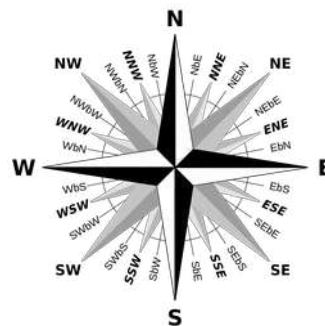**Happy Christmas and a Healthy New Year!**

Ken Lockley on Sea Warrior

**Edward White on
A modern radio control set.
How to learn Seamanship in the Sailing Navy.**

**This month's meeting will be by Zoom at 7.30 pm
on this coming Thursday!**

From The Bridge

Presidents Message – December

Greetings and best wishes for the holiday season. The proposed Potluck for the December meeting has been cancelled and due to the influenza outbreaks and new COVID variant we will be having this months meeting via Zoom.
There will be a link sent to all members and all you have to do is click on the link and it should take you to the meeting via your web browser (do not need the Zoom app).
This month's meeting, you the membership will have a chance to show the rest of the club what you are currently working on in your shop or boathouse, a virtual show and tell.
Speaking of boathouses and build projects, Mike Creasy has a competition in the works for this upcoming year. I won't spoil his fun in announcing it but you will need to use your imagination for this one; this is right up Arnold's alley, making something out of nothing!
The lighted boat parade was put on hold for one week due to the Christmas Truck Parade, so you have some extra time to get your boats fine-tuned for this event. I am looking forward to seeing Scott's submarine lit up underwater. Lets hope the weather holds for this Saturday and we can all get out and parade our boats around in the dark!
Once again Zoom meeting for this month and tells us what you are working on.
Wishing you all a safe and happy holiday season and continued good health in the new year.

David

On the Radar!

Our next general meeting will be Thursday December 8th at 7:30. This month we will meet on Zoom because of the ongoing Covid epidemic and flu season.
Also, please present your current project to the meeting for a show and tell.

The lighted boat parade will be this coming Saturday around 4 pm onwards into dark. That's weather permitting.

2022 Executive Committee

President: Dave Nelson	812 1942
Vice-Pres: Mike Claxton	479-6367
Secretary: Vacant	
Treasurer: Mike Creasy	888-4860
Director @ Large: Calvin VanElsakker	477-5830
Binnacle Editor: Edward White	385-6068
Quartermaster: Vacant	
Membership: Bev Andrews	479-2761

All above area code (250)

Regular General Meetings
2 nd . Thursday, 7:30 pm.
Next meeting 8th. December by zoom!!

Every Sunday Morning, 9am-ish to 11:30-ish at Harrison Model Yacht Pond, Dallas road.

The Langford Lake Navy.
Wednesday Mornings 9 :30 ish, Leigh Rd. At Tillicum.

Victoria Model Shipbuilding Society

Annual General Meeting Nov 10 2022

Minutes
7:30

The order of business per our Bylaws 3.14

a. Elect a chair if necessary
Mike Claxton in Dave Nelson's absence
b. Determine if there is a quorum
Yes
c. Approve the agenda
Yes
d. Approve the minutes of the last General Meeting
Approved
e. Deal with unfinished business from the last AGM
Not Applicable
f. 1. Receive the Financial Report for the last Fiscal Year
Accepted
    2. Receive any other Directors Reports
None
    3. Elect or Appoint Directors
◦ President Dave Nelson
◦ Vice President Mike Claxton
◦ Secretary no one elected
◦ Treasurer Mike Creasy
◦ Director at Large Calvin VanElsakker

g. Deal with any new business, including matters about which notice has been given to the
members - Nil
h. Adjournment 7:55

Victoria Model Shipbuilding Society
General Meeting Nov 10, 2022

Welcome: 9 attending, No New Members or Guests
Outreach: Jeff Johnson, a friend from BC Hobbies was injured badly on his new job. Rick
Gonder moved, Ron Armstrong seconded, that we donate $100 through BC Hobbies (who will
match the donation) to help his family with immediate expenses. Approved. Rick Gonder to take
the donation to BC Hobbies.

Old Business

1 Upcoming Events
    December 10 meeting. Christmas potluck It was decided to poll members to see how
many intend to attend before deciding to proceed.
    December 3, 10 and/or 17 is the Lighted Model Boat Parade at Harrison Model Yacht Pond at 4:30

New Business

 Survey Monkey What do members want from VMSS? Nothing done yet. Rick Gonder to locate the survey he did before Covid.

 Ron Armstrong asked for permission to visit Langford to express concern about the new fence on the walkway at Langford Lake.

Donations:

 None

Entertainment and Round table

 How to light model boats for Christmas

 Raffle, Mike Claxton won the Parts box and Martin and Bev won Christmas lights.

