

---

# MARITIME HERITAGE ASSOCIATION JOURNAL

Volume 8, No. 4. December, 1997

*A quarterly publication of the  
Maritime Heritage Association, Inc.*

c/o PO Box 1100  
Fremantle  
WA 6160



Editor: Chris Buhagiar. 6 Dandenong Rd., Attadale 6156

---



January 1964: Filipino crewmen returning from the ALKIMOS (in the background) to the tug PACIFIC STAR, for lunch. Standing at the stern of the tug is Capatin E.R. Francesco, master. (*The story continues on page 9.*)

# Nautical Instruments Of Distinction

## Weather Forecasting???

If you are looking for a classic instrument for forecasting the weather or simply decorative purposes, we are sure we can provide the ideal one for your needs. We can supply you with new, quality hand-made Barographs, Stick Barometers, Marine Barometers, Thermometers, Hygrometers, Windscofes, or Theme-designed Barometers for the golfer, yachtsman, motorist, etc. We also supply antique ships' lights, wheels, sextants, telescopes, etc., usually 19th Century, of oak and brass.

You are welcome to view some of the above, but by appointment only.

*24 Dorchester Ave., Warwick 6024, Perth*

*Tel: (09) 246 9699 Fax: 246 9499*

*Proprietors: M. & A.L. Burton-Wigley*



The Maritime Heritage Association Journal is the official newsletter of the Maritime Heritage Association of Western Australia, Incorporated.

Material for publishing or advertising should be directed, preferably typed or on disk, to: the Editor, 6 Dandenong Road, Attadale 6156, Western Australia. Tel: 9330 7602.

Articles will be published at the earliest opportunity.

Except where shown to be copyright, material published in this Journal may be freely reprinted for non-profit purposes provided suitable acknowledgment is made of its source.

**All of the Association's incoming journals, newsletters etc. are now archived at *Porthole Prints*, South Terrace, Fremantle, and are available to members on loan.**

(If you have an unwanted collection of magazines of a maritime nature, then perhaps its time to let others enjoy reading it. Contact the Association; it may just be interested in archiving the collection.)

# Editorial

## SWAN'S SWANSONG

The impending scuttling of the destroyer-escort HMAS SWAN seems, to the Editor at least, yet another instance of running with the easy option when determining the most appropriate use for redundant naval craft. Conversations I have had with some people in relation to the various options being considered, suggest that they hold an almost disdainful perspective on the situation, baldly opting for a simple 'pull the ship's plug out' and, ipso facto, create a major attraction for tourists and fish — a disappointing response from some who should have displayed more enlightenment.

To my thinking, this flippant attitude could suggest that the National Naval Heritage Centre's valiant but unsuccessful attempt to save the ship and employ her as a static museum and live-in learning facility for youth groups, etc. — extremely ambitious for Perth — had possibly therefore not been given the full encouragement and support it could have been. What was being attempted by the Centre required an enormous collective effort, and this is possibly a reason why it came unstuck. [Another reason, of course, is political; the decision on what to do with the ship had been made well in advance of any public submissions.] Nevertheless, it could be interpreted that those observers' only concern was the protection of possible vested interests in keeping out the new kid on the street, and any potential competition for public and tourist dollars.

In an ongoing climate of concern for creating an historical precinct at the western end of Victoria Quay — a precinct that currently still suffers from a lack of major attractions/exhibits that build on the attraction that the recent creation of the E-Shed markets represents — it could be that whatever eventually does constitute our precinct when, and if, it is ever up and running, it will simply be

a reflection of the success of those parties in keeping out any perceived competition. In this regard I feel that, though the public may not be aware of it at the time, it will have been sold short.

How on earth a relatively small artificial reef — the wreck of the SWAN — can constitute a major tourist drawcard mystifies me. Admittedly fish will be drawn to the site — presumably a boon for the avid angler. But the diving fraternity? How long will interest last? And other interested parties? What will be shortly *committed to the deep* will not be a warship but a completely, and expensively stripped shell that does not pose a hazard for those interested in exploring her. In a relatively short time the ship will be barely distinguishable from its surroundings, especially once she begins to break up. Visits to the site will become few, and far between. She will then be of no more concern than the remains of HMAS DERWENT, similarly recently scuttled. The hoop-la surrounding the scuttling will be seen for what it was — hoop-la.

And what of HMAS TORRENS, the last remaining RAN River-Class destroyer escort? What parties are already determining the location of her mortal remains?

Admittedly we cannot hope to preserve, nor want to preserve, all our redundant naval craft for posterity. This is not what my argument is about. But where there are genuine attempts made to make good use of a few of them once the Navy no longer requires them, ships that the Australian public owns, and that remain a potential asset, I feel this is where our collective energies must be directed. It happens elsewhere, and successfully, so why not here, in Perth? There must be a collective will to make these things happen, not short-sighted negativity.

I invite comment.



# The Duyfken Replica:

## An Update



*It should by now be common knowledge with MHA members that in 1606 the small jacht DUYFKEN, owned by the Dutch East India Company and stationed in the East Indies, made a voyage of exploration looking for "east and south lands" which took it to Australia's Cape York Peninsula. Construction of the Duyfken replica at the Lotteries Duyfken Village Shipyard in front of the Maritime Museum in Fremantle commenced in January this year. Bill Leonard, who was the Head Shipwright on the Endeavour Replica, is leading the construction team. The lower hull is now complete and the ship is looking very shapely.*

DUYFKEN IS BEING BUILT in a different way from the Endeavour replica although both start with keel, stem and sternpost. The lower hull of DUYFKEN has been built plank-first as the original ship would have been in the late 16th century. Planks are pre-bent to shape over an open fire. The shipwrights have been learning this archaic technique, bending the 60 mm thick planks which now form the lower planking. At first it was very difficult, probably too many levers, pulleys, fulcrums and weights were used. The shipwrights are now more inclined to just let the planks droop under their own weight over a slow fire and carefully tended fire. Steven Edwards has become the master of the techniques. In a good week the team under Bill Leonard can fit a full port and starboard strake of planks. It's well worth visiting the yard to see the fire-bending process.

During the last month the shipwrights have concentrated on fitting the floors (lower frames) into the hull. These are heavy grown timbers and when they are in place (mid-November) then the massive keelson can be fitted on top of them, creating a girder with the keel. With the keelson fitted, planking proceeds again, but the ship should not be planked too high before lifting the keelson in. The largest piece of the keelson is nearly a tonne of timber.

DUYFKEN is being built as a program of "experimental archaeology" — at the end of the process we should know

a great deal more about the advantages and the disadvantages of plank-first construction as practiced by the Dutch. It seems that the Dutch shipwrights, building plank-first, evolving the shape of the ship by eye, were able to build whatever shape they thought would serve best.

The Duyfken replica is being built using plans that have been drawn combining evidence from historical documents such as shipbuilding contracts and late 17th century texts on ship building, artists representations, votive ship models, shipwreck archaeology, and the performance of the original ships.

But building plank-first is necessarily building by eye. The way the oak planks take a bend and the eye of the shipwright produce the curves of ship's hull. So DUYFKEN, as built by Bill Leonard and his team, is subtly different and probably better than the ship as designed on paper. The lower hull is sharp and shapely with easy natural curves.

### Nick Burningham



*A recent photograph of the DUYFKEN replica. Already turning into an impressive example of the shipwrights' craft, and well worth a visit*

## The Duyfken Replica: a shipwright's perspective

Earlier this year Peter Worsley and his wife, Jill, worked as volunteers with the Duyfken 1606 Replica Foundation, helping with the building of the DUYFKEN. Although Nick Burningham has written a number of articles for this Journal on the research carried out in the effort to ensure authenticity and to provide an accurate history of the original ship, nothing to this point has been written regarding the construction work currently going on in the shed itself. This has now been remedied with the following account of their time on the replica. Peter begins:

My first job was to help bolt the three pieces of the keel together. The keel, like the rest of the ship, is built of European oak, and is in three lengths. The scarfs at each of the two joints had been made prior to my arrival but the plans called for twelve bronze bolts each  $\frac{3}{4}$ " in diameter in each scarf, plus a liberal application of 3M-5200 as a sealant/glue. Dane, one of the two first-year apprentices, and myself were given the task of drilling the holes, counter-sinking them to ensure that the heads and nuts were below the surface of the top and bottom of the keel, then spreading the sealant and finally bolting everything together. The next task was to make the plywood pattern for the toptimbers. These are the two 4.6 m timbers that tower above the transom, almost touching the roof of the shed.

