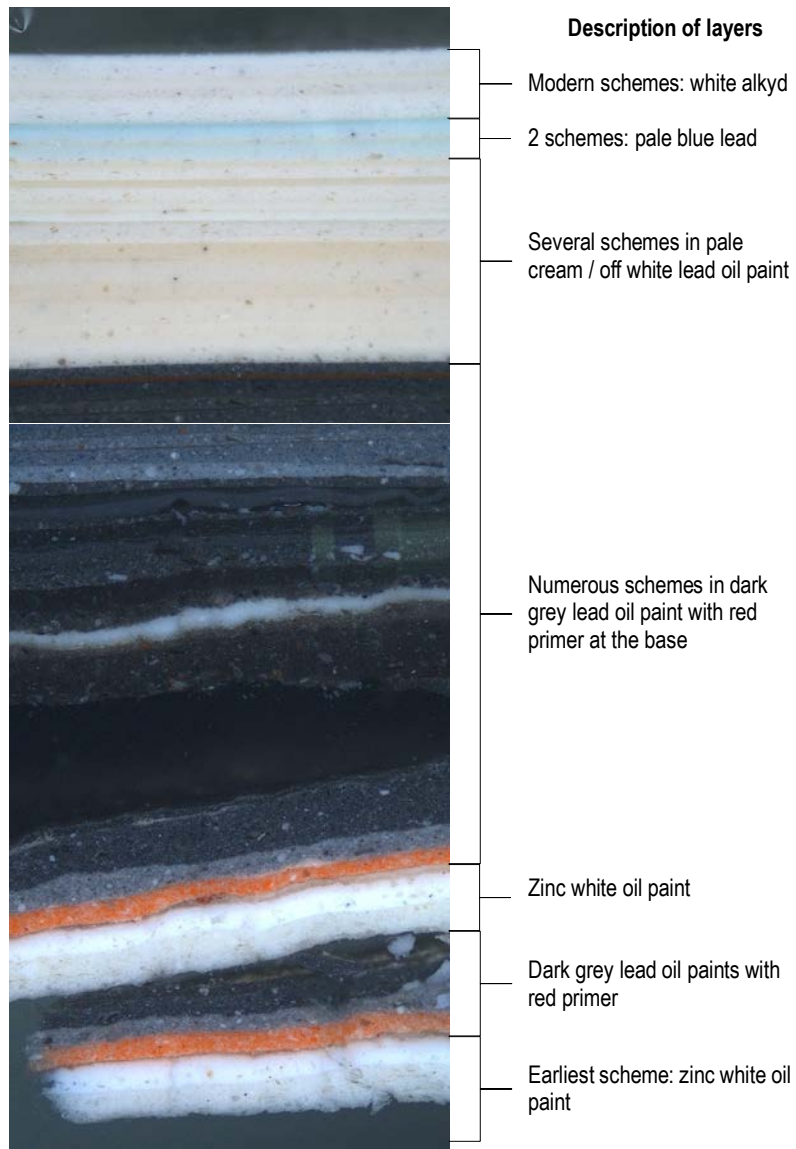


Fig.5: Sample location



The earliest scheme is a zinc white enamel oil paint with the red primer missing from the base of the sample. This is consistent with the earliest scheme detected on the bulkhead in the sick bay, with the earliest evidence for the entire area presented in a white enamel oil paint. There are numerous intermediate schemes in dark grey, probably dating to 1924 onward, with the final later schemes in pale cream / off white, later pale blue, prior to the application of the modern whites we see today.

Fig.6: Sample 1.3 photomicrograph sick bay timber screen (1c)

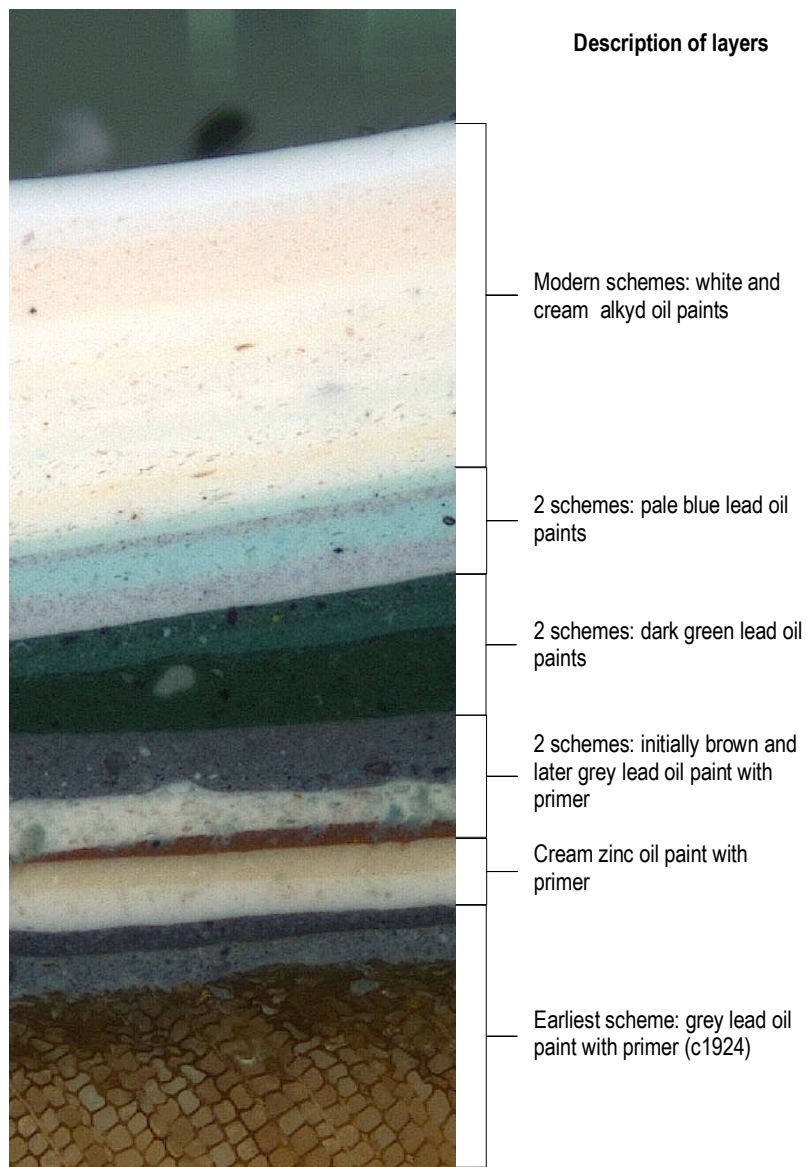
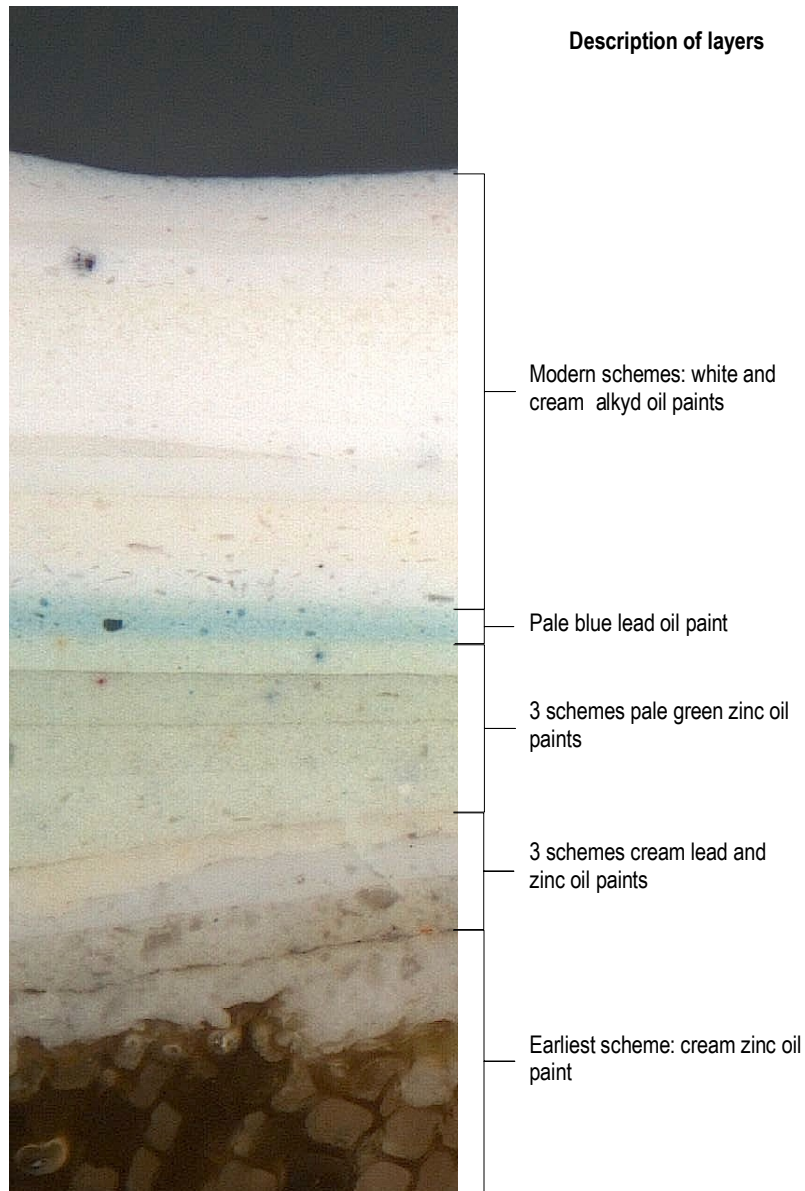


Fig.7: Sample location



The timber screen appears to be a later insertion, probably dating from 1924. Initially painted in a grey lead oil paint, followed by a cream zinc enamel. The two blue schemes date to the same period as the blues on the external face of the doors (fig.4) providing a useful datum to tie the two together (approx 1960's). The later whites and creams are all modern alkyd oil paints.

Fig.8: Sample 1.4 photomicrograph sick bay door, internal face (1d)

The earliest evidence for the paint schemes on the internal face of the sick bay doors is a pale cream coloured zinc enamel oil paint with a dirt layer on the surface indicating this was in place for some time. This is followed by three further creams and later pale greens, all in zinc enamels. The greens appear to date to approx the WW2 period with the pale blue coeval with the identical schemes on the timber screen and bulkhead within the sick bay.

Fig.9: Sample 1.5 photomicrograph starboard superstructure (2)

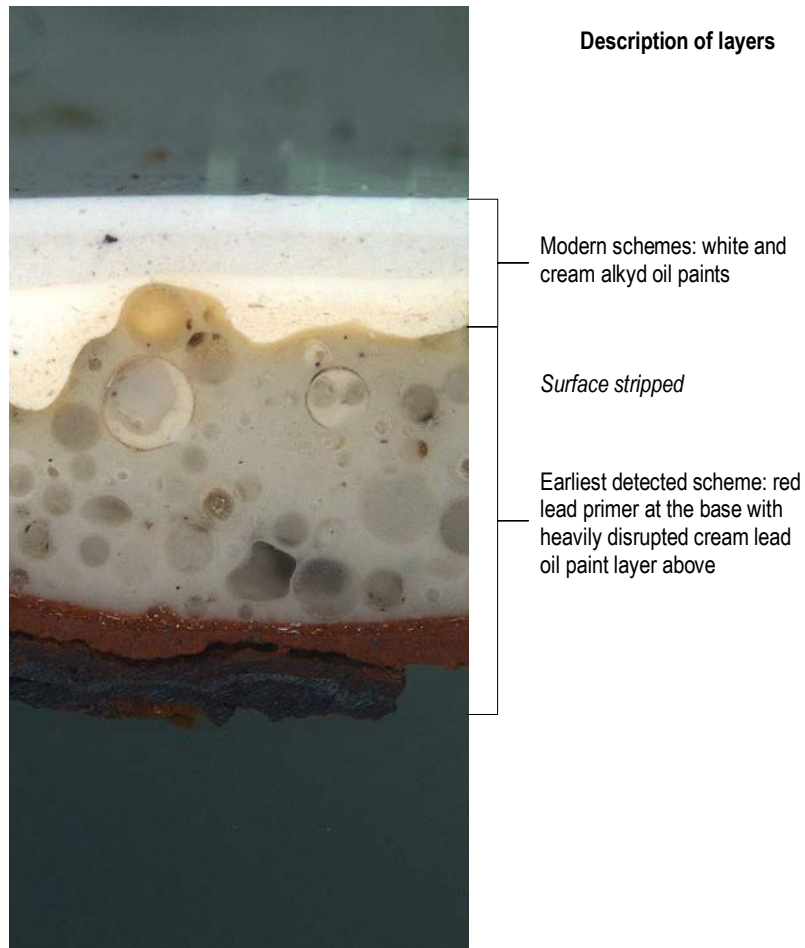


Fig.10: Sample location



A careful inspection of the starboard superstructure indicated very few paint schemes surviving and the sample indicated left was removed from an indicative area. Clearly stripped and repainted several times in the past, the earliest evidence is for a highly disrupted cream lead oil paint above a red lead primer. The schemes at the top of the image are all modern alkyd oil paints.