My next few weeks were spent making planking tongs from oak. These 1.5 m *crocodiles*, as they were nicknamed, are required to hold the planks in alignment during the planking stage of construction. As the vessel is being built in the same manner as the original — that is, planking before framing — the tongs are necessary to help hold the planks together until the later stage of putting in the frames and fastening the planks to them. The tongs are quite substantial in thickness and eventually we ran out of suitable sized oak for them and the wedges used with them. Time was also spent assisting in the construction of the transom, the setting

up of the transom/stern post on the aft end of the keel, and cutting the rabbet where the fore end of the keel meets the lower end of the stem post.

Throughout the whole period, I was called on to assist various other workers on whatever job they needed a hand with, such as chain-sawing large lumps of oak (I didn't operate the chainsaw!!), lumping heavy pieces of wood around, turning the transom over as it was being built, and coating the timber with Deks Olje, etc.

The permanent crew consisted of Bill Leonard, the master shipwright (he was also master shipwright on the Endeavour Project), three shipwrights, three apprentices (one almost finished his time, two first year), and a number of volunteers like myself.

The main impression I had is of the massiveness of the construction. The DUYFKEN is only 20 m long, shorter than many ocean racing yachts, and similar in length to some of the pearling luggers, however the size of the timber in the keel, stem post, stern post and transom seems to be very big for such a vessel. This however is the way it was before the advent of high-tech materials, composite construction, and laminates of wood or fibreglass. I was surprised at the accuracy with which parts were fitted to each other and the small tolerances required by the shipwrights.

The oak comes from Latvia, and is still very, very green when it arrives and is being worked. This makes for fairly easy cutting, planing, etc., but is a problem when drying out, as splits can occur, especially if the wood dries too quickly. Hence the necessity of coating with Deks Olje to try and slow the drying process down. The wet timber also has a dramatic effect on iron and steel objects with which it comes in contact: plane and chisel blades turned black after only a comparatively short time, and some steel screws used to temporarily fasten pieces of oak together, became very corroded after only about three weeks.

Besides building the ship, there were other projects going on such as Josh and John making trestles, Dane designing and constructing a 16th century-type wheelbarrow, and Don building a small shop as part of the large mural at the end of the shed, and a paint store just outside the other end. Josh was also making the first of the blocks for the rigging. As the transom was planked before it was erected, this necessitated curving some 60 mm thick oak planking — again as per the original method, without steam, using only the heat from a fire. It was experimental in that no one on the project had done this before, but it proved very successful.

Altogether I found it a very enjoyable and educational experience, and I intend volunteering my services for further work during the coming months.

# Barry Hicks: “with a wet shirt and a happy heart ...”

*A long-standing MHA member, Barry was born at Southend-on-Sea, which is at the mouth of the River Thames in Essex. At this point the estuary is about seven miles across, with Kent on the one shore and Essex on the other. Southend Pier reaches out a mile and a quarter into deep water and is a bracing walk to the end — and a perfect vantage point for watching passing shipping! Barry now indulges in a little well-earned nostalgia:*

In 1935, when I was ten years old I stood on Southend Pier and watched a fleet of spritsail barges heading towards London docks. The tide was on the make and a good breeze on the quarter kept the tanned sails straining in their bolt ropes. Although loaded down to a freeboard of little more than six inches, each barge had a white bone at the bluff bows. It was a clear blue sky and the crew of two of each barge was enjoying the fair wind and tide and obviously looking forward to a quick passage.

I now look back to that day, a truly wonderful memory. Although I had dabbled in boats and had been really keen on sailing for some years even before that, I believe it was the sight of that fleet of barges that stirred my lifelong passion for the sea, and of vintage boats and sailing ships in particular.

I have many memories of barges, of standing on a sea

all of one of the many rivers of Essex and watching a barge negotiating a narrow winding waterway where no other sailing craft could go. With two tides a day and the water level dropping 25 feet and exposing deep oozy mud banks,

only the barges with their flat bottoms were equipped for such trips.

The spritsail barges of the Thames and Medway were the maids of all work on the south-east coast of England and hundreds of them were employed shifting cargo between London and the coastal towns and villages. A typical barge was the CAMBRIA, which could take 170 tons of cargo, equivalent to a load that would fill seventeen railway wagons. The power plant was 5,000 square feet of canvas and the mast towered 83 feet above the deck. The unusual rig shows a Dutch influence; it is the only fore-and-aft rig I know of that can sail under topsail only, enabling the barges to catch the breeze that came over the top of the warehouses in the London docks.

The mast and all its gear weighed eight tons and was lowered into a tabernacle. It was not unusual to sail up to a bridge, lower all standing, shoot the bridge, and heave up the other side with the sail set. This was not a feat for the faint-hearted but to these skippers with a lifetime of experience it was all in a day's work, and their knowledge of wind and tide was phenomenal. Because the crew consisted of just skipper and mate, a man called a *huffer* would often row out from the bridge to lend a hand, and once through the bridge would row back with a few extra coins in his pocket. On coastal journeys in foggy weather the bargemen would navigate by the smell of the land or the particular bark of a local farmer's dog! This skill and patience has long since disappeared and has sadly been replaced by the petrol and diesel engine.

In my library I have a collection of books on barges of the Thames. Most of these are written by bargemen of longstanding who had the initiative to put their experiences into print before it was too late. Their stories are legends of a hard and often unrewarding life, although, in the words of one immortal bargeman, it was: *a wet shirt and a 'appy 'eart.*

There are still a number of barges around. Most of these are in tip-top condition, and still more are being lovingly restored and put back to work as charter vessels. Tate and Lyle, the sugar refiners had one, as did Gestetner, of office equipment fame. These were employed to ply the coasts and advertise their business. At Maldon, in Essex, St. Katherine's dock in London, and along the Medway good examples of these vessels can be seen and there is a growing industry dedicated to keeping them in good repair.

Brian Lemon built me a model of the CAMBRIA which I keep in my museum. It is one of the first things I see as I enter, and each time I experience a wave of nostalgia for a past long gone. I derive great pleasure from the detail that Brian has built into this model and appreciate the skill that went into it. The model enables me to relive that far-off happy day.

# Boxing the Compass



*"Boxing the compass" is an expression not now commonly used, especially in its original meaning. The compass used by ships and yachts these days is normally marked in degrees from 0 or 360° at the north clockwise through east (90°), south (180°) and west (270°) back to north. This is a relatively recent method of marking the compass card. Most sailing ships of the nineteenth century had their compasses marked in points. To be classed as an Able Seaman, or A.B., and be senior to and therefore better paid than an Ordinary Seaman, a man had to be able to hand, reef and steer; that is, to hand or furl a square sail on top of the yard, reef a sail when winds increased, and competently steer the vessel. To correctly carry out the steering orders the seaman had to know all the points of the compass. To be able to state these points in their correct sequence, both forwards and backwards, was called "boxing the compass".*

A point on a compass was 11° 15'. This was arrived at by dividing the 360° of the compass circle by 32. A compass point was considered about the smallest division of the compass to which an average helmsman could steer, given the inefficiency of early rigs and dry compasses. Later in the evolution of the sailing ship and the introduction of the liquid-dampened compass, steering became easier and more efficient and half and quarter points were used. The points of the compass are:

Point	Degrees
North	000° 00'
North by East	011° 15'
North North East	022° 30'
North East by North	033° 45'

North East	045° 00'
North East by East	056° 15'
East North East	067° 30'
East by North	078° 45'
East	090° 00'
East by South	101° 15'
East South East	112° 30'
South East by East	123° 45'
South East	135° 00'
South East by South	146° 15'
South South East	157° 30'
South by East	168° 45'
South	180° 00'
South by West	191° 15'
South South West	202° 30'
South West by South	213° 45'
South West	225° 00'
South West by West	236° 15'
West South West	247° 30'
West by South	258° 45'
West	270° 00'
West by North	281° 15'
West North West	292° 30'
North West by West	303° 45'
North West	315° 00'
North West by North	326° 15'
North North West	337° 30'
North by West	348° 45'
North	360° 00'

Quarter points and half points became as follows:

North ¼ East	002° 48' 45"
North ½ East	005° 37' 30"
North ¾ East	008° 26' 15"
North by East ¼ East,	014° 03' 45"

and so on, with the three part points between each point.

When a lookout on a whaling ship yelled: "Thar she blows !! two points on the port bow !!", he was describing an angle of 22½° from straight ahead. The point was the main measure of angle and course for many, many years. Boxing the compass nows means going around in circles as in "the wind boxed the compass" and its use by seamen to demonstrate their mastery of steering orders is a thing of the past.

*Peter Worsley*

# *A Day on the Solent*

with intrepid Mike Igglesden

THE CONTAINER SHIP had been steaming up the Solent, and when first noticed by the two cold, exhausted men, was about as mile distant. They had just righted their Wayfarer for the second time in ten minutes and, having wearily climbed back aboard, the question "are we having fun yet?" was no longer on their lips. The dinghy was part of the training fleet which had been, in spite of the precautionary reduced rigs, completely dispersed by a vicious squall which had scattered the boats far and wide.

The breeze had now settled down to a 25 knot westerly, with the resulting wave pattern throwing the part-submerged boat around in a wallowing, drunken fashion, with boom crashing from side to side, and jib streaming out to leeward, cracking and whipping in a most unnerving manner. The crew's bailing was frantic.

It soon became patently obvious that the approaching ship was on a course that would bring her uncomfortably close to their present position. It would therefore be a great idea to manoeuvre themselves into a more favourable situation. Being run down by a 15 000 ton ship seemed to be an undesirable finale to their sailing course.

Tension aboard was rising. A fierce argument arose between the two frozen and frightened dinghy sailors. The for'd hand believed their options were nil. His view was that, since the boat had been righted onto a potentially port tack situation, to regain control of the waterlogged dinghy, she would have to be jollied around to bear away on a port reach. Unfortunately, he conceded, this procedure would also place them on a collision course with the looming menace — but, upon gaining speed, they would then be able to go about and head away on a reciprocal course. The skipper, on the other hand, was all for gybing around, in spite of the strong gusting breeze and the sloshing bilge water. This action, the crew believed, would be courting disaster — probably another capsizing. Mutiny ... The crew, in desperation, staggered back to the helmsman, pushed him to the floorboards, and told him it was his turn to get bailing, as a warm up to exercise.

Time passes quickly when you're having fun. Eventually enough way was gathered to enable a go-about attempt. The monster was very close and bearing down on them at a frightening rate. The helm was put down and prayers muttered — it is surprising how some situations engender religious fervour — the sails were trimmed, as the dinghy

slowly responded. The choppy seas breaking onto the port bow of the sluggish hull stalled her when she reached the head-to-wind position. She gathered sternway.

The ship was, by now, close enough for its bow wave to be a further threat to the Wayfarer's stability. Steerageway had to be re-established. Reverse rudder and a backed jib finally coaxed her round onto a broad reach on starboard tack, which, at least, was a heading away from the threatening mountain of steel. Survival of this bow wave with its large curling, breaking top was achieved, but not without the unwelcome addition of more Solent water into the bilge. Venturis were opened, and bailing continued at a frantic rate.

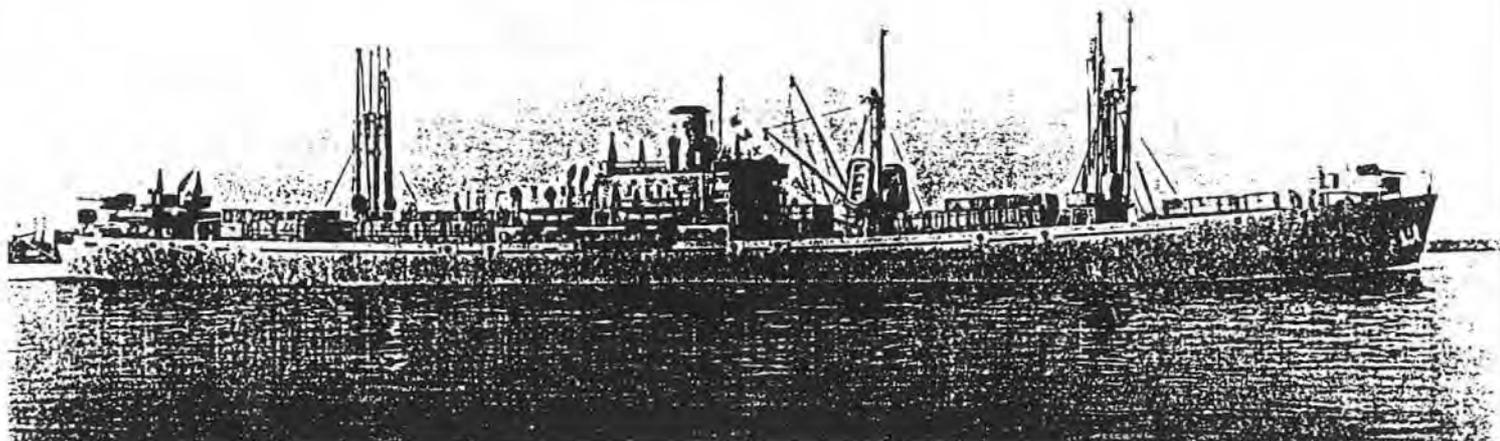
A momentary feeling of relief and hopes of better things to come followed this successful manoeuvre. The new helmsman, since he was not now occupying his time with the bailing bucket, could return his attention to the world around them. He noted the arrival of the sailing school's inflatable runabout, which had been positioned by a somewhat worried instructor, between the ship's side and the tossing, rolling Wayfarer. Looking up, he could see a row of faces, apparently interested in the proceedings taking place far below, peering over the ship's rail. Glancing astern, he judged about a cricket pitch length away, the steel wall which was the starboard side of the ship, was gliding past. The ship was nowhere near loaded to her marks, and a sumptuous growth of marine life was on display. The barnacles and seaweed, tenaciously gripping the rusty iron plates, were interspersed with patches of some of the remaining red anti-fouling which still graced her hull. At the far end of this aquatic garden could be heard the sound of the rapidly approaching, measured thump-thud, thump-thud of the barely immersed propellers. This herald of a possible new danger was reminiscent of the resonance emitting from a distant, very powerful hi-fi system, with the predominating rhythm pumped out by the bass, the only discernible sound.

After surviving the ship's huge quarter wave, the experience was over. All that was left to do was to enjoy the uneventful, cold, wet beat back to the sailing school and, after a long, hot shower and a glass or two of a reviving liquid refreshment, compare dramas of the day with other members of the dispersed fleet. Tales of helicopter rescues, people stranded on naval mooring buoys, boats lost ... Many lessons learned; none, fortunately, at too high a price.

# The ALKIMOS: Fact without the Fanciful

PART FOUR

© Chris Buhagiar



*The single major wartime 'incident' with which the VIGGO HANSTEEN was involved was an April 20, 1944 dusk attack by German torpedo-carrying aircraft on Convoy UGS-38. Subsequent to the attack, the relieving convoy commodore raised his flag on the ship for the remainder of the passage to Alexandria and back to Algiers — a compliment that Captain Thorsen would remain immensely proud of. The narrative now resumes after a brief biography of the captain ...*

## THORBJORN THORSEN (1893 - 1987)

Captain Thorbjorn Thorsen was born in Ringsaker, Norway, and was fourteen when he went to sea as a deckhand on Fred Olsen Line's BONHEUR. He continued with the company until 1912, when he took his Mate's Certificate.

In 1921, following a period as second mate on Thor Thorsen's RAMFOSS, he went to the America Line, which that year took over the Scandinavian East Africa Line; and in 1928 he was appointed as first mate on the old BERGENSFJORD.

Four years later, he was promoted to captain and, in 1937, took over the equivalent position on the first OSLOFJORD — which became a total wreck after being mined outside the Tyne during the war. In 1947 he was given command of the STAVANGERFJORD and, a short time later, took over the supervision of the building of the new OSLOFJORD, which he also commanded on her maiden voyage as well as on a cruise to the West Indies and the Mediterranean.

In 1955, on reaching the age limit laid down for masters of NAL's passenger ships, he assumed command of one of the company's cargo ships, the VIGRAFJORD; followed by the



Captain Thorbjorn Thorsen. (From a drawing by the author.)

command of Oivind Lorentzen's NAPAL TRADER on the South American trade.