Fig.11: Sample 2.7 Port waist watertight door (3a)

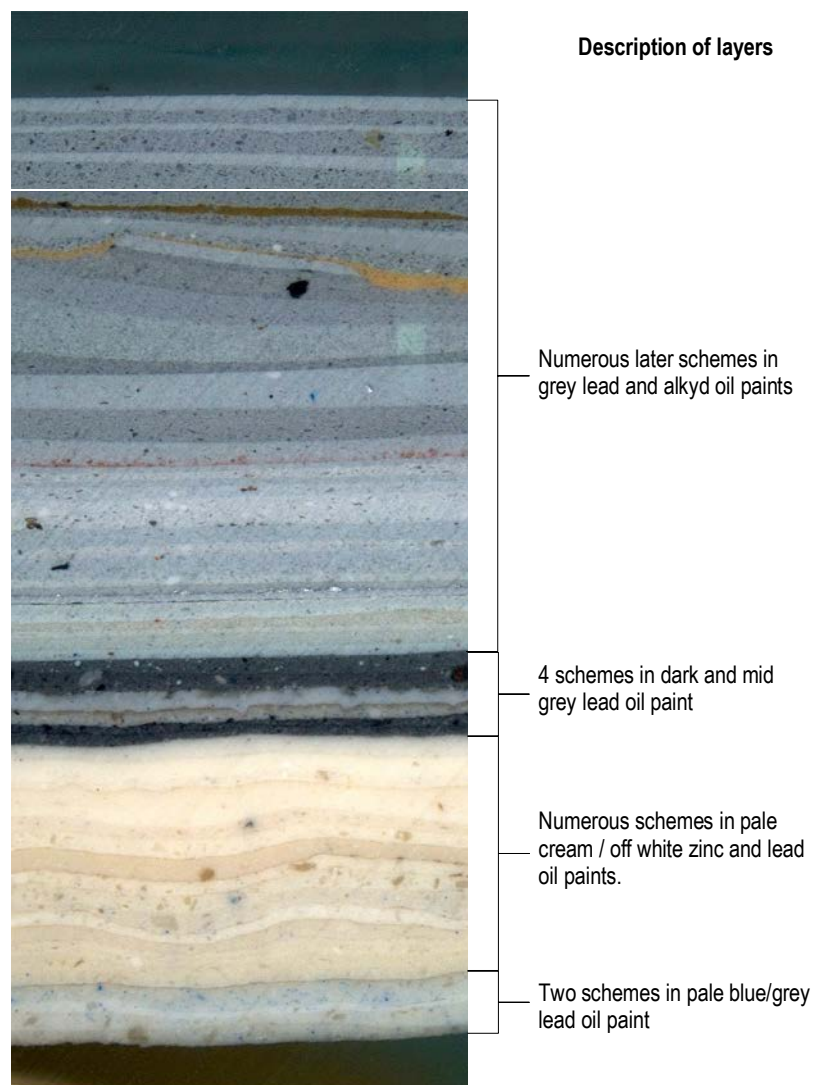


Fig.12: Sample location

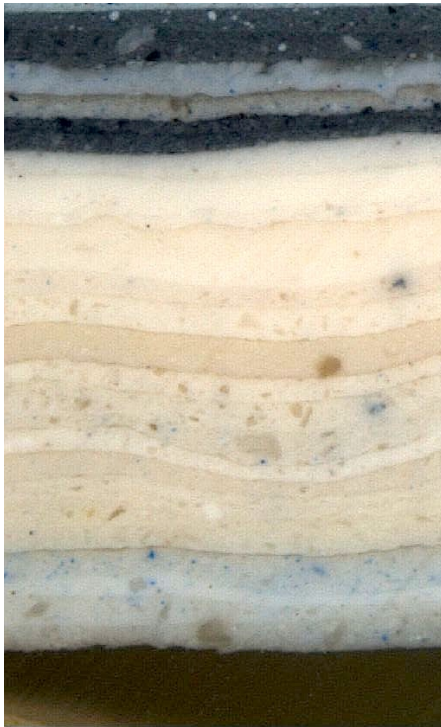


The port waist has been extensively stripped in the past, but the watertight door indicated above does retain a heavy build up of paint. At first glance this appears to display a complete chronology representing an early phase of blue/greys and later whites. However, there is a distinct lack of weathering on the surface of the early paint schemes and on close inspection the nature of the early paints used is remarkably similar to the schemes detected inside the vessel (see fig.13). Also, following the sampling exercise the door has been stripped in preparation for repair and repainting revealing a stamped inscription suggesting it dates from 30th June 1914 (see fig.14). It has also been noted this door is wider than the drip moulding above and does not match the curvature of the door opening (see fig.15) which is inconsistent with a

watertight fitting. This evidence suggests the door is coeval with 1914 and may have been moved to its current location from inside the vessel. Further samples were removed from the Forecastle area in January 2015 and sent for analysis. This new evidence has clearly defined the WW1 period paint schemes applied to the superstructure and is included in section 3 of this report.

Fig.13: Comparison between internal paint chronology and the watertight door

Sample 2.7 (watertight door)



Sample 3.16 (gun support)

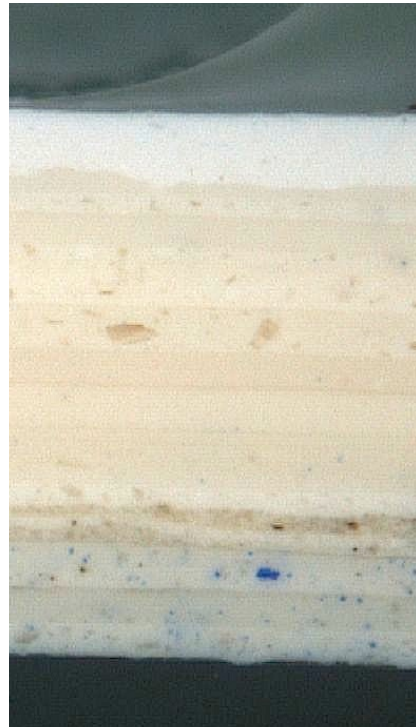


Fig.14: Stamped inscription watertight door

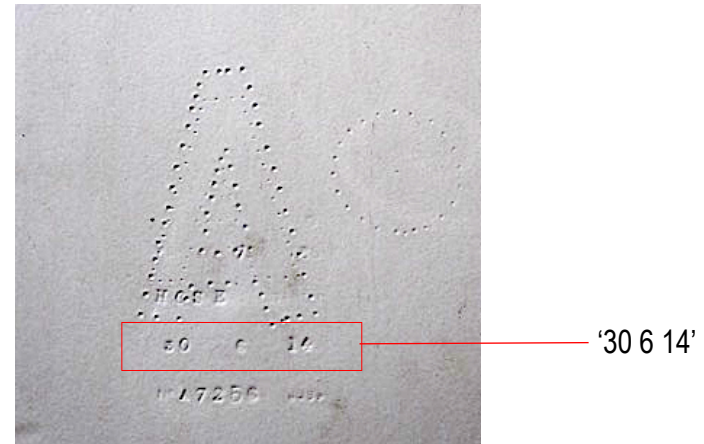


Fig.15: Poorly fitted watertight door



Fig.16: Sample 2.8 Drill Hall inner surface (4)



Description of layers

Numerous later schemes in white lead and alkyd oil paints

The earliest schemes detected in dark and mid grey lead oil paints with red lead primer at the base (1924)

Fig.17: Sample Location



The Drill Hall was installed in 1924 when Caroline first arrived in Belfast (the guns and boilers were removed at the same time). The earliest detected schemes in dark and mid grey oil paints date from this period and provide a useful datum point when compared to identical paint layers uncovered in other areas of the vessel. The grey theme continued until the introduction of the first white lead schemes – probably at the outbreak of WW2 when the vessel used used as a Depot Ship for patrol craft.

Fig.18: Sample 2.9/2.10 Low level near watertight door (5)

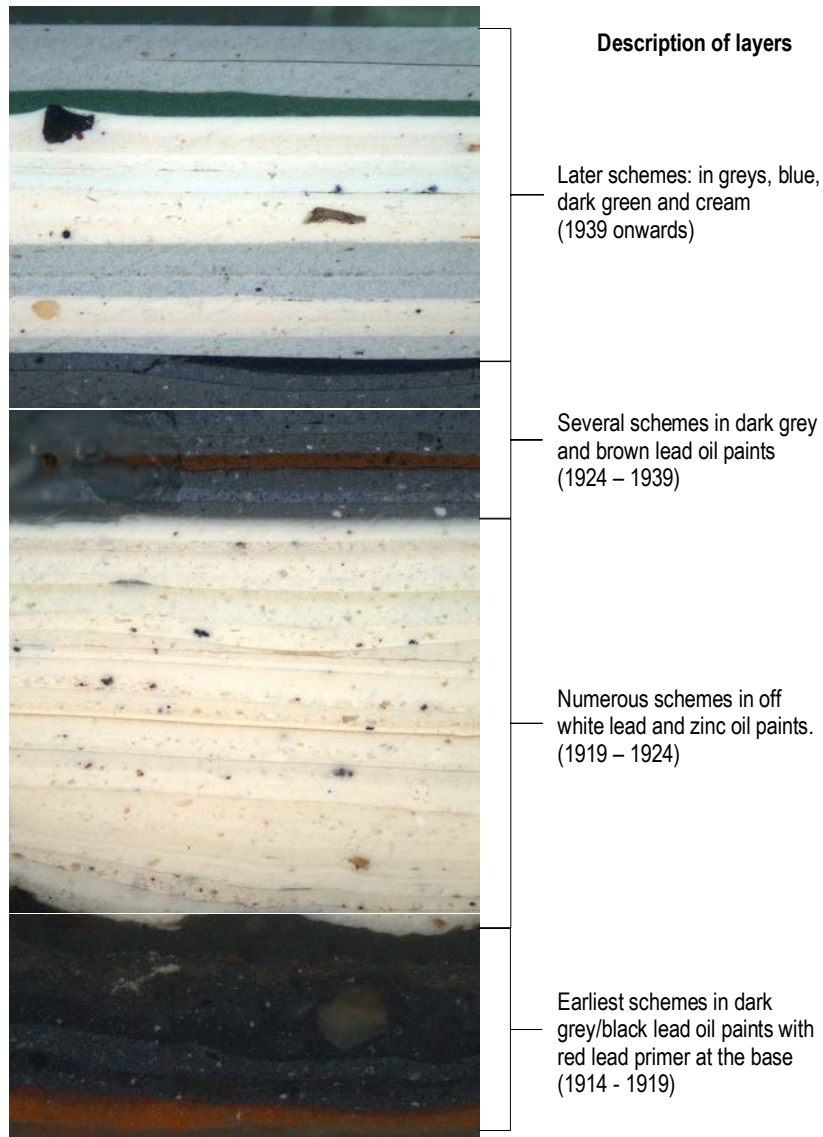


Fig.19: Sample location



This sample was removed from low level on the grey band just above the deck. Furthermore, a small area was cleaned back to reveal the height of this band coeval with the earlier schemes (approx 12 inches above deck level).

The earliest evidence for this band is in a grey/black lead oil paint dating to the 1914 – 1919 phase. The schemes above this, in cream oil paints date to the 1919 – 1924 “tropical phase”, a time when

no distinction was made between upper and lower areas and the entire surface was painted in a uniform off white oil paint. Following this the lower level was again picked out (after arrival in Belfast in 1924) in dark grey. The final schemes date to 1939 onwards with the lower level periodically picked out in greys and finally displaying the grey we see today. The upper area of the bulkhead was also sampled (see overleaf) to determine the colours used in contrast to the lower level in this area.

Fig.20: Sample 3.13/3.14 Vestibule higher level (6)

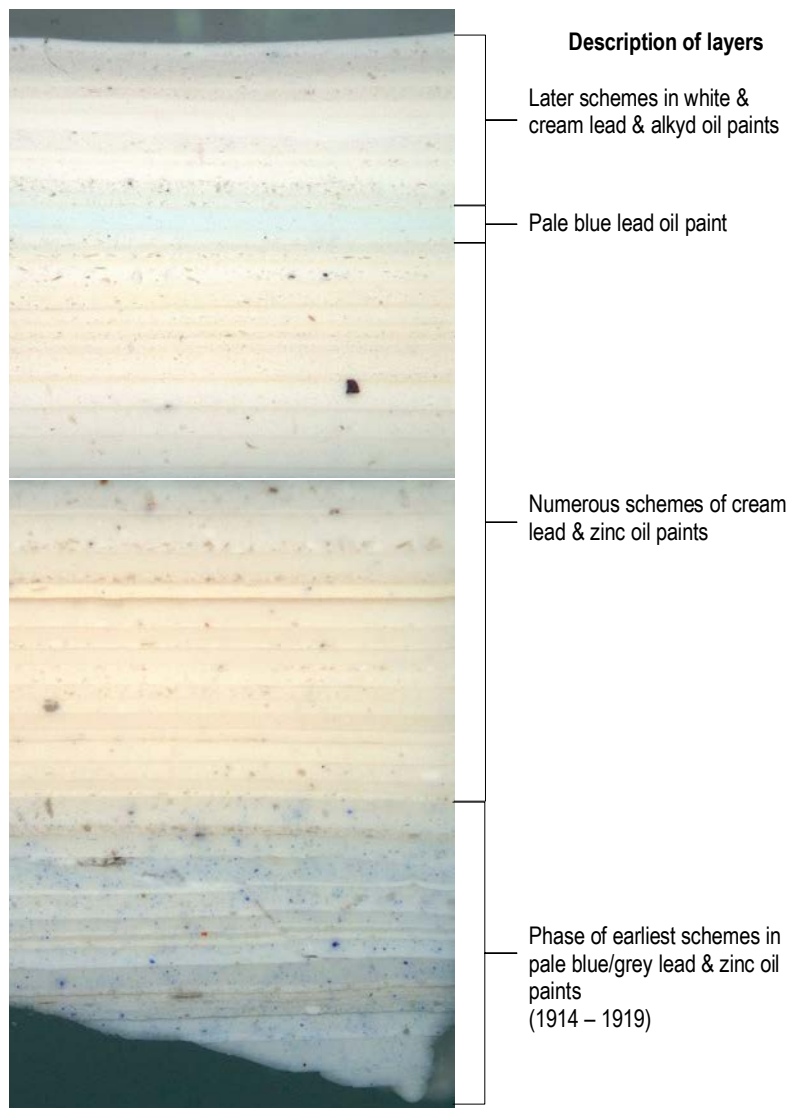


Fig.21: Sample location



The earliest (phase I) schemes in pale blue/grey lead & zinc oil paints indicate the appearance of this area in pale blue with a grey/black band at the base extending approximately 12 inches above deck level. All the later cream schemes (interrupted by a single pale blue) indicate a uniformity of colour at times in contrast to the border painted at low level just above the deck.