In 1958, in recognition of a meritorious lifetime at sea, Thorsen was made a Knight Order of St. Olav, and the following year was appointed Knight of the Danneborg Order. On March 3, 1963, his 70th birthday [*in fact, about the same time that the ALKIMOS first went aground on Beagle Shoals — Ed.*], he confessed to still longing for the sea:

*"I now pass time with my interest in sport; I play soccer in the summer and skate during winter — well, only as a spectator ... I became a member of the Oslo Seamens' Association, where I can cultivate another interest, bridge. I'm also a member of the Nautical Assessors Association, which gives me a lot of joy.*

*There have been a few short trips at sea since 1957 — a few to Denmark, and one with OSLOFJORD around the Norwegian coastline — but this is not the sea, in the correct sense.*

*My greatest experience? Funny enough, it was on land. It was when I got a message from Ambassador Morgenstjerne that, together with 136 of the officers and crew of STAVANGERFJORD, I was to sail to Washington where I was to have the honour of laying a wreath on the grave of the unknown soldier. Also, the memories of the trip back from USA to Norway, with Princess Martha.*

*Experiences from the War? Yes, that's something we could talk about for hours; however, it's not the most fun thing to do. I was torpedoed in the First World War, and was on board when the first OSLOFJORD was mined. I had my worst wartime experience with VIGGO HANSTEEN in a convoy which was till then the largest to sail from Norfolk to the Mediterranean. There were 106 ships in the convoy: nothing happened in the Atlantic but, in the Mediterranean — outside Algiers — we were attacked and, within 20 minutes, 5 ships and one destroyer were sunk ..."* [Adapted from *Aftenposten*: March 3, 1963.]

---

VIGGO HANSTEEN: Loading, Brooklyn/New York, For Alexandria, Egypt. Abstract from Deck & Engine Log, March 30 1944

*... 07.00 crew at work. 08.00 five teams of stevedores resumed loading in five hatches. During course of day, Karlsen ashore to doctor; Seamen R. and H. Hansen not at work. Two seamen joined ship at noon, but returned ashore without permission. 15.00 Valum to dentist; Third Mate had the day off. Paid off Andersen; Carpenter filled water tanks; relief mate oiled from 08.00.*

*Approx. 18.30 starboard aft life raft slipped from stowed*

*position, down onto barge alongside, crushing left leg of a stevedore working on barge. Appeared a set of boxhooks knocked against the turnbuckle that held raft in position. Ambulance sent for and everything possible done to lift raft off man, who was then carried ashore by stevedores and taken to hospital. Following the accident, duty Coast Guard sentry noted witnesses' reports and, a short time later, Coast Guard officer boarded to compile official report ...*

*Mch.31*

*... Relief Mate and an oiler from shore on watch all night. 01.00 continued loading in hatches 2, 3 and 4. 02.30 completed work on nos.3 and 4, and 03.00 in no.2. Continued with deckload until 04.00, then suspended loading to shift berth.*

*04.10 two tugs arrived; 04.30 pilot embarked; 04.35 left wharf. 05.30 anchored on Liberty Anchorage no.16: port anchor, 45 fathoms. Pilot and tugs discharged.*

*07.00 crew at work: cleared on deck, battened down, renewed lifeboats' block and tackle, and other jobs. 07.45 ammunition barge alongside; 08.00 stevedores resumed work. Valum to dentist; Abrahamsen not at work during day but took over oiling of winches from 18.00*

*Apr.1*

*... 00.00 loading and securing of load continued uninterrupted. 05.20 fully loaded: continued with shoring and securing and painting of walkways until 09.30 when stevedores went ashore.*

*11.00 Captain S.Y. Lynner of Coast Guard took broken turnbuckle ashore — crew could not find upper screw that had been broken off, nor the piece that should have been in the turnbuckle. Those on scene of March 30 incident today questioned by Captain Lynner, as well as by Russell J. Clune of Shipowners Claims Bureau. Captain Tonnesen has temporary command of ship for passage to Lynhaven Anchorage while Captain Thorsen ashore on business. 11.20 pilot boarded; 12.05 weighed anchor; 12.12 underway. DM on departure: F.26'6" A.29'6" MD.28'0". Bunkers on departure 1566: water 450 tons.*

*13.00 crew mustered and boats swung out; all crew supplied with lifejackets and other equipment. All went well. Because of last-minute loading and getting ship ready for sea, no time to put boats in water while in New York.*

*14.54 discharged pilot. Steered on different set courses. 24-hour lookout and gun watches ...*

*Apr.2*

*... 15.42 Pilot R.C. Francis embarked; 16.54 anchored on Lynhaven Anchorage: port anchor, 45 fathoms. Pilot disembarked. At anchor, on rotating sea watches ...*

#### ARMAMENT FOR THE NORWEGIAN EC-2s

As part of the crew costs to be included in the time-charter hire, the Administration permitted Nortraship that portion of the wages of the members of the gun crew which represented their services as members of the ship — to the extent that these men would not be considered personnel over and above the normal complement. This differed from normal Administration policy of requiring the costs of gun crews to be fully assumed by governments to which vessels were allocated on a bareboat out/time-charter back basis. The position had been agreed to by other nations with which similar charter arrangements had been made.

By the terms of the July 11, 1942 exchange of letters between the US Secretary of State and Norwegian Ambassador Morgenstierne, it was agreed that the cost of the installation and repair of armaments and other protective devices and equipment installed on Norwegian vessels after December 7, 1941, would be borne by, paid for the account and remain the property of the United States Government. The US Navy was therefore prepared to supply to the bareboat-chartered vessels any armament desired by Nortraship, up to the maximum that would normally be installed if the vessels were operating under the US flag.

The Norwegian EC-2s were therefore delivered with the standard arrangement for similar US vessels; namely: one 4" or 5" low-angle gun, aft; one 3" 50-calibre dual-purpose gun, forward, and eight 20 mm close range anti-aircraft guns, mounted in plastic-armoured pillboxes. Other US National Defence features were an engine generator for the 5" gun; gun shields; gun platforms; ammunition stowage; additional quarters for gunners; plastic armour (wheelhouse); degaussing; liferafts, skids and floats; smoke floats; barrage balloon, and kite installation.

The use of barrage balloons had been authorised in late 1942 for all armed merchant vessels operating to North Russia, the Mediterranean, Red Sea, Persian Gulf and India. Apart from the balloons themselves, all equipment associated with their use, such as the hydrogen bottle and house, and flying-off gear, were fitted on all new ship constructions that were suitable for operating in those areas.

The successful trial flyings of the Sauls-Vangrow K-1 kite on November 1942 at HMC Dockyard, Halifax, Nova Scotia, and on January 12, 1943, from the trials ship AMERICAN NAVIGATOR in Chesapeake Bay, led to their adoption as a further defence item on all US-owned vessels on which barrage balloon equipment was already in use. Being stable in 10-40 knot winds, the kites supplemented the balloons in their role of deflecting air

attacks on merchant vessels.

Other than two controlling wires, the kites required no additional equipment as the cable and flying-off blocks or other flying arrangements used for the barrage balloons were sufficient for the handling of the kites. The recommended number would be five kites per ship. An officer was appointed to supervise the installation of the balloons and kites at the ports of Baltimore and Norfolk, as well as to give instruction on their use on board each vessel.

Barrage balloons could not remain aloft in winds stronger than approximately 40 knots. At the time it appeared that if it was necessary to make a choice between the use of barrage balloons and kites, balloons would be preferable as they did not require wind; however, in relation to their cost and the amount of strategic materials involved in their manufacture and use, the amount of equipment needed to handle the hydrogen gas, the difficulty of launching a balloon without damaging it, and its vulnerability to machine gun fire, it was thought at the time that the choice could well be reversed.

VIGGO HANSTEEN: VOYAGE TWO, EAST; carrying general Army cargo and explosives. With Convoy UGS-38

At its peak, the convoy comprised 106 merchantmen and fifty naval vessels inclusive of LCIs and YMSs in transit — then the largest convoy to have departed Norfolk.

Prior to entering the Mediterranean, a signal was sent to each ship requiring it to have one AA gun manned and ready at all times, as well as be at general quarters for at least one half hour before and after sunset and sunrise.

When in areas in which submarines, raiders or aircraft were likely to be met, vessels were required to be carefully darkened from sunset to sunrise, and were to proceed without navigational lights burning, except in areas explicitly designated by the routing instructions. When exhibited, navigational lights had to be dimmed, with sidelights visible for one mile and a single masthead light of two mile visibility.

VIGGO HANSTEEN: At Sea, April 20

Following in the wake of an escorting destroyer, the ship made a quick mid-afternoon run into Algiers Bay to pick up the relieving convoy commodore, Commodore Brodie, Admiral RN (retired), and his six-man staff. The commodore would fly his flag from the ship\*\* from the point of convoy dispersal off Bizerte the following day, en-route to Alexandria, then back to Algiers. He preferred passage in a Norwegian merchantman, rather than on one of the trade liners that usually acted as commodore's ship —

the reason being, among others, that he had spent a lot of time among Norwegians during the earlier Great War when, after being torpedoed, he had been picked up by a passing Norwegian ship.

Signal from Convoy Commodore:

*TO ALL SHIPS: TONIGHT EXPECT AIR TORPEDO AND BOMB ATTACK WITH FLARE ILLUMINATION X FLARE MUST SILHOUETTE TARGET TO PROPERLY LOCATE IT X MOST PROBABLE DIRECTION OF ATTACK RECIPROCAL OF BEARING OF FLARE X EARLY USE GUNFIRE WILL DEFINITELY LOCATE THE CONVOY FOR THE ENEMY X DO NOT OPEN FIRE UNLESS ENEMY PLANE PLAINLY VISIBLE AND WELL WITHIN RANGE X*

At 21.00 that evening, alarm bells called all ships' crews to action stations. The convoy, now some three miles NNW of Cape Bengut, was being approached by what could only be assumed to be hostile aircraft. [The naval escorts had earlier that day successfully beaten off an attempted attack by a lone U-boat,\* so aircraft were expected to make a follow-up attack.] The convoy was in position Lat.36-39 N, Long.03-42 E and running two days ahead of schedule when the attack occurred: there was still sufficient light to make out all vessels but it was difficult to see the incoming aircraft, however three were sighted from the bridge of the CARBILLO, coming in very low on the port bow of the convoy — but too far out for her guns. An escort and several vessels in closer proximity opened fire.

Some twenty seconds later, one aircraft was seen by the CARBILLO\*\* to be flying close to the water between columns two and three; its torpedo was dropped some thirty metres from PAUL HAMILTON, the plane then banking sharply up and off to the right. A 20 mm shell was seen to find its mark, setting the aircraft on fire.

\* The U-boat campaign in the Western Mediterranean was to continue until July/August, 1944, when submarines, based on Toulon, France, suffered heavily from American aerial bombing attacks

\*\* CARBILLO Convoy Commodore's ship. (Thom. A. Symington, Captain, US Navy.)

VIGGO HANSTEEN: From Deck and Engine Log, April 20

*... Steering set courses. At 21.10 [sic] the convoy was attacked by torpedo planes: a large, violent explosion occurred near the ship, shaking her violently. The ship may*

*have been damaged but there is no time at present to find out ...*

Struck by the torpedo at 2103, the PAUL HAMILTON had blown up, throwing debris and dense, black smoke high into the air. Thirty seconds later, SAMITE\* was hit, flooding her two forward holds. Then it was the turn of ROYAL STAR, followed by the STEPHEN F. AUSTIN, trailing column nine with steering gear trouble. All hits were in close succession.

The ships on the convoy's starboard wing then opened fire. Aircraft here were coming in from approximately ahead of the starboard flank column. The majority of vessels appeared to be firing in all directions, largely because the aircraft from the port bow crossed over to the starboard quarter of the convoy. The CARBILLO sighted two further aircraft above the PAUL HAMILTON's funerary pall, but there was only sufficient time to fire about four rounds before sight was lost in the failing light. Within ten minutes of the opening of the attack, it had become too dark to make out ships or planes, though several water explosions were felt.\*\*

VIGGO HANSTEEN, Gunnery Officer's\*\*\* Report

*... A call to arms was signed [given] for manning all guns at 21.10 [sic] and at 21.12 all were manned. Both 3" guns were manned half an hour before the attack by gunners on extra duty. It was ordered to open fire with all arms and to aim in the same direction as the nearest escort vessel, but it was dark and nothing could be seen, the fire [firing] was stopped after four minutes. The vessel came out of the attack without visible damage, but [there] was a violent explosion in the presence [proximity] of the vessel which made [her] vibrate rather heavily. One could not find any leakages. At 22.00 hours the attack was over and the gunners were released except for those on watch ...*

\* In convoy position no. 11; later taken in tow by a rescue tug. Assistance for other disabled vessels also sent from Algiers.

\*\* The convoy commodore reported that the merchant ships had conducted themselves well and had remained in proper formation. It was estimated that the attacking force comprised 23 aircraft.

\*\*\* Ensign Anker Christiansen.

The convoy had been attacked by aircraft of I and II Gruppe of Kampfgeschwader 77 and III Gruppe of Kampfgeschwader 26, operating from Salon and Montpellier, in southern France, from where they had taken off at 19.30 that evening, each carrying two 1686 lb LT-F5b or similarly-sized torpedoes. In spite of low light conditions, at least five of the aircraft — field-modified Ju

88A-4s or limited production Ju 88A-17s — were shot down, KG 77 losing four. Two of the crew of the single aircraft lost from *II Gruppe* were rescued, slightly injured (the Observer, Oberfeldwebel Peter Gerlich, and the Radio Operator, Unteroffizier Arndt Feddersen); but the third, the pilot, Leutnant Victor Kop, was presumed drowned.

Message Traffic:

RECEIVED BY PRINTER FROM ARMY ... LIBERTY PAUL HAMILTON SUBJECT FNTPN NUMBER F 35297 APRIL 21 AND NATPN NUMBER F 35067 APRIL 22, REFERRED TO FURTHER. NO SURVIVORS HAVE BEEN FOUND. THE SHIP WAS OBSERVED TO EXPLODE WITH SUCH VIOLENCE, IT IS NOW CONCLUDED THERE WERE NO SURVIVORS ...

\* The PAUL HAMILTON had been sunk in position Lat. 36-59 N, Long 02-42 E; the ROYAL STAR, SAMITE and the STEPHEN S AUSTIN detached from convoy between 2110 and 2130 under tow, stern first, with nos 1 & 2 holds damaged. Local craft reported assisting them to port. USS LANSDALE (DD 426) was also sunk that day. She had departed Algiers for Malta, but was sunk in an air attack in position Lat. 37-00 N, Long 03-20 E.

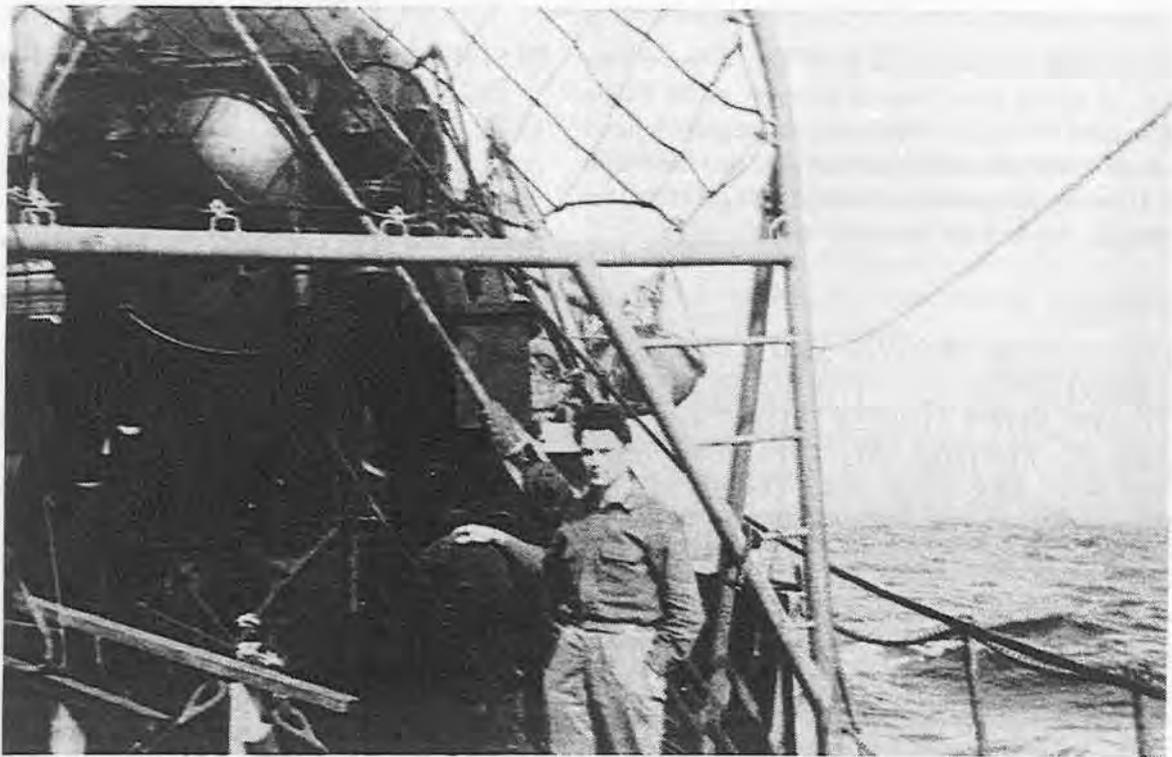
At the point of dispersal off Bizerte on the 21st, the convoy was turned over to the relieving commodore on VIGGO HANSTEEN. Now numbering 49 ships, UGS-38 continued without further incident. The ship tied up in Alexandria late afternoon on the 27th., the only untoward incident after the attack being the loss to blustery weather of a barrage-defence balloon, which had broken free of its tetherings while aloft, and disappeared skywards.