Fig.22: Sample 3.16, 6 inch gun support (7)

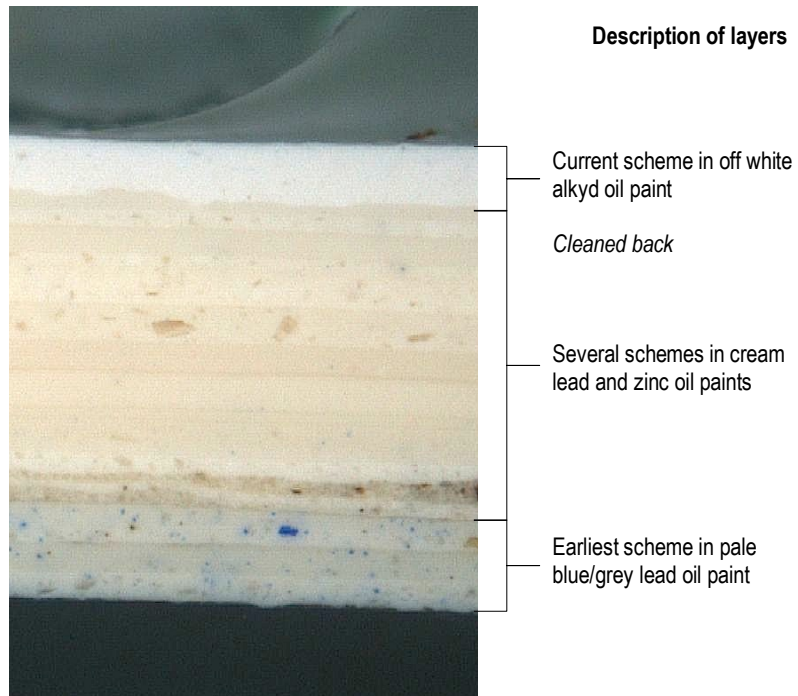


Fig.23: Sample location



There are 3 early schemes at the base of this feature in pale blue/grey oil paints – the same pale blue/greys as detected in the vestibule (previous page), followed by several creams. The surface appears to have been cleaned back prior to the application of the off white scheme we see today.

Fig.26: Sample 4.18, Historic Cabin bulkhead (9)

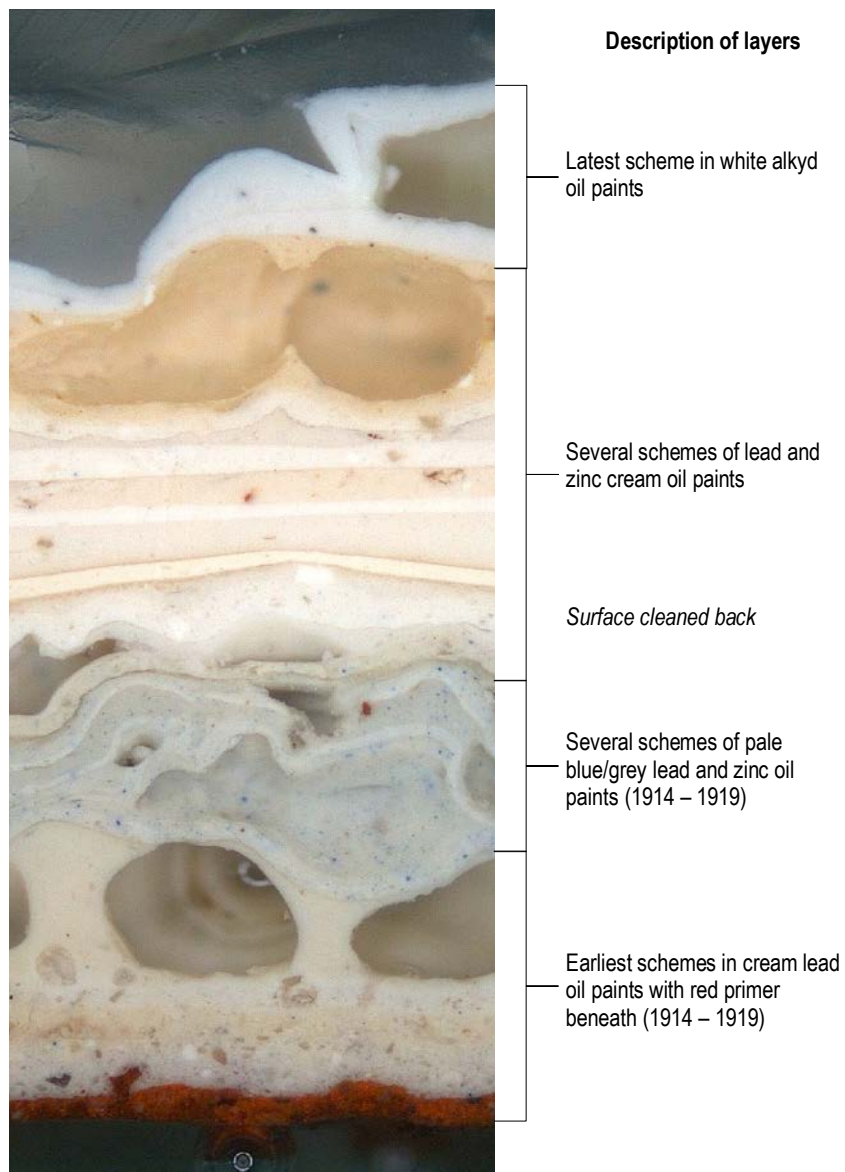


Fig.27: Sample location



The exposed area of pale blue/grey oil paint shown in the image above corresponds to the later blue/grey schemes shown left (fig.26) dating to the 1914 – 1919 period. However, the earliest schemes are cream lead oil paints, suggesting the appearance of the cabin was changed from initial creams and brought more in line with the blue/greys used elsewhere during the 1914 – 1919 phase. The surfaces were then cleaned back prior to the application of the later creams, which appear to start from the WW2 period onwards. Also note the brown border at the base of this revealed area, just above the deck.

Fig.28: Sample 4.19 Historic Cabin joinery (9a)

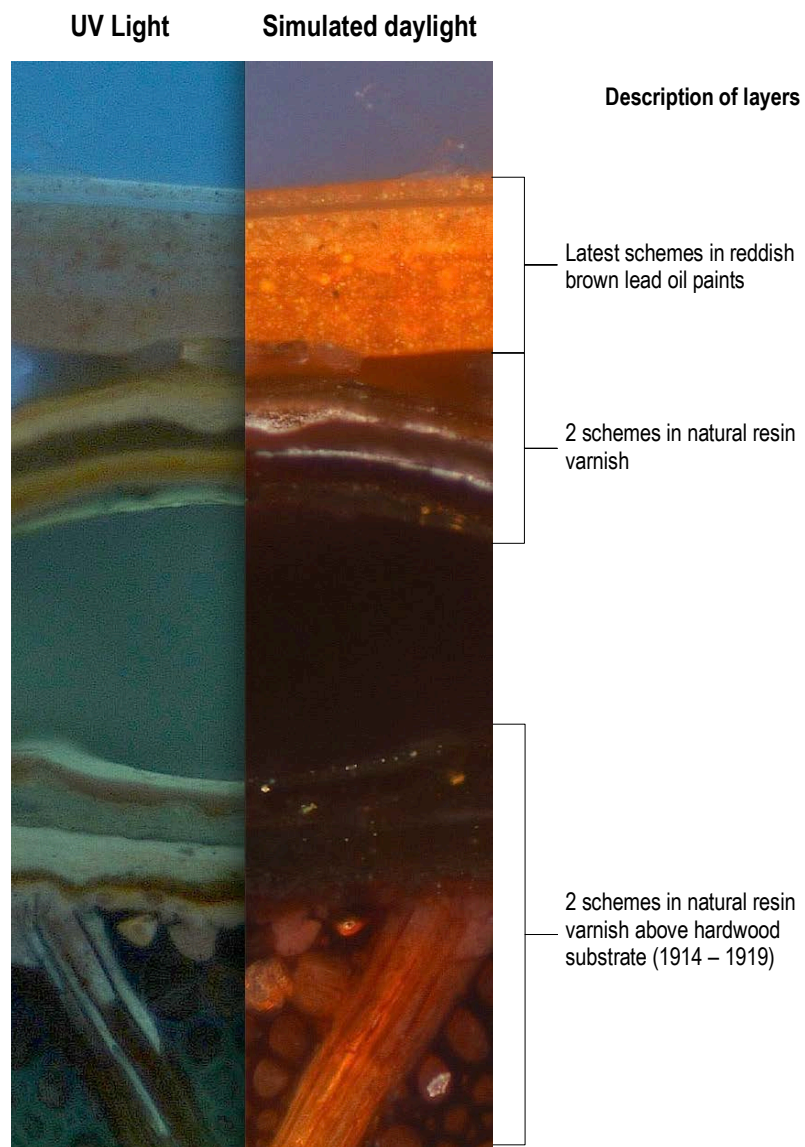


Fig.29: Sample location



The joinery in this historic cabin currently has an aged reddish brown lead oil paint with a crackled surface and has clearly been in place for some considerable time. The first schemes (1914 onwards) are a natural resin varnish (possibly Copal or Shellac) that has been reapplied subsequently three times (as displayed in the UV image in fig.28).

Fig.30: Sample 4.20 passage above tiller flat (10)

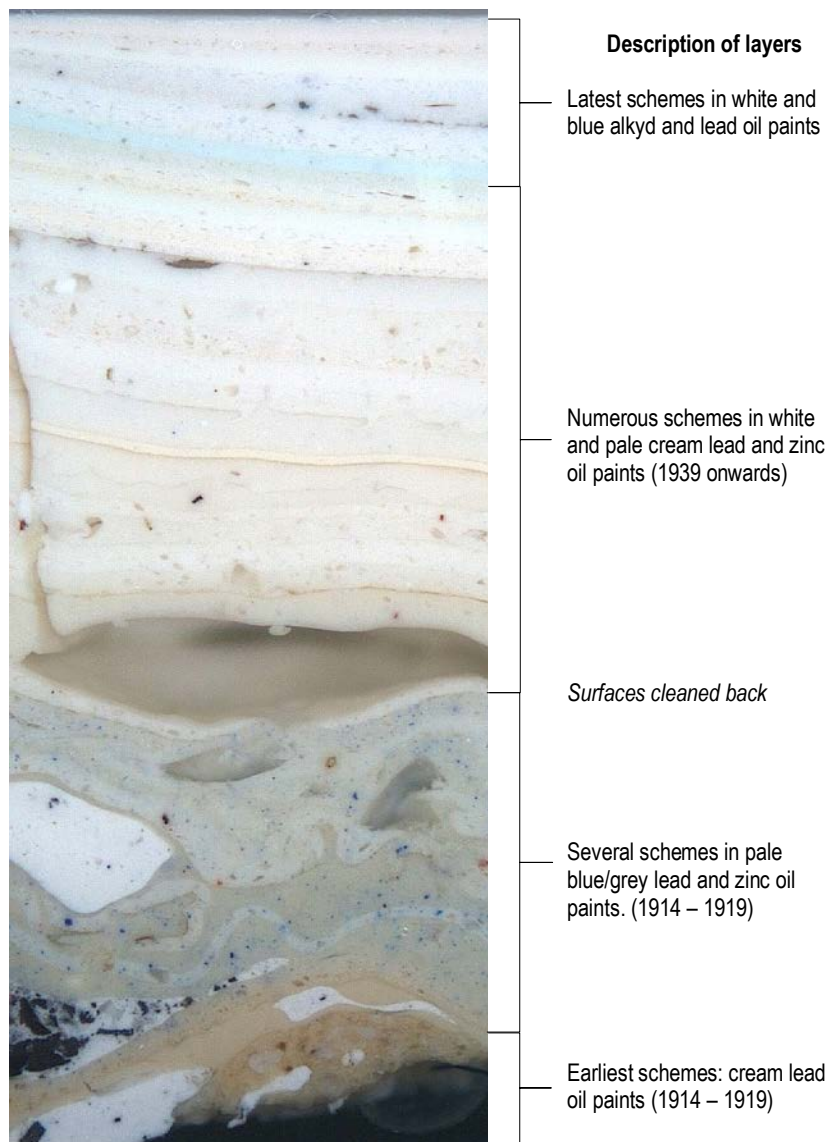


Fig.31: Sample location



The paint schemes applied in this area display a very similar chronology to other areas inside the vessel. The same cream oil paints are evident as the earliest scheme (c.f. the historic cabin bulkhead – fig.26), followed by pale blue/greys, all of which date to the 1914 – 1919 phase. There is evidence the surfaces were cleaned and prepared ready to receive the numerous white and pale cream schemes that appear to date from 1939 onwards, interrupted by a single relatively modern blue scheme.

Fig.32: Sample 5.21 Historic Cabin bulkhead (11)



Fig.33: Sample location



The sample left (fig.32) was removed from the softwood fillet fixed to the cabin bulkhead – an area that appeared to show the heaviest build up of paint. This is clearly an early fitting and appears to be coeval with the 1914 – 1919 phase, displaying the same cream lead oil paint detected beneath a group of pale blue/greys already noted in other areas of the ship.

Fig.34: Sample 5.23 Wardroom deckhead (12)



Fig.35: Sample location



At the base of this sample is a red lead primer with a fibrous undercoat and cream top coat. This is a relatively modern scheme and the nature of the fibrous material has not been analysed and remains unknown. However, it is feasible this may be an intumescent (fire resistant) layer and could contain asbestos, consequently further analysis is advised.

There is no evidence for early paint schemes on this deckhead and appears to have been cleaned back prior to the application of the modern schemes.

Fig.36: Sample 5.24, Wardroom inner hull (13)



Description of layers

Latest schemes in white & cream alkyd and lead oil paints

Numerous schemes in cream lead & zinc oil paints (1919 – 1924 onwards)

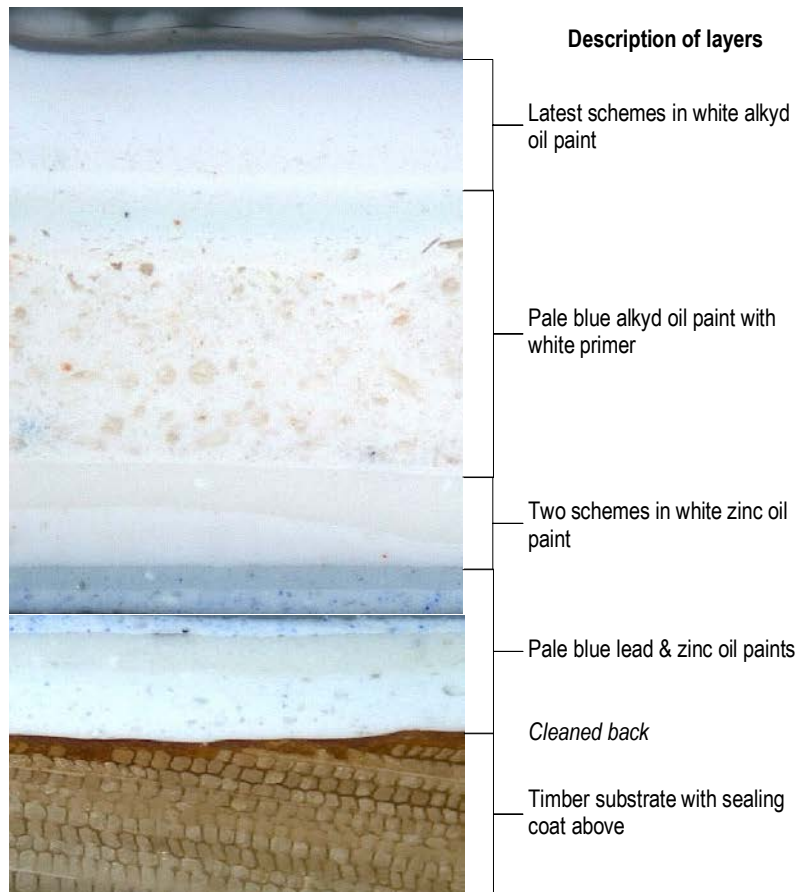
Earliest schemes: several schemes of pale blue/grey lead & zinc oil paints with red lead primer, white undercoat and a single scheme at the base in cream oil paint (1914 – 1919)

Fig.37: Sample location



The wardroom inner hull displays an identical sequence of applied paint schemes to other areas sampled inside the ship. Traces of an early cream at the base, followed by a sequence of pale blue/greys, then creams and finally predominantly whites applied relatively recently.

Fig.38: Sample 6.25/26 Aft Lobby (14)



This sample was removed from the panelling in the Aft Lobby and displays the softwood substrate at the base with a sealing coat above with an appearance that suggests the surfaces were cleaned back prior to the application of the first pale blue lead & zinc oil paints. Although difficult to date precisely, this earliest scheme is typical of the 1920's and suggests the panelling may have been installed at this time.

Fig.39: Sample 6.27/28 former mess deck inner hull (15)

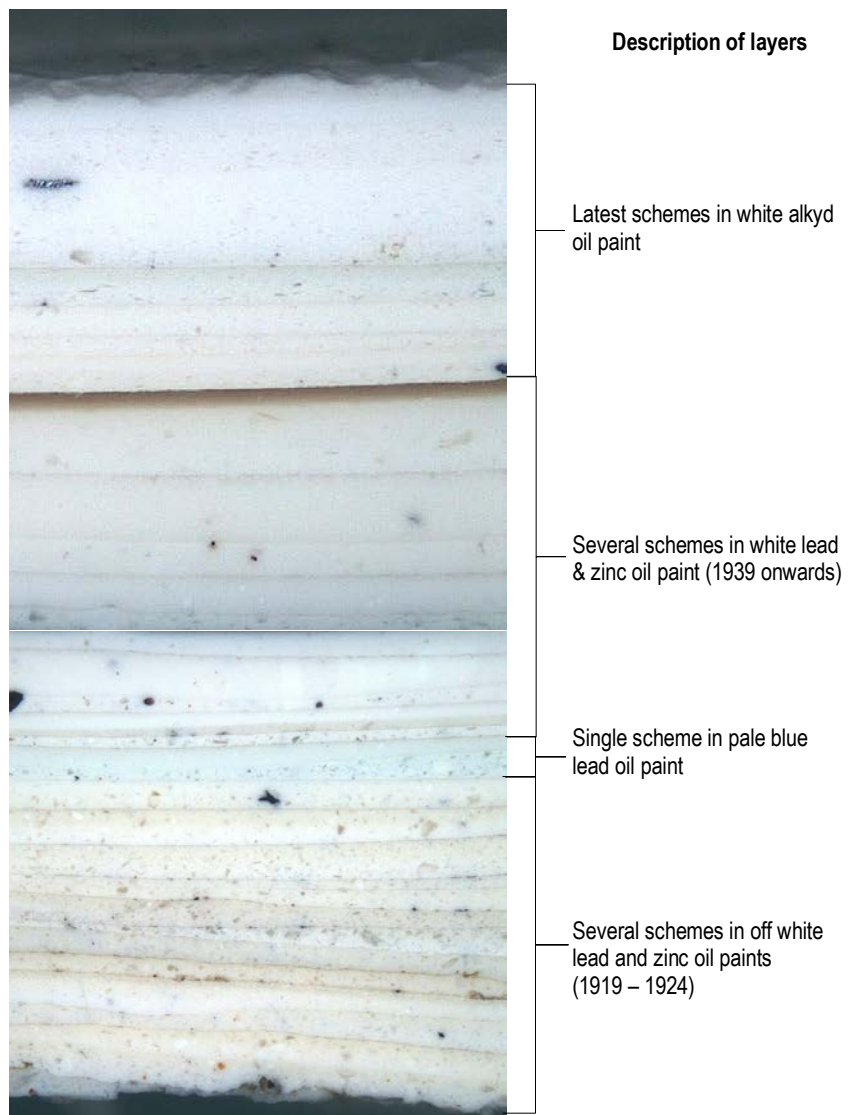


Fig.40: Sample location



The earliest evidence here is a group of off white lead and zinc oil paints at the base of the image left (fig.39). and probably dates to the second or “tropical” phase. The earliest schemes are missing from the base of the sample. This is followed by a single scheme in pale blue then further lead and zinc whites.

Fig.41: Sample 6.29 former mess deckhead (15a)

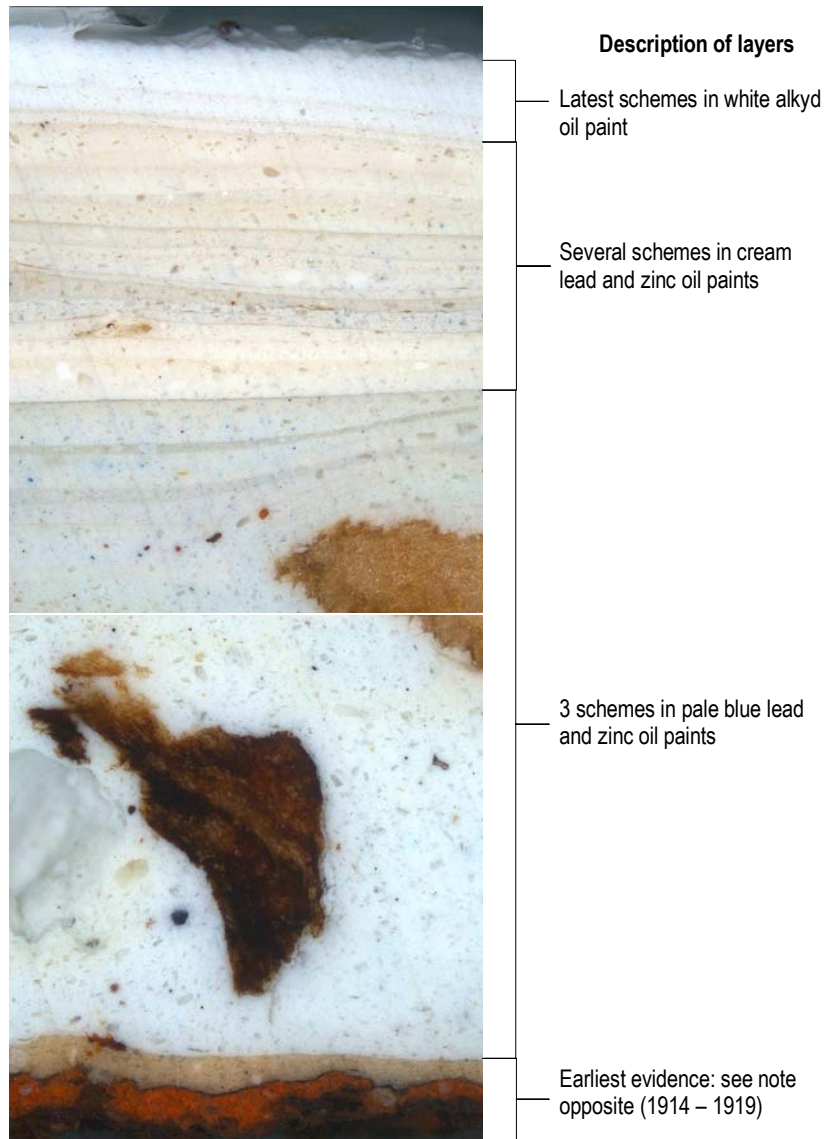


Fig.42: Sample location



This a key sample displaying what is undoubtedly the original 1914 primer at the base. Interestingly there is a distinct dirt layer on top of the primer with a mid cream lead oil paint directly above. This suggests the red lead primer was left in place for some time prior to the application of the cream scheme directly above. This is clear evidence the vessel was launched for active service with at least some areas still requiring painting. If this area was used as a mess it is likely the dirt build up will have occurred relatively quickly and may be tobacco smoke residues (although this is speculative).