DESERVED RELIEF: Alexandria. Stoker Karlsen recalls ... *When we loaded in the 'States we took on hundreds of boxes of cans of beer in hatch no.3 'tween deck. When we were approximately half way to Gibraltar, one of us had the bright idea that we could walk into the mast house with a ladder, and open one door, and the beer would be there ready to be collected.*

*We were careful, and had one can [each] of beer on duty in the engine [room] when we were thirsty, [as] we could not take too much as we had to do our job. All went well until three days before we got to Alexandria, then the deck crew realised that something was going on, and one morning the [ ...] came to the bridge to talk to the Officer, he [the crewman] smelt of beer, and that was the end of the fun. The Captain and the Officer went around to all the cabins and collected the empty cartons. It was only in the deck crew's cabins [that] they found cans, [as] we had hidden the beer in the engine room. The Captain was VERY angry, and the deck crew was given a severe talking to ...*

*During dinner break one day [in Alexandria], we had just finished dinner and were relaxing [on deck]. There was a lift with beer boxes [on it] on deck, it was left there when the [Egyptian] workers had their break. An American sergeant who was supervising, was standing by the wall having a cigarette. A few of the guys went over to him and asked him if we could grab a carton of beer. He looked at us and asked if we had not had any beer on the way over, as it was not allowed with that kind of load [the munitions?]. And he said, you can take the whole load if you want, as we get what we want, then he turned around and left. The beer cartons disappeared quickly into the cabins ...*





2nd Radio Operator Brynjulf Tvedt posing for the camera, with hand on the front buffer of a locomotive — deck cargo on what is almost certainly an EC-2, fully laden, and quite possibly the VIGGO HANSTEEN. The photograph is taken starboard side, aft, looking forward, adjacent to the rear masthouse. Note that the forward lifeboat is swung out, while the other is still in its chocks. The frame in the foreground is part of the TND catchnet apparatus. (Mrs. B. Tvedt, via K. Korneliussen.)

(A.C.P. FORM No. 487)

**(GRATIS)**

No. 10571/44

**SHORE LEAVE PASS**

Name Brynjulf Tvedt الاسم

Nationality Norwegian العر الجنسية Age 26

Function 2nd. Rdo/Opr. الوظيفة

اسم البانحة جنسيتها

S/S. "VIGGO HANSTEEN" Flag Norwegian

اسم الشركة التابعة لها

Company Notraship

أوراق إثبات الشخصية

Document 12679 Stockholm

Gael 15/5/44



Brynjulf Tvedt's shore leave pass for Alexandria, signed by the Assistant Military Port Control Officer, May 1, 1944. (Mrs. B. Tvedt, via K. Korneliussen)

VOYAGE TWO, WEST: At sea with Convoy GUS-40. Mediterranean, for Norfolk, Virginia. Abstract from Deck & Engine Log, May 22, 1944

... *Steering set courses. Westerly winds, Force 1 – 2; 24-hour lookout and gun watches. 07.00 crew at work: re-shored and secured load, which had shifted; also painted on foredeck. 09.10 TND out. 11.10 transferred convoy command to Ocean Commodore on M/T James J. Maguire, convoy position 110. 15.30 gun drill, with 24 men. Log distance 171; log speed 7.13; Obs.d. 168; Obs.f. 7.0 ...*

May 23

... *11.30 log in; 11.48 Algiers: engine stopped, ship brought to an anchor, 12.12 Commodore and staff disembarked; then full speed to rejoin convoy; 12.25 log out. 13.05 in position in convoy; TND out again ...*

Jun.5

... *Atlantic. Steering set courses. Growing northerly sea; a lot of rolling; 24-hour lookout and gun watches. 'tween-deck load of scrap tanks began breaking securings: 05.30 crew called out to resecure and shore load as best as possible. Work went on all day. Log distance 240; log speed 10; Obs.d. 242; Obs.f. 10.08; clocks twenty minutes back ...*

Captain Thorsen to Mrs. K. Evang. June 7

... *On behalf of the officers, the crew and myself, I would like to thank you for your kindness in giving us the two photographs of Viggo Hansteen [himself]. One has been placed next to King Haakon in the officers' mess, and the other in the seamens' mess.*

*We have now done two lucky trips with "Viggo Hansteen", first to the Persian Gulf with war materials for the Russians, and then to Alexandria. We are happy to share with you that we really like the ship and are enjoying ourselves on board. It won't be too long, we hope, before we will be sailing up Oslofjord with flags from topmast to deck, and with 9000 tons of grain, flour and other essential supplies on board. 9000 tons is equivalent to the crop of approximately 180 large Norwegian farms in one year.*

*Mrs. Evang, if you meet Mrs. Viggo Hansteen before us, give her our best regards and tell her we are proud to be on a ship that carries her husband's name. When we arrive in Oslo, we hope she will honour us with a visit. She will be welcomed by us all ... Thank you and best regards ...*

NORFOLK, VIRGINIA: From Discharge Berth, For Bunkering. Abstract from Deck & Engine Log, June 15

... *10.00 two tugs came alongside; harbour pilot boarded. 10.10 difficulties experienced by tug Pocahontis in keeping ship clear of wharf, because of strong tidal current. Two other Liberties and a barge alongside wharf. Viggo Hansteen became pinned against barge (No.243, Army or Navy) that had moored at the outer end of pier.*

*10.40 ship cleared; 11.00 tied up by Standard Oil Co. pier for bunkers. During day, damage surveyed and ship water-pressure tested by WSA, American Bureau of Shipping, US Salvage Association, and Norwegian Consul: ship sustained 2½" deep dent in side plates 5, 6 and 7 from bow, three plates from top. Ship watertight and issued Certificate of Seaworthiness ...*

Charleston, South Carolina: Loading for Convoy UGS-47. Captain Thorsen to Mrs. K. Evang. June 27

*Again I have to send you my warmest thanks from all the officers and crew on board "Viggo Hansteen". Yesterday we received the third photograph of your brother-in-law together with the beautiful poems of Nordahl Grieg, – the three pieces are now framed.*

*Nordahl Grieg, the twentieth century Henrik Wergeland, what a loss for Norway and us all. I have followed him with interest since, as a young boy, he wrote his first and brilliant book "Skipet gar videre". Later the play: "Var are og var makt" and all his beautiful poems. An old phrase says: "No one is indispensable, everyone can be replaced". But could Nordahl Grieg be replaced? How it makes me happy that we have got a new ship that carries his proud name.*

*I wrote to you through the Legation in Washington and hope you received the letter. Did I tell you that "Viggo Hansteen" was given the honour of being the Commodore's ship, [the] flagship both ways through the Mediterranean. It was a great honour for the ship to have been chosen by the Commodore, a retired British admiral, to be flagship on both trips, out and return. This news you must be kind enough to tell Mrs. Viggo Hansteen about, when you see her again in the near future. Thank you so much, Mrs. Evang ...*

(Cont.)