Fig.43: Sample 7.30 former mess lower level inner hull (15b)

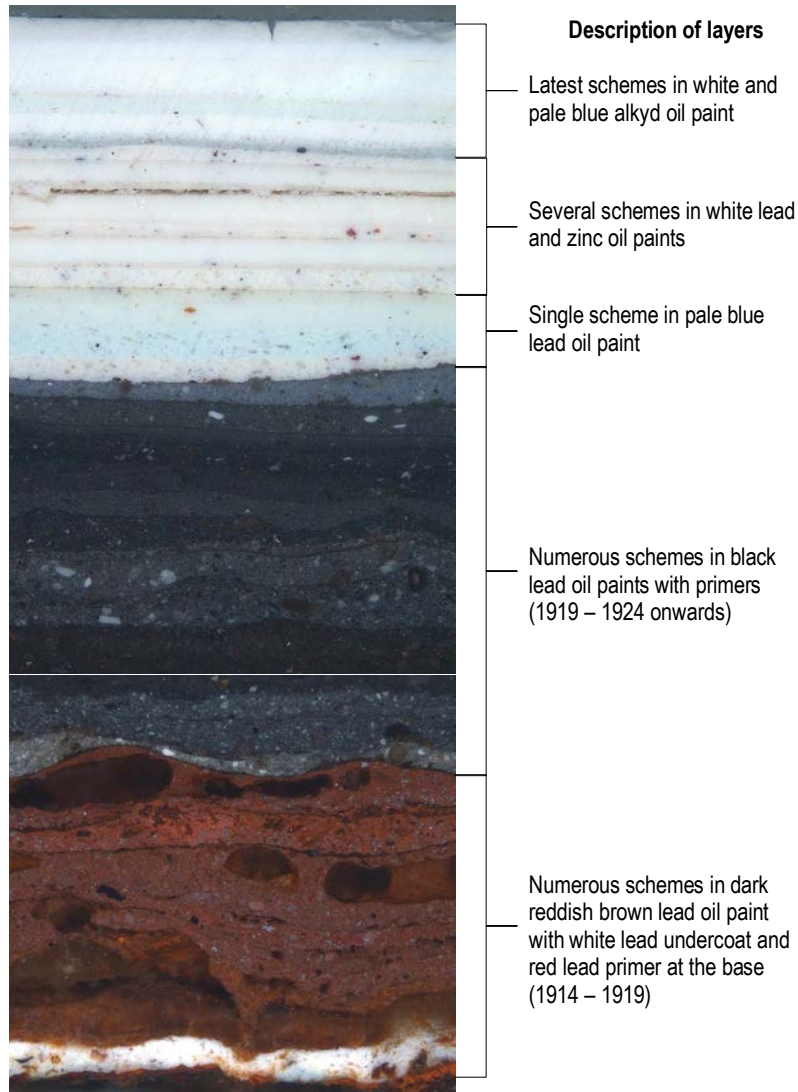


Fig.44: Sample location



Another key sample. The red primer and white undercoat at the base are coeval with 1914 with several schemes in a dark reddish brown above. This is the painted border previously identified running approx 12 inches deep directly above the deck. Combined with the evidence previously uncovered on the deck head in the mess area this presents an image of cream bulkheads, inner hull and deckhead with a dark reddish brown band running around the perimeter at deck level.

Fig.45: Sample 7.31/32 Office Passage tongue & groove panelling (16)

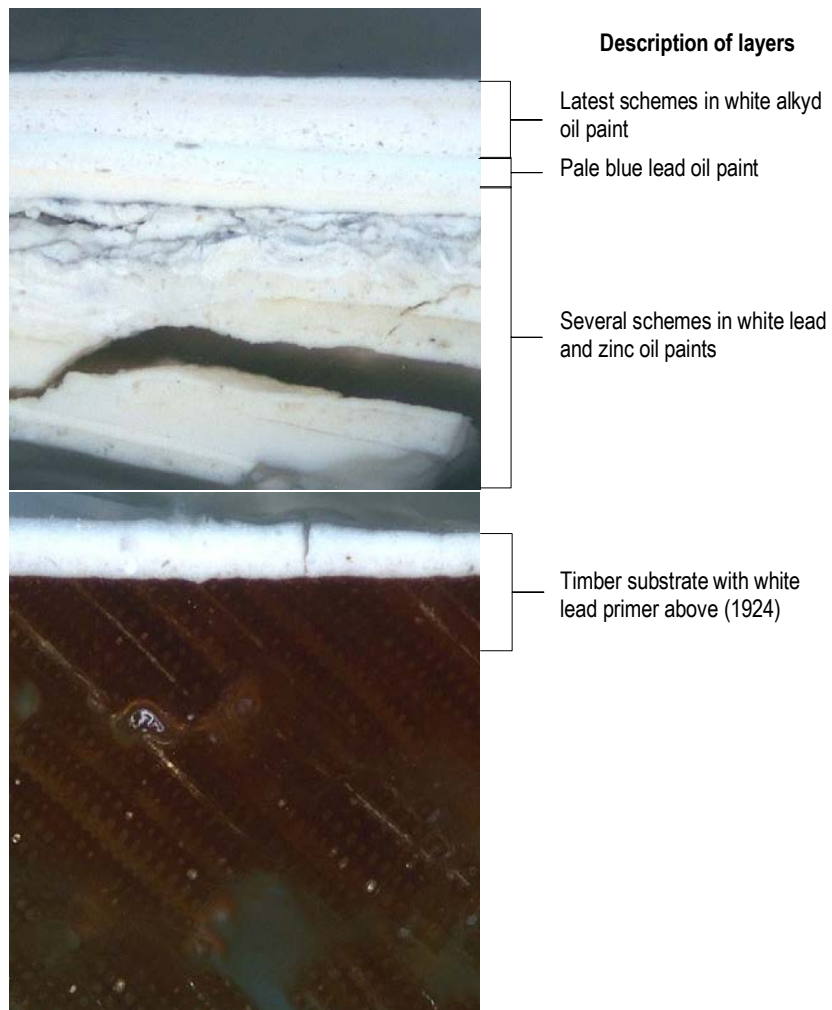


Fig.46: Sample location



The earliest schemes on this panelling are zinc white enamel oil paints above a white lead primer. Enamels of this nature are typical of the 1920's suggesting this feature was inserted in 1924 or soon after. Later schemes remain predominantly white, with one pale blue scheme executed at a time when the when other areas inside the ship were painted pale blue.

Fig.47: Sample 7.33 Former Engineer's Store (17)

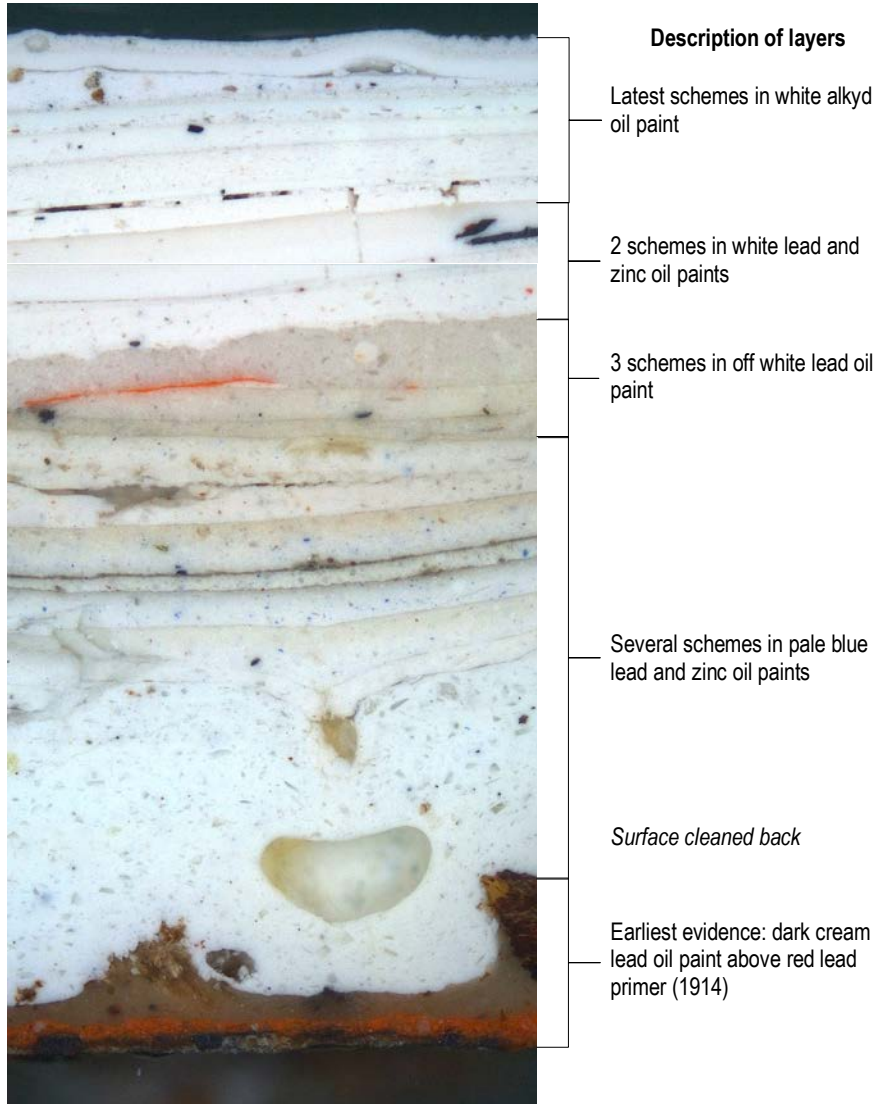


Fig.48: Sample location



This is another key sample, displaying traces of a dark cream lead oil paint at the base of the sample coeval with 1914 and the mid creams detected in the former mess and other areas of the ship. There is evidence this surface was cleaned back prior to the application of the pale blue oil paints applied subsequently.

Fig.49: Sample 8.34 Wash Place Lobby (18)

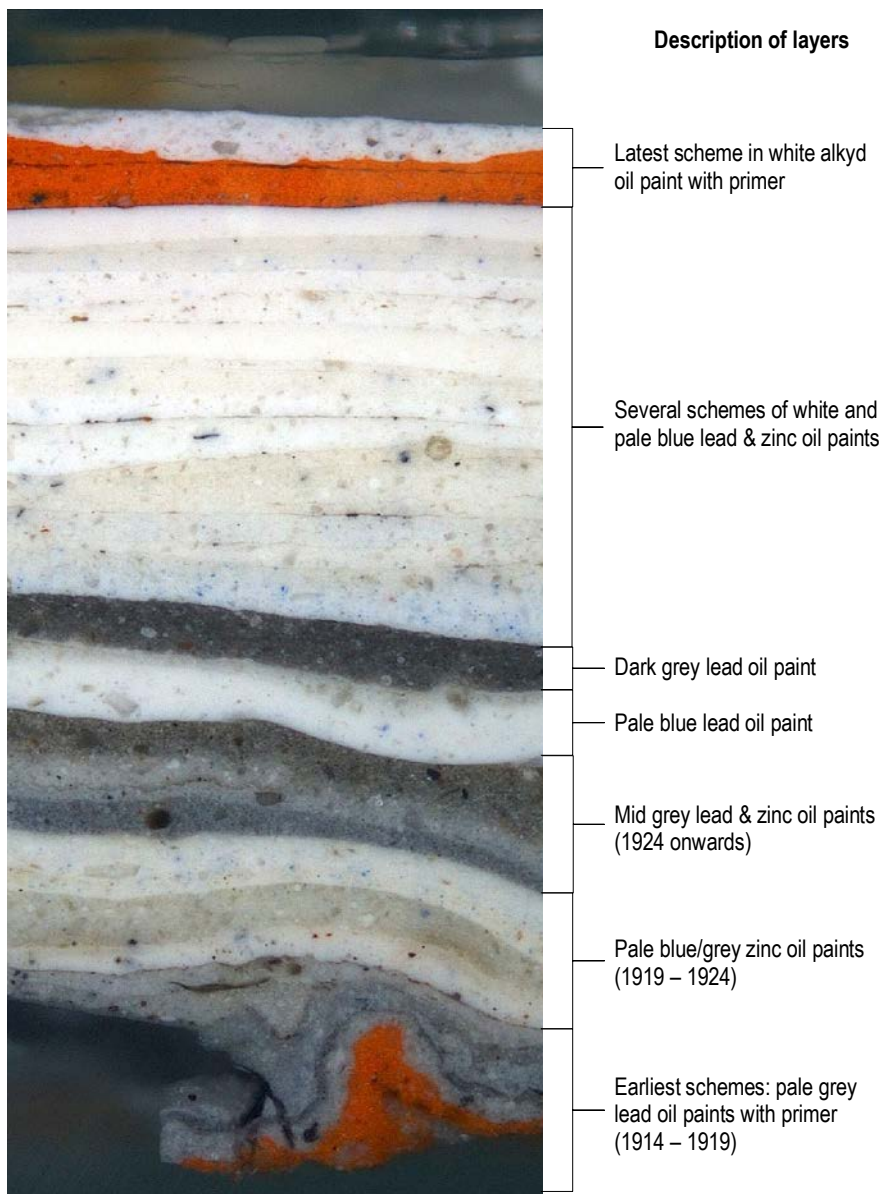


Fig.50: Sample location



The earliest pale grey lead oil paints at the base of the image left (fig.49) appear to be coeval with the 1914 – 1919 period, with the pale blue/greys applied directly above consistent with the 1919 – 1924 phase. However, the earliest pale greys here are inconsistent with the earliest creams detected in the wardroom, mess, historic cabin and Engineer’s Store, suggesting a different colour scheme in this area. The introduction of the mid greys later on date the post 1924 period.