# PRESERVATION AND DEHUMIDIFICATION OF LAID-UP MERCHANT SHIPS

by Chris Buhagiar

*Most individuals with an interest in things maritime should be aware of the use of dehumidification in the short and long-term preservation of mothballed warships. However, many may not realise that immediately after WWII exhaustive investigations were carried out on the feasibility of applying this method of preservation to merchant ships as well. It had been anticipated that, on the war's successful conclusion, a vast fleet of surplus war-built US merchant tonnage would have to be laid-up in strategic reserve. The sheer number of surplus ships was expected to far outweigh the number that could be sold to civilian operators, both US and foreign.*

*A portion of a 1923 Report of Survey on the general condition of the United States Shipping Board's WWI-vintage laid-up ships in the James River had disclosed not only administrative difficulties and small output of work from large maintenance crews, but also the relative ineffectiveness of their work. Exterior condition aside, interior hull steel had deteriorated and turbines and boilers corroded, with water present throughout bilges, double bottoms, etc. — and all presumably due to condensation. In order to avoid a possible recurrence of this problem after WWII, it appeared that other means of preservation had to be found that went beyond the simple use of paint, oil and grease.*

From February 1, 1943, it had been the responsibility of the US Maritime Commission's Reserve Fleet Division to analyse alternative methods for laying up and preserving vessels for permanent reserve. These methods had to meet prescribed conditions of vessel readiness and ensure preservation over a lengthy period of time, perhaps twenty years or longer. This had to be done in a manner that required minimum annual expense so that the maximum tonnage of vessels could be retained in the reserve fleet for a given sum.

Early in May, 1945 the Commission invited a number of shipyards and engineering firms to submit proposals to make a survey of site preparation and methods of mooring for 2000-odd surplus government-owned vessels of various types and categories — and, by separate proposal, to develop preservation methods for the laying-up of the ships. Such methods were to include the possible use of dehumidification in the preservation of interior spaces. The end of WW II had already seen the adoption by the Navy Bureau of Ships of dehumidification for the interior preservation of its reserve combat ships. The Bureau had made studies of a number of vessel types, but not of merchant ships. [A further proposal governed the scrapping of surplus elements of the fleet constructed before 1936.]

Dehumidification entails establishing and maintaining a level of humidity within a vessel below the level that will allow corrosion, mould and rot. Drying the air in a vessel to a proper condition will protect against these possibilities and, when combined with the use of a thin-film rust preventative compound, a double safeguard will be provided against the deterioration of ferrous metals. A dry atmosphere will also protect against the deterioration by corrosion of aluminium fittings by salt-laden air, and from formation of tarnish or verdigris on brass or bronze fittings such as switches. A series of tests made by the Navy Department had established that if the moisture content of the air within a vessel could be maintained at 30% relative humidity, plus or minus 5%, no corrosion would take place. In cooperation with civilian experts, the US Navy had pioneered in this field for some ten years prior to the merchant ship tests beginning. The USS AVC-1 at the Philadelphia Navy Yard had been under dehumidification tests for over two years, and research on the subject was continuing at the Yard in connection with a school there. In addition, a laboratory for tests with machines and equipment was in operation at the Engineering Experiment Station of the Pennsylvania State College. Tests were also under way on a large naval ship, the cruiser BROOKLYN.

In response to the Commission's May, 1945 separate proposal, the Cargocaire Engineering Corporation, of New York — the only commercial concern at the time with working experience in dehumidification — submitted an offer to make a survey and prepare plans and specifications necessary to preserve all spaces within a vessel. This in turn led to an October 16 six-month contract being entered into by the Commission with the Todd Shipyards Corporation, to undertake an actual experimental dehumidification installation on an EC-2 as soon as a ship could be made available. The study would draw on the applied research already carried out by the Navy and by commercial concerns. The Commission also sought and was granted permission to send two representatives for two weeks' training at the Material Preservation School of the Philadelphia Navy Yard, who would then act as Commission inspectors during the Todd study and would report their recommendations to the Commission on its conclusion. In view of the very large number of ships that would be laid up in scattered sites on the East, Gulf of Mexico, and West Coasts — and anticipating that these vessels might have to be placed in the reserve fleet at a rate quicker than was expected — permission was also sought to allow further Commission inspectors to attend the school. The pilot vessel for the Todd study would be the EC-2 JOHN STEVENSON.

#### Receiving the Ship

The vessel was prepared for temporary storage by its operators: they removed all of their equipment and stores, took an inventory of equipment and stores remaining aboard, then turned the vessel over to the War Shipping Administration — which in turn delivered her to the Commission. The Hoboken, New Jersey, Division of Todd Shipyards received the JOHN STEVENSON on October 5. Built by Bethlehem-Fairfield and delivered to the Commission on July 12, 1943, the ship had riveted shell seams, welded shell butts and welded frames, and was one of a total of 384 EC-2s built at Fairfield's using this method of construction.

An initial survey of the vessel at the time of delivery to Todd's revealed its general condition to be fair, with very few rust spots on the outer shell plating and no evidence of any pitting on any rivets. However, the weather deck abreast of most of the hatches was badly corroded, as were the hatch coamings, boat deck and upper bridge. In hatches 3, 4 and 5, where pebble ballast was stowed between the frame brackets to counteract the effect of the weight of the ship's armament, it was found that the shell, tank top and brackets were very badly corroded. The ship had been inactive for

some two months and, while some protective coatings had been applied to bright surfaces in the engine room, there was plenty of evidence of corrosion where protection had not been given. There was also a good deal of water under the engine room floor plates — caused in all probability by leaky equipment.

For the purposes of the study, the ship was considered in three main sections: underwater — to determine the most effective protective coatings; topsides — to determine the best preservation methods; and interior — to adapt and integrate the most suitable system of dehumidification. During the course of the coming tests, expected to run for six months, other vessels would have to be held in temporary lay-up, pending the findings. Only then could they be moved into the permanent reserve fleet and undergo possible dehumidification. During this period it would therefore be necessary to apply preservatives to exposed bright working parts of deck and engine room machinery in order to keep them rust free.

#### Preparation

Temporary wooden stair ladders were installed to provide ready access to the 'tween decks; telephones, shore steam, water, light and power were provided, as were gangways from the pier, rat guards and 24-hour fire and guard patrols. All compartments, tanks and pipelines were drained, cleaned and gas freed. All pebble ballast was removed, as was the concrete in the fore peak tank. All plastic armour, except gunmount splinter protection, was removed and scrapped, as were the hydrogen house, the sky lookout, wooden deck storage boxes, and potato and galley coal bins. Approximately eight tons of galley coal was taken ashore and sold. War Shipping Administration warehouses ashore took delivery of the hydrogen bottles, oxygen bottles, new and unused rope, rags, waste and paint, binoculars, clocks, barometers, chronometers, back watches, sextants, stadimeters, firearms, ammunition, handcuffs, adding machines, typewriters, surgical instruments, portable millivoltmeters, vibrotest, emergency hand lanterns, electric megaphones, portable radio transmitter, linen, table knives, forks and spoons, and electric toasters and percolators. All dry cell batteries were scrapped, wet cell batteries being returned to the manufacturer. The Navy took delivery of all defence equipment.

Dehumidification would allow the stowage within the holds of the vessel all deck machinery, booms, running gear, spare parts etc. — so avoiding the use of large warehouse space — and the items would be ready for re-use if and when the vessel was put back into commission. All interior doors, drawers and locker doors were secured in an open

position to permit free air circulation; all manhole covers were opened and bolted except those that were required to be closed to ensure proper air distribution; all rust spots were removed from the interior of the vessel in areas such as decks, bulkheads, shell plating, deckheads, stanchions, chain locker, escape trunks, hatch beams, bilge wells and shaft tunnel. Sections of panel sheathing in the messrooms were removed from below portholes, for examination of the shell plating behind, as were sections of porous magnesite deck covering removed from locations prone to rusting. The refrigerating plant insulation was drained of water; all piping not to be used for dehumidified air distribution was opened up and all valves, manifolds, etc. opened and the packing removed. All machinery, including the main engine, generator, pumps, heaters, condensers, etc., were opened up, cleaned, then fog-sprayed with thin-film rust preventives; all steam exhaust and drain lines and valves were opened. Boilers were thoroughly cleaned, including superheaters, soot blowers, uptakes, burners and air registers; the boilers, valves, etc., were then opened for free air circulation and thin-film rust preventive applied to all required surfaces. All switchboards, meters, motors, etc., were thoroughly cleaned then heavy wax paper inserted between all brushes and commutators. The gyro compass was prepared and treated with rust preventives by the manufacturer. Any openings in the deckhouses, weather decks, pipe lines, etc., caused by the removal of the equipment that would destroy the watertight or weathertight integrity of the vessel were blanked off with steel plates or similar suitable devices. Once thoroughly water and weathertight, the ship was fumigated, then inspected. [Much of the exhaustive work carried out was not expected to be duplicated on the large number of ships to be laid up, but was of an exploratory nature only.]