Fig.51: Sample 8.35 Boiler Room Passage (19)

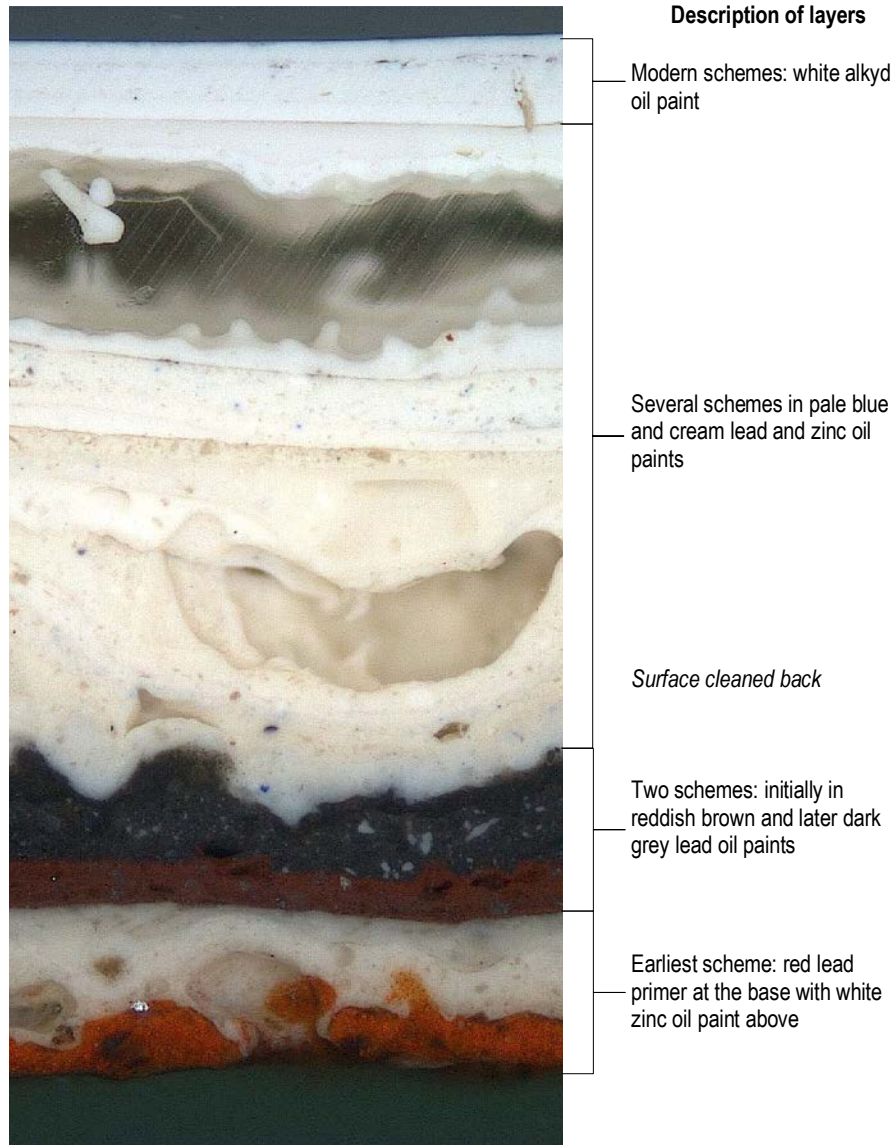


Fig.52: Sample location



The surfaces in this area are heavily disrupted and appear to show evidence of heat and possibly burning. This has resulted in a confusing paint chronology making it difficult to date the paint layers and relate to other areas inside the ship. There is also evidence for the surfaces being cleaned back after the application of the dark reddish brown and dark grey directly above the earliest scheme. The physical make-up of the dark grey is similar to the 1924 schemes seen elsewhere and may date to this period.

Fig.53: Sample 8.36/37 Steel bulkhead forward lobby (20)

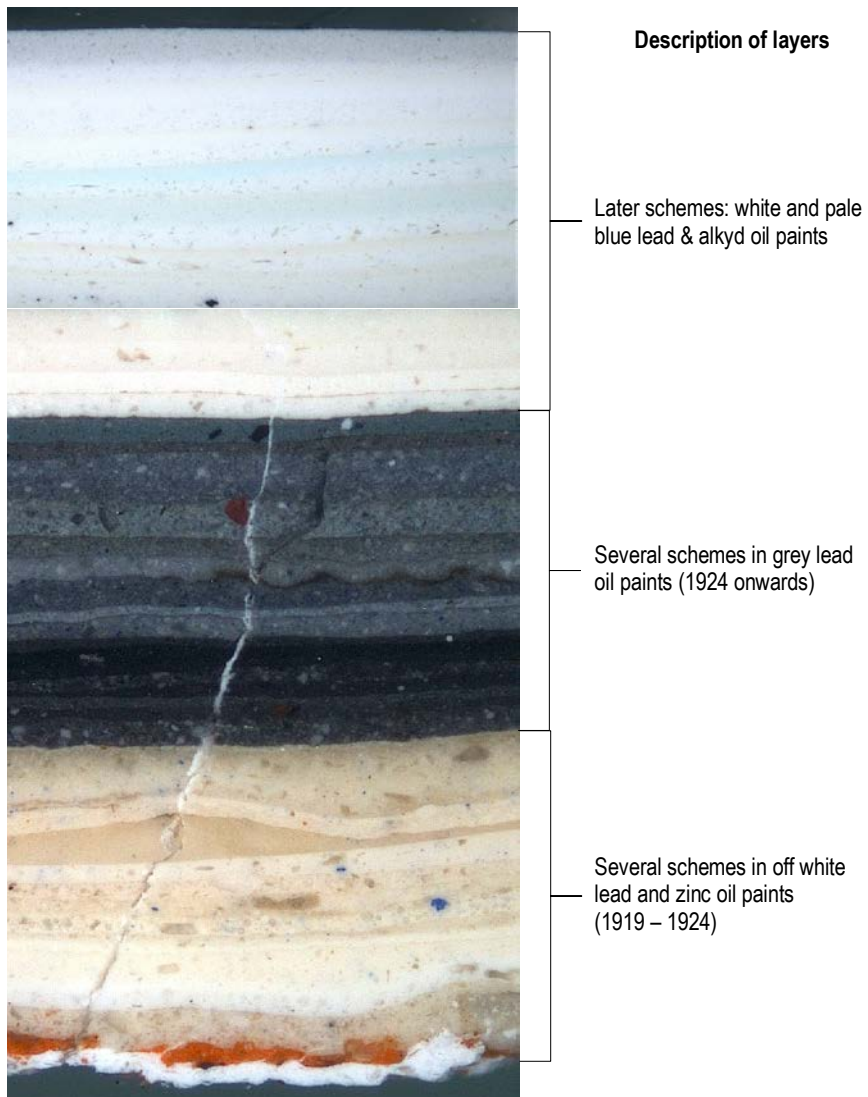
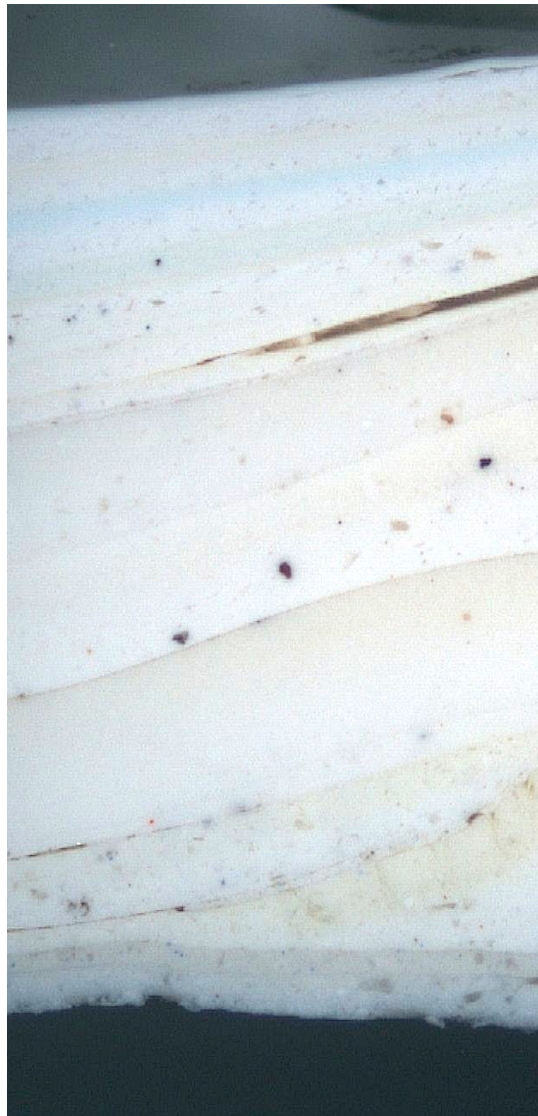


Fig.54: Sample location



The earliest schemes in off white at the base of the image left are consistent with the 1919 – 1924 phase and there appears to be no evidence for the WW1 schemes surviving in this area. The darker grey schemes above date to the post 1924 period and the first white schemes directly above to 1939 onwards.

Fig.55: Sample 9.38/39 timber panelling forward lobby (20a)



Description of layers

Modern schemes in pale blue and later white oil paints

Several schemes in white lead and zinc oil paints

Fig.56: Sample location



The chronology of paint schemes in this area are identical to the tongue and groove panelling in the Office Passage (c.f. fig.45) and appears to have been installed in the 1920's when the vessel first arrived in Belfast.

Fig.57: Sample 9.40 Lecture Room inner hull surface (21)

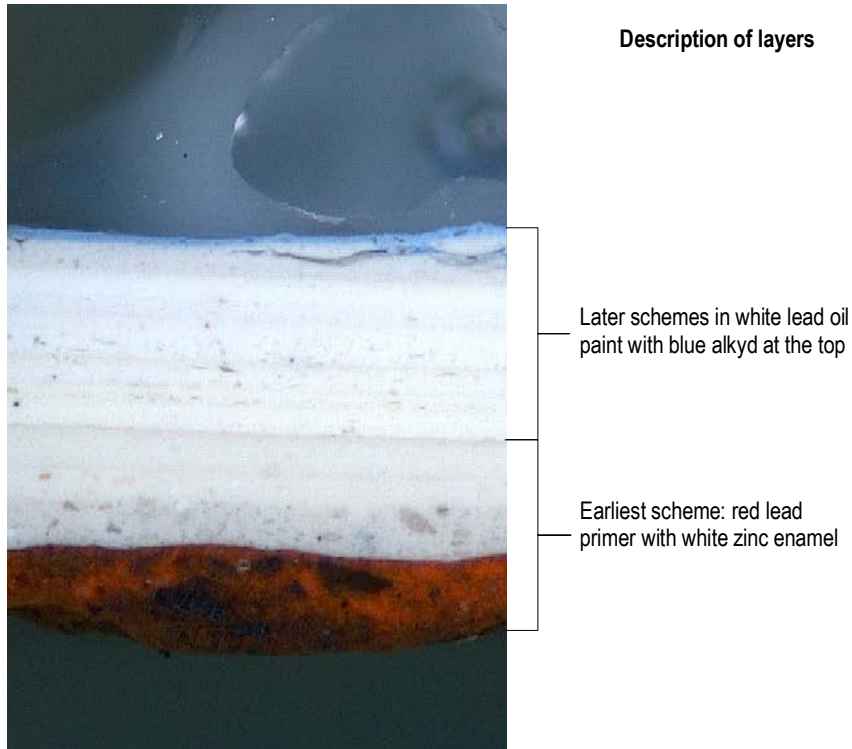


Fig.58: Sample location



There is very little paint in this area. The earliest scheme above a red lead primer is a white zinc enamel with undercoat. This is followed by three lead white schemes and finally the blue we see today. All are relatively modern.

Fig.59: Sample 9.41/42 Engine Room 1 inner hull (22)

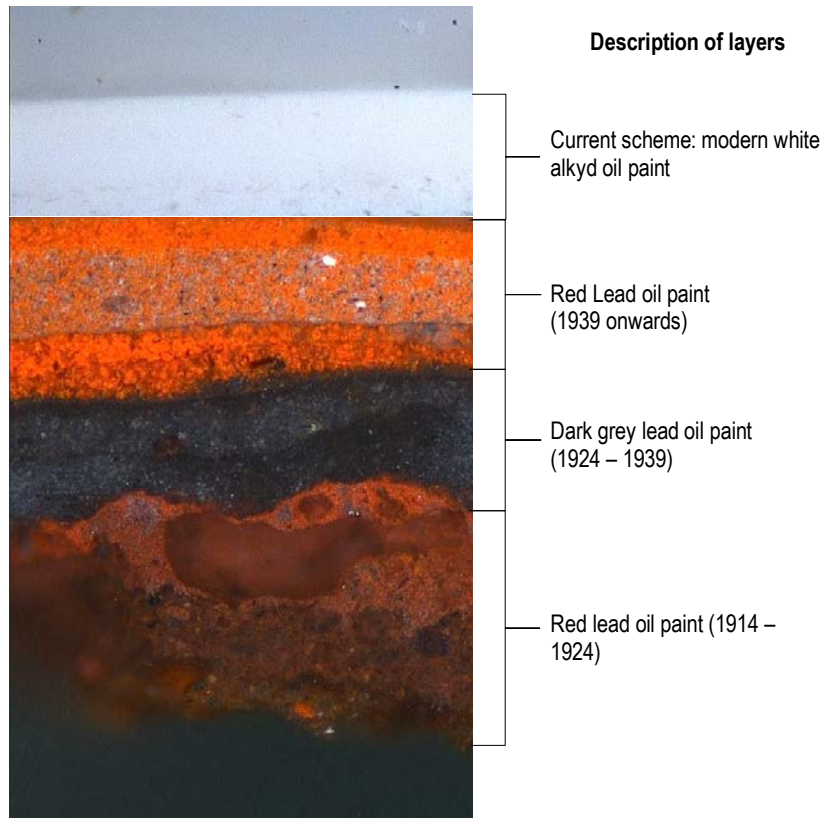
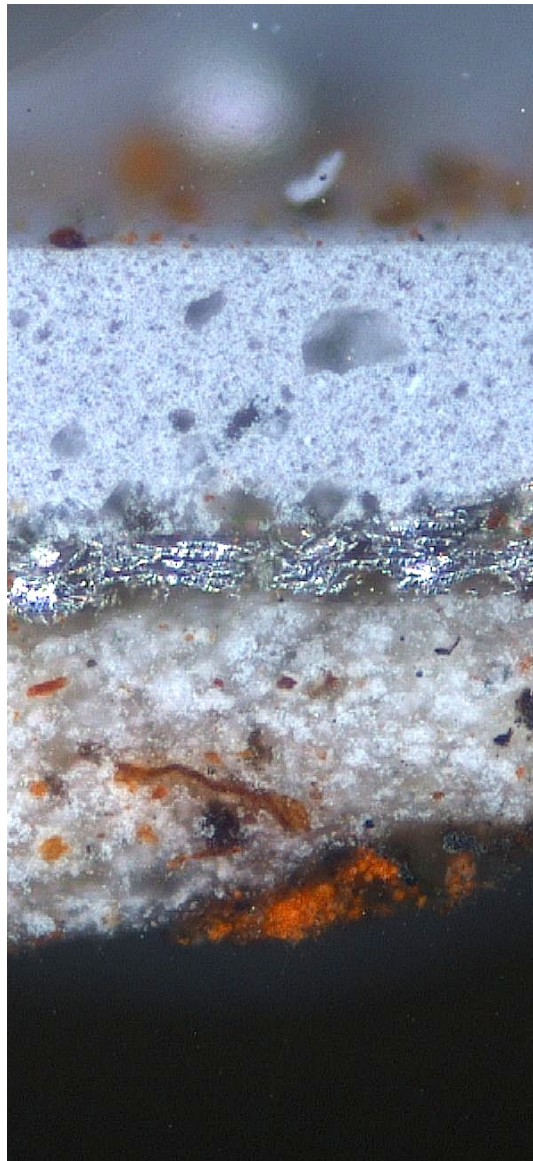


Fig.60: Sample location



The Engine Room was originally simply painted with a red lead oil paint, primarily as a corrosion inhibitor. Dark grey leads applied from 1924 up until the post WW2 period when again it was painted in red lead. There is no precedent for the white scheme we see today, which is a modern interpretation.

Fig.61: Sample 9.43 Engine Room front of turbine (23)



Description of layers

Current scheme: modern grey alkyd oil paint with aluminium primer beneath

Earliest scheme: red lead primer beneath heavily extended and oil rich white lead oil paint.

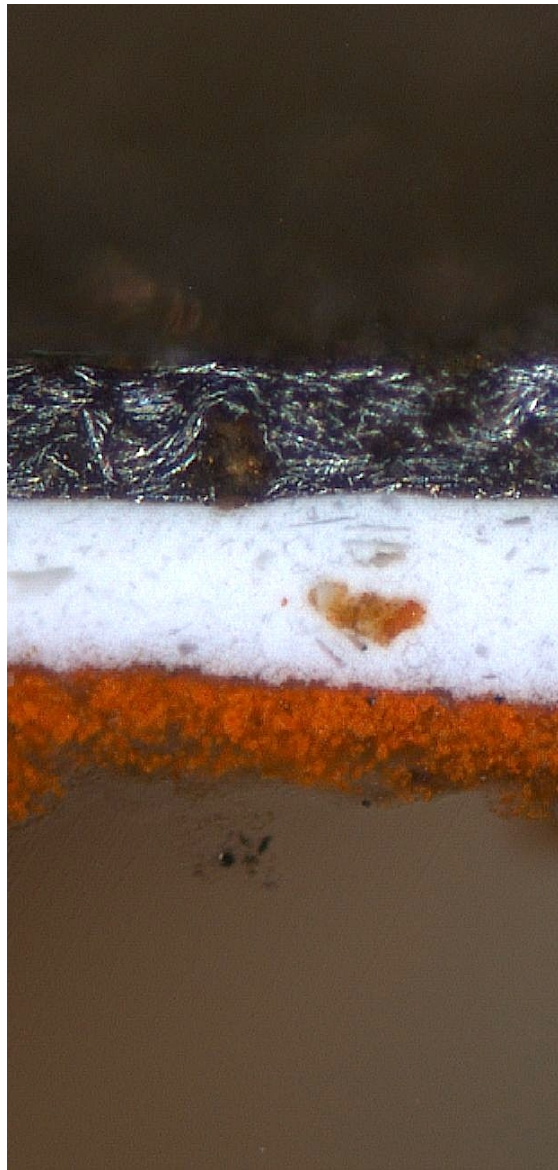
Fig.62: Sample location



There are only two schemes on the turbines. The first scheme is an oil rich poor quality white lead oil paint above a primer. This may have been applied at the Foundry as a corrosion inhibitor or possibly in the shipyard during construction.

The modern grey above aluminium primer is clearly out of context without any historic precedent.

Fig.63: Sample 9.44 Engine Room gold painted pipes (24)



Description of layers

A single scheme of red lead primer with white lead undercoat and modern gold oil paint

Fig.64: Sample location



The gold paint and primers on these pipes is modern. They were almost certainly originally unpainted.

Fig.65: Sample 10.45 Former Boiler Room (25)

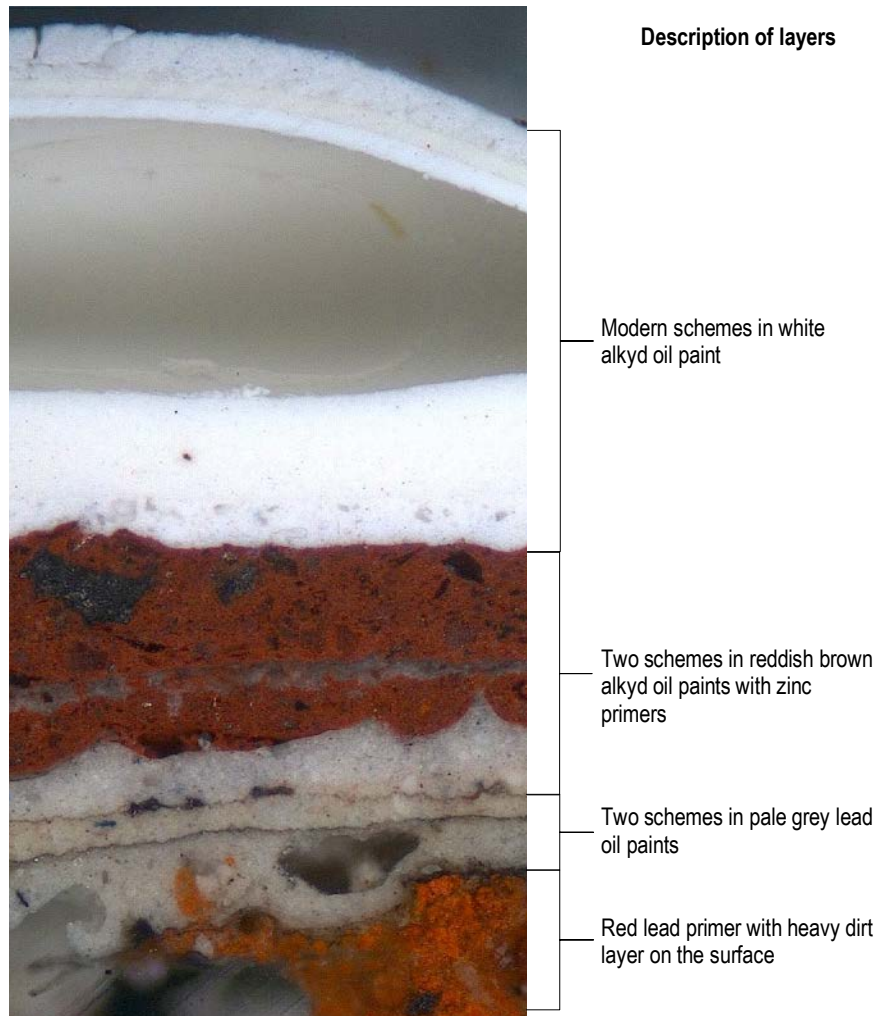


Fig.66: Sample location



The earliest scheme in a red lead primer appears to be coeval with 1914 and was certainly in place for a long period, hence the heavy build up of dirt on the surface and it is worth noting this is consistent with the red lead in the Engine Room during the same period. The later schemes in pale grey probably date to the 1919 – 1924 period and again have heavy dirt layers, a testimony to the dirty conditions in the Boiler Room of a working sea going vessel. The two schemes in reddish brown date to the post 1924 period when the boilers were removed and this space repainted for a new purpose.

Fig.67: Sample 10.46 Junior ratings mess (exposed steel hull behind later panelling)

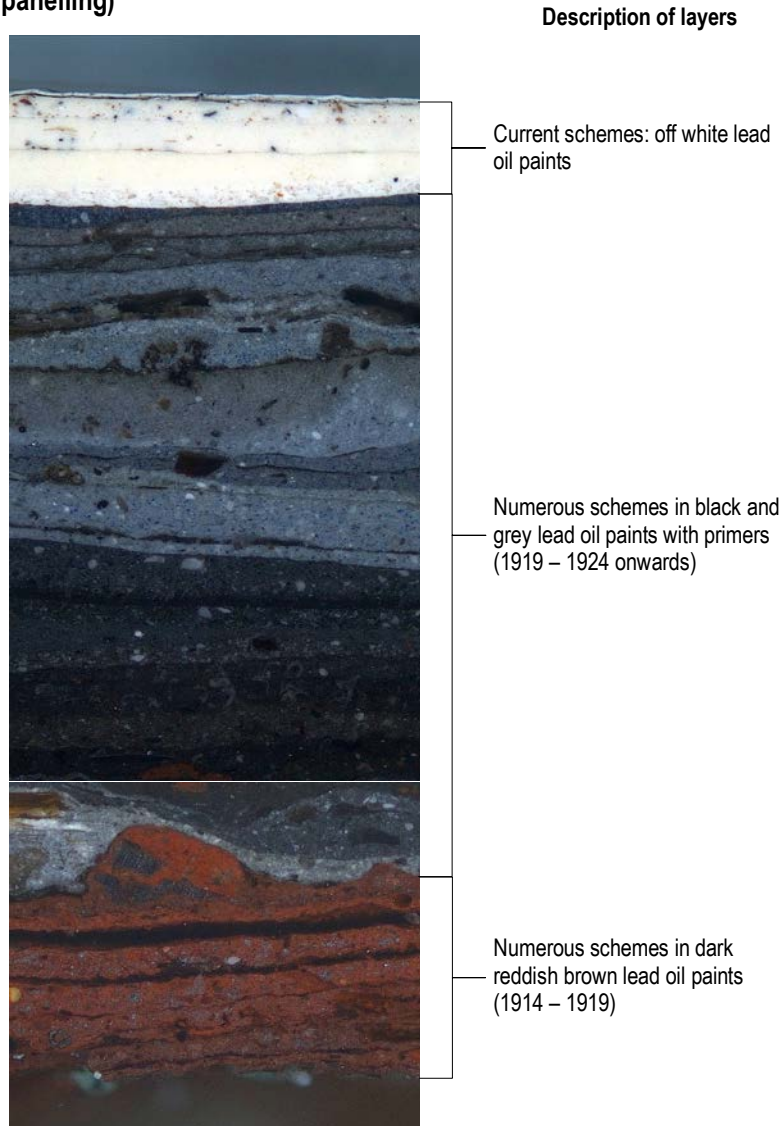


Fig.68: Sample location



The paint chronology applied here compares very favourably with the paint schemes already reported on in the former mess (c.f. fig.43). It is unclear when the hardboard panelling was installed, but stylistically it appears to date from the 1960's/70's. The later whites are all lead based paints and appear to be just post WW2 before the introduction of modern alkyd paints. The dark reddish browns at the base are the 1914 – 1919 schemes, with the blacks and greys above dating to the intervening period.

3.0: New evidence uncovered January 2015

Following the removal of later interventions, further investigations uncovered an area on the Officer's Heads bulkhead, situated on the Forecastle, tucked into the frame of the Navigating Bridge, with a promising heavy build up of paint.

Two samples were removed from an area that appears to have escaped the vigorous blast cleaning carried out on the main superstructure in the past.

An image of the two sample locations is provided in fig.69.

These are the only samples found throughout the vessel that provide conclusive evidence for the First World War paints on the external superstructure, representing a full chronology of Battleship Greys.

Large scale annotated photomicrographs at X100 magnification are provided in the following pages (figs.70 & 71) that clearly show the early grey oil paint schemes that were applied to Caroline prior to the first white schemes introduced in 1919 when she was posted to the East Indies Station.

Fig.69: Sample locations



Sample 1 was removed from an area adjacent to the starboard side porthole with the second sample removed from an area just beneath. In both cases, these sample sites were selected because both appeared to have retained a heavy build up of paint and likely to yield a full chronology of results.