#### Treatment of the Underwater Hull: December 7

In order to perform the tests on the underwater hull, including boot topping, the ship was drydocked — during exceptionally cold weather. After wet sandblasting, washing with fresh water, spraying with a 2% phosphoric acid/fresh water solution, drying and dusting, five spray coats of Amercoat No.33 were applied to the boot topping aft of frame 91, and two brushed coats of Komul No.1 to the topping forward of this frame, both port and starboard. A coat of primer and two coats of anti-corrosion paint supplied by four manufacturers were then applied to the hull below the boot topping aft of frame 105, two brands per side. This portion of the vessel was then given two coats of US Maritime Commission anti-fouling. A coat of bitumastic primer under bitumastic enamel, followed by two coats of

bitumastic anti-fouling were then applied below the boot topping between frames 75 and 105, both port and starboard. Forward of frame 75, three coats of Navy anti-corrosion paint and a coat of Navy hot plastic anti-fouling were applied to the hull below the boot topping. The protective qualities and durability of these various coatings would be analysed some twelve months after the conclusion of the tests.

During the course of the dry docking, the propeller was also removed and stored within the ship, the tail shaft and outer stem bushings drawn in and stowed in the shaft tunnel, and all sea connections blanked off. After internal examination, the rudder was filled with red lead, then drained, and the steady bearing within the trunk covered in hot tallow between the wood bearing and the rudder stock.

#### Treatment of Topsides

All outboard portions of the hull up to the top of the bulwark and all weather decks and hatch coamings were wet sandblasted and prepared for painting; all other exterior surfaces had loose and heavy scale removed by chipping and wire brushing, then cleaned and dried. Anti-skid walkways were installed.

All exterior surfaces above the boot topping — except hull surfaces forward of frame 15 — and all other top surfaces were primed with one brush coat of zinc chromate, followed by a spray coat of same. Two spray coats of Navy specification high-gloss alkyd resin haze-grey paint were applied to all hull, deck and superstructure surfaces above the boot topping and aft of the forward end of the forward deckhouse. Two spray coats of aluminium paint were then applied to the same areas forward of the forward end, except for that part of the hull forward of frame 15. Two coats of bitumastic primer followed by two coats of bitumastic aluminium paint were then applied to the hull above the boot topping forward of this frame.

#### The Interior: Treatment by Dehumidification

Data had also been gathered on the volume of each and every space within an EC-2 in order to determine what groupings or zones the dehumidification could be used in. The capacity of the dehumidification machines required was determined by the total volume of the space in which it would be used for drying out the atmosphere. Data was in addition prepared on the surface areas of the steel within each space, in order to convey an idea of the residual moisture that could be expected to be contained in the material. Such data had also been prepared for the Victory ships, the AV-1 vessels, and the T-2 tankers.

A study made of the internal subdivision of the EC-2 type recommended that it was treated on a three zone basis, and that an independent system be installed in each zone in a manner to avoid penetration of bulkheads 68 and 108, and that treated hold 3 and the machinery space as a single compartment. Any piping, etc., that penetrated bulkheads 68 and 108 would have to be blanked off so as to completely sub-divide the vessel into the three zones. The shaft tunnel would be treated as a portion of the machinery space provided sufficient recirculation could be obtained. Integrity would be maintained with the watertight door to the machinery space closed and the shaft tunnel opened to holds 4 and 5 for dry air recirculation.

(Cont.)

#### REFERENCES

US Department of Transportation/Maritime Administration: US Maritime Commission/War Shipping Administration files manual (Records Management Section) — October 1936-1950.

File 906-1-6: *Report Covering Preservation Methods Now Under Consideration by The Navy Department Looking Towards The "Readiness and Care of Vessels in Inactive Status ..."* W.G. Esmond, Naval Architect, and J.E.P. Grant, Marine Engineer, Preservation and Specifications Section, US Maritime Commission, to H.L. Vickery, Commissioner, Shipyard Disposal Committee. October 1, 1945.

Ibid: Rear Admiral H. Williams, Chairman, Shipyard Disposal Committee, to USMC. July 31, 1945.

Ibid: F.E. Hickey, Director, Reserve Fleet Division, to USMC. April 18, 1946.

Ibid: E.S. Land to Ingalls Shipbuilding Corporation, Alabama. May 1, 1945.

Ibid: Shipyard Disposal Committee to USMC. July 31, 1945.

Ibid: W.G. Esmond and J.E.P. Grant to USMC via S.D. Schell, Executive Director. January 30, 1946.

Ibid: Contract MCC-40485 USMC and Todd Shipyard Corporation. October 16, 1945.

Ibid: A.J. Williams, Secretary, to Rear Admiral H. Williams. August 2, 1945.

Ibid: Lt. Cdr. D.T. Chane, USNR, OIC Operational Training Section, Field Administration Division, Training, Navy Department, to Capt. T.L. Schumacher, USN, Technical Assistant to H.L. Vickery. September 19, 1945.

Ibid: E.W. Gorman, for file. October 2, 1945.

Ibid: *Preliminary Report On Preservation Of Laid Up Vessels And Their Equipment*; Contract MCC-40485, Todd Shipyards Corporation. January 5, 1946.

---

## *When is a barrel not a barrel??*

*Peter Worsley has recently been studying the ship's journal relating to the wreck of the ZEEWIJK in 1727 and the subsequent building of the SLOEPIE and the sailing of it to Batavia. The journal by Adriaen van de Graeff and translated by C. de Heer makes great mention of the various supplies rescued from the wrecked ZEEWIJK and also those taken aboard SLOEPIE for the voyage north. Peter has been able to find out the size of some of the barrels or containers mentioned but would like to know if anybody can help him with others. He continues:*

"Firstly here is what I have been able to ascertain:

**Leaguer**      The biggest container; 159 imperial gallons; 4' 6" high and maximum diameter 3'.

**Butt**          This holds 108 gallons of beer or 126 gallons of wine.

**Keg**          Holds less than 10 gallons.

**Barrel**        This holds 42 gallons of oil (petroleum) or 26/7 cwt. of fish.

It is also 5 cubic feet or 3.894 U.K. bushels. 7 barrels = 1 displacement ton; 8 barrels = 1 freight ton and 20 barrels = 1 register ton. It should also be noted that the term "barrel" is also used to define the draft of the ZEEWIJK in van de Graeff's journal. The draft is given as 19¼ barrels aft and 17½ barrels forward.

*The translator could not explain this use. Can any reader ?*

**Cran** This holds 37½ gallons of salt fish or 45 gallons of fresh fish.

**Aum or Aam** Varies between 37 and 41 gallons. This is a Dutch or German liquid measure.

The following are the terms I have not been able to define: **Cant**, and **Cask**.

I have consulted the following sources :

- Darton M. & Clark J. The MacMillan Dictionary of Measurement MacMillan Publishing Co., New York, 1994.
- Little W., Fowler H.W. & Coulson J. The Shorter Oxford English Dictionary Of Historical Principles Oxford University Press, Oxford, 1973.
- de Kerchove R. International Maritime Dictionary Van Nostrand Reinhold Co., New York, 1961.
- The Compact Edition Of The Oxford English Dictionary Oxford University Press, London, 1972.

*Can anybody help me with those final two definitions and/or add any further information about the others ?* [Partial answer: Nick Burningham suggests that "... we would need the original Dutch terms to offer any advice. One is obvious: "Leaguer" is the Dutch "Legger" which, of course, did not have a volume measured in imperial gallons or dimensions in imperial feet and inches. It is approximately 600 litres in metric terms. One cannot tell what terms Kees de Heer chose to translate as "Butt", "Keg", "Cant", etc." [Again, over to the readers on this matter — Ed.]

## Expression of Interest

# Editor, MHA Journal

Because he is shortly 'going bush', the March 1998 MHA Newsletter will be the last produced by the current Editor. If you would like to fill his boots and continue with this worthwhile contribution to local maritime heritage, then contact the Editor (9330 7602) or Nick Burningham (9336 1606).



MARITIME HERITAGE ASSOCIATION INC.

P.O. BOX 1100 FREMANTLE, WESTERN AUSTRALIA 6160 TEL: (09) 335 8211