Fig.70: Photomicrograph (X100) Sample 1

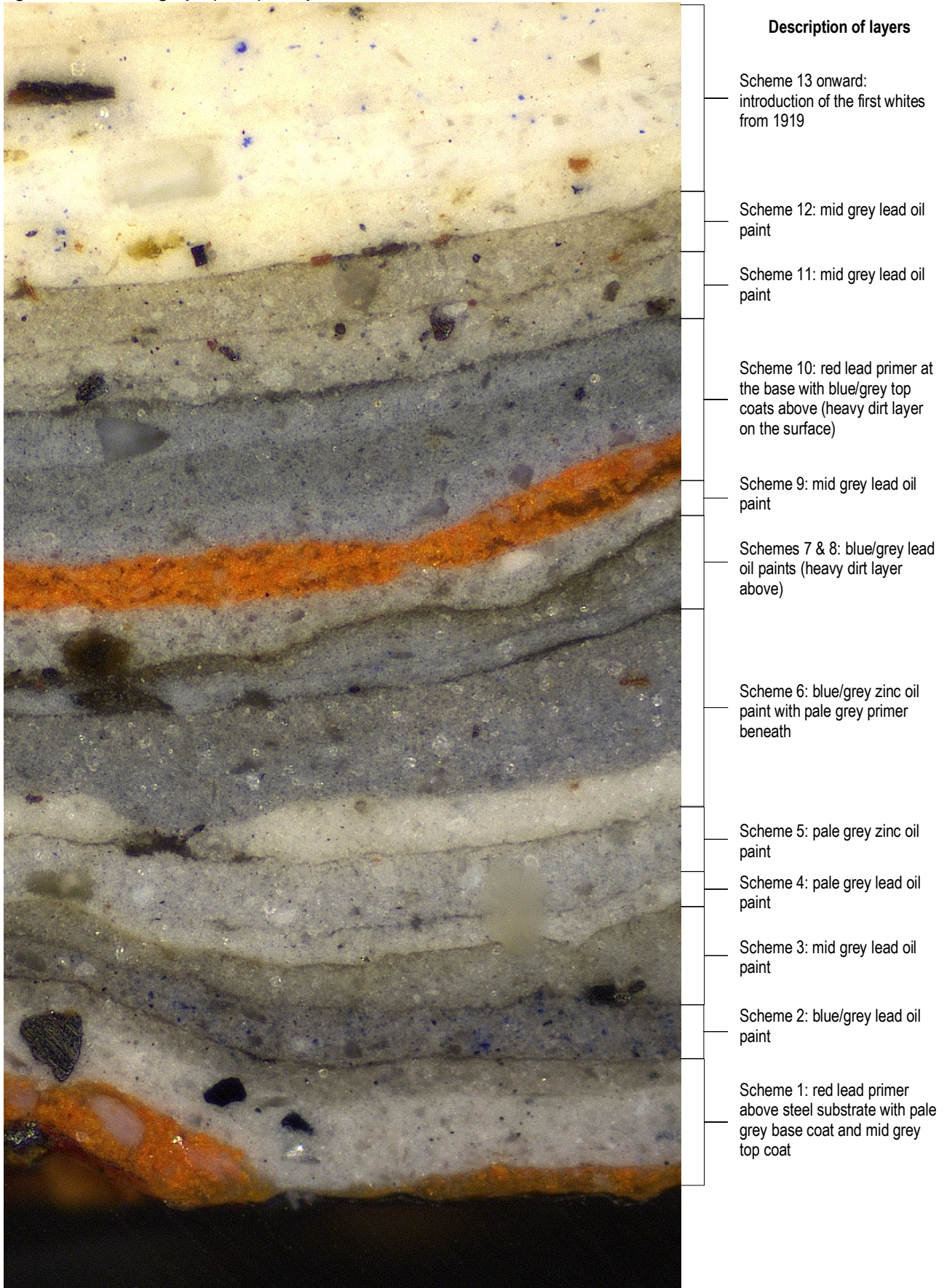
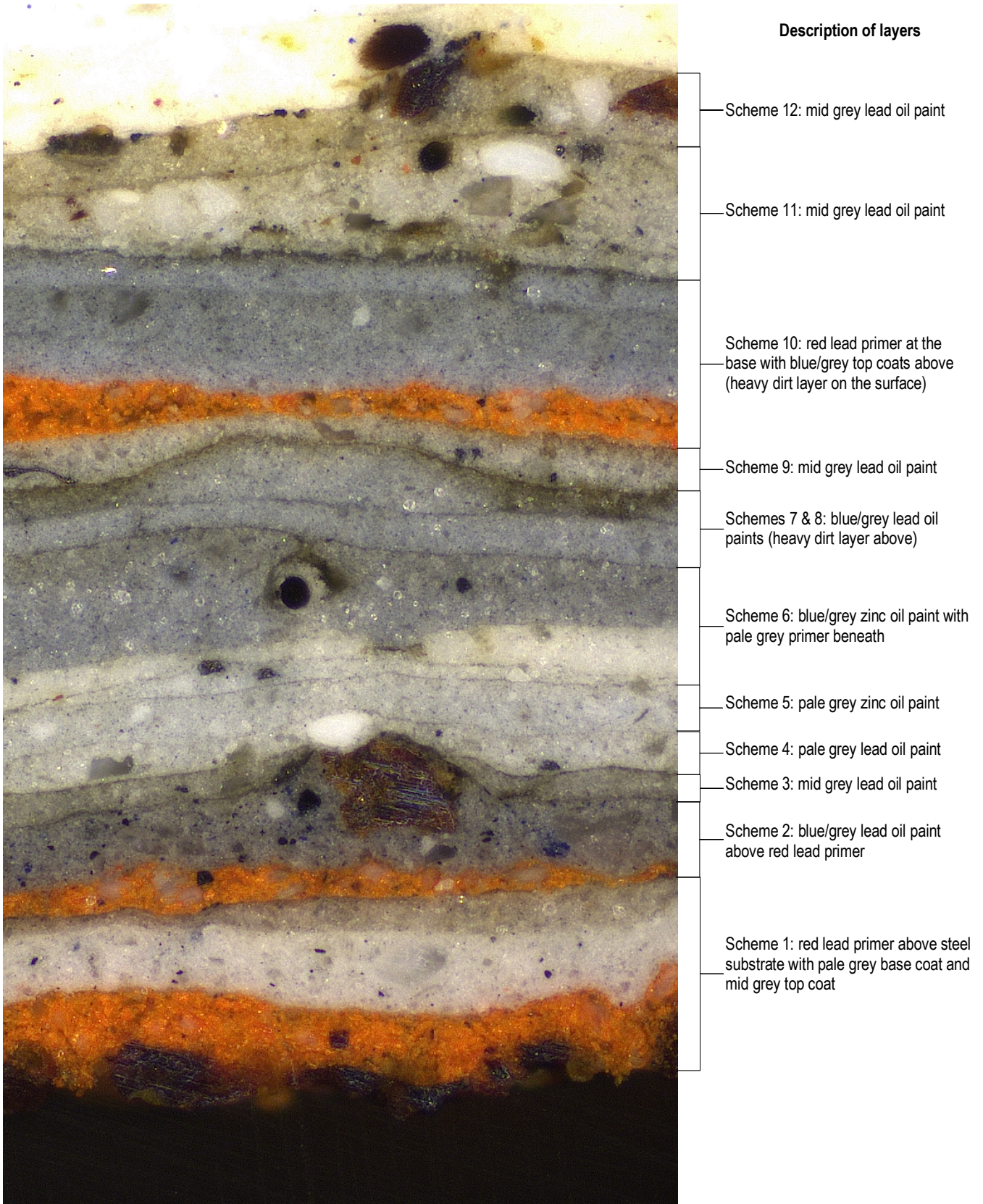


Fig.71: Photomicrograph (X100) sample 2



4.0: Conclusion

There are 4 distinct phases to the paint schemes applied to HMS Caroline both externally and internally.

1. 1914 – 1919: World War 1 era
2. 1919 – 1924: Posted to the East Indies Station (tropical phase)
3. 1924 – 1945: In Belfast as HQ for the RNVR (Depot during WW2)
4. Post WW2: Primarily used as a training centre for the RNVR and RNR

4.1: The external superstructure

The new evidence uncovered in January 2015 does undoubtedly display a full chronology of the paint schemes applied to Caroline during the 1914 – 1918 period and are clearly defined in the large-scale microscope images in figs. 70 & 71. As anticipated, bearing in mind the samples were removed from the same area, both do reveal an identical stratigraphy of paint layers applied over time.

Scheme 1 (earliest) at the base of the image displays the original 1914 red lead primer with pale grey lead base coat and mid grey top coat, both containing finely ground black pigment and chalk extenders in what is presumably a lead white base.

The second scheme was applied in a blue/grey lead oil paint, containing both blue and black pigment. However, the second sample clearly displays a red lead primer beneath, which does not appear on the sample 1 cross section and the reason for this remains unclear.

The images provided are self explanatory with subsequent schemes clearly displayed and annotated.

The reference to an individual “scheme” refers to the group of paints applied as both primers, base coats and top coats and are defined by the layers of dirt and weathering as expected to develop on a vessel at sea. Some schemes were applied as simply one coat, others were applied using both primers and base coats. A good example of this is scheme 10 when Caroline was painted in a red lead primer with 2, possibly 3 top coats and may represent a period in dry dock or re-fit.

Whilst every effort has been made to clearly define all the paint schemes applied to Caroline during the WW1 period further clarification may be gained by an examination of the Ship’s Log from this period, which may include dates for re-painting, dry dock and re-fits whilst in port, providing useful datum points to tie paint layers with specific points in time. However, it remains feasible that individual areas may have been painted in isolation whilst at sea.

In essence three shades of grey were applied to Caroline during the first world war period and these have been labelled in the large scale cross sections provided as: pale grey, blue/grey and mid grey.

It is unsafe to attempt to quantify colours under the microscope alone, so physical samples have been cleaned back to reveal the three target colours and exposed to daylight for a period of 4 weeks to colour correct (paint colours do darken over time when left unexposed). After correction all three greys and the tropical whites were quantified using a spectrophotometer to provide suitable NCS colour references, as follows:-

Colour references (external superstructure):

Pale Grey: 3000-N

Mid Grey: 5502-Y

Blue/Grey: 5502-B

Tropical White: 1505-Y

4.2: Inside the ship

There is evidence for Caroline being launched for service with some areas left unpainted with only a red lead primer in place. This is certainly the case in the former Mess and Engine & Boiler Rooms and may be indicative of a rushed launch in a time of war. However, evidence does suggest the Engine Room remained with only a red lead in place (with repeated applications) throughout the WW1 period and is surely a reflection of the function of this space – a dirty, hot, noisy and functional environment not requiring the attention to detail as seen in other areas.

There is evidence for both cream and pale blue/grey oil paints being used throughout the interior spaces during the phase 1 (WW1) period and due to the fragmentary nature of the evidence uncovered it is difficult to pin down the exact allocation of colour. The same applies to the black or brown 12 inch high band just above deck level throughout the interior spaces. However, there may be a common theme – the cream oil paints and brown band have only been detected on the middle deck (sample locations 9 – 20), whilst the pale blue/grey and accompanying black band are only seen on the upper deck (sample locations 1 – 8). This suggests the two decks were treated differently during the WW1 period with the creams and browns used in the accommodation and communal spaces on the middle deck taking on a more domestic appearance, rather like a brown dado and cream upper wall faces seen in so many houses of the period.

The upper deck was a more functional area and painted in an identical colour to the ship's external superstructure (pale blue/grey) and a black band just above deck level. It must be stressed no reliable reference has been found to endorse this theory, but the physical evidence uncovered on site does offer some weight to this argument. The only exception to this appears to be the Wash Place Lobby which was painted in pale grey oil paints at this time.

The sick bay was originally painted in hard wearing zinc white enamels, typical of the early twentieth century. Enamels were commonly used in areas requiring frequent cleaning and could be quickly washed and wiped clean without staining or leaving residues behind – a sensible choice for an area intended to treat the sick or injured.

All the timber panelling appears to date from the post 1924 period when HMS Caroline was first berthed in Belfast to take on a new role as HQ for the RNVR with these fittings required for it's new role.

Recommended interior colour references

Engine Room

Red lead: S3560-Y70R (bulkheads, overhead and waists – all areas)

Cabins, passages, mess and communal areas

Red/brown (skirtings at varying heights): S6020-Y80R

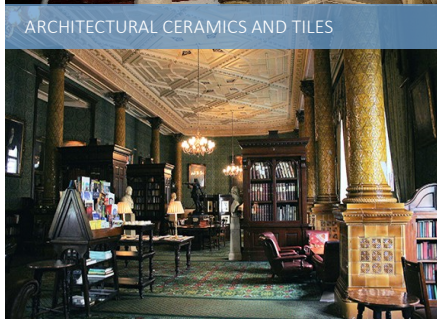
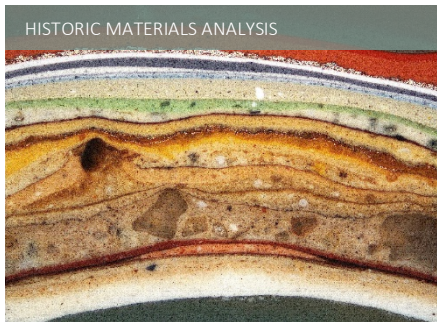
Pale green/grey: S1005-G80Y (bulkheads and overheads)

Zinc white: S0603-Y20R (cabin doors and other joinery elements, sick bay)

Other areas

Greys: S3005-R80B & S4005-R80B (dwarf bulheads on wash areas)

Black: S7500-N (1920's Belfast Drill Hall waist) and watertight door dogs.



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