Adjournment:

8:15

Victoria Model Shipbuilding Society
Executive Meeting Minutes
1 December 2022

Call to order:

• Time: 1930

• Members Present: David Nelson, Mike Claxton, Mike Creasy, Calvin van Elsakar

Reports:

• Financial – nothing new to report

• Outreach – Bill Sturroch has downsized and is somewhat house bound these days

• Membership – no new members

Old Business

•

New Business

• December will be a zoom meeting

• For General Meeting there will be a time for members to talk about their project and show their work

• Talked about inviting the Seattle Group to attend our Zoom Meeting – further investigate

• "Not A Boat, Boat" Competition coming for next month - Stay Tuned

• Invite the New Councillor responsible for the area that the pond is in down one Sunday to see what we as a club do

Donations:

• Nil

Entertainment Next Meetings:

• Membership Show and Tell

Upcoming Events

• Lighted Boat Parade 10 Dec, weather permitting

Adjournment:

• 2030

SHIPS, BOATS AND, MODELS   DECEMBER 2022   K.L.

With Sea Warrior almost finished, I have been reviewing its history. Originally construction started in early 1959 in the Sorel, QC. Area. Because of financial problems, the vessel took 7 years to complete. Harold Elworthy, the owner of Island Tug and Barge, heard about the vessel and purchased the uncompleted hull and had the vessel towed to Victoria where final fitting out was finished off at VMD and Island Tugs Ltd own facility on Tyee Road where "Point Hope Shipyard " is today.

When operational, she became known as "Island Warrior. This name stayed until Island Tug and Barge Ltd. became part of Seaspan and then she became "Seaspan Warrior". In 1991 she was bought by Seatow Marine and renamed Island Warrior II. Then again, she was sold to Amix Marine of New Westminster and took another name, "Sea Warrior". The current owners have done major refits over the years and "Sea Warrior" is a very active tug. Watching "Marine Traffic "web site, I have seen her in Prince Rupert, Sandspit and Aberdeen Washington. Her main service is pulling barges of aggregate, limestone, and scrap metal.

Now heading to almost 60 years of service on our coast, she's a credit to those who built, maintained and have sailed her.

NOVEMBER 2022

IN THE WORKSHOP

Photo one:

Photo two: This shows the hard balsa boards that came from a shipping palette that was made out of course balsa. A guy on used Victoria had it for sale and I suspect at some point I could use the balsa.
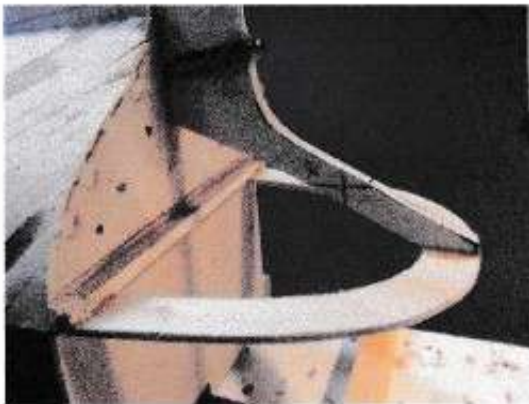

Photo three: The boat planked except the stern. This will be filled out with the balsa and then

Photo five: shaping the stern balsa block

Photo: four

The Balsa blocks glued in position on the stern which you see above.

An "Entry Level" modern radio control set.

Gaussian filtered frequency shift keying
and frequency hopping spread spectrum.
Ripping Yarns for the model boater!

Memory Lane, more than a bit rutted. With a helpful nudge from my eldest son.

When I first came across radio control of models in the late 50's, the transmitter was a heavy tin box with a switch on the top and a button in the middle of the front. And a long aerial!   The switch on the top started the transmitter sending out a carrier wave at around 27 Mhz, and when you pressed the button that carrier wave was "modulated" with an audio frequency tone. The modulation was of the amplitude of the carrier, that is, the carrier wave went up and down in its power with the audio frequency tone. The receiver could detect if the tone was on or off, and if it was on, the receiver triggered a magnet that released a catch on a gear powered by a rubber band. Generally the gear turned a quarter of a turn each time. So a crank on the end of the gear pushed the rudder left at the first tone, centre at the second, right at the third, and centred again at the fourth. You could get a little more sophisticated if you were good at counting your pushes and remembering where you were in the sequence. The receiver mechanism was called an escapement.
If the modulating tone that your transmitter used was a different enough note from the one in your mate's transmitter, the receivers could be set up to respond only to the correct transmitter and both of you could fly or drive at the same time.
The audio tones could be generated and detected by using electromagnets and metal "reeds" which could be tuned in frequency, just the way a harmonica works. So the ultimate sophistication in radio control came when the transmitters could generate more than one tone at a time, and matching reeds in the receiver could tell which tones were on.
Suddenly there were several buttons on the transmitter, each providing a "channel" to control a different escapement.
I did a lot of dreaming about these modern wonders, but of course I never had the money or the necessary building talents to actually come to grips with one.

How far we have come!

Right across all the electronic field we have found out that our equipment is much more reliable if we code all our information in binary digits. That's zeroes and ones. In radio waves, if we change the frequency of the wave a little bit instead of the amplitude, we can avoid almost all of the "noise" that the universe pushes into the electromagnetic spectrum. That's traditionally called frequency modulation, but when we are doing it with digital signals, ones or zeroes only, instead of analogue, the modern jargon is to call it frequency shift keying.   Here's a picture, it shows a data square wave that is applied to the carrier so that the carrier frequency is raised when the data wave is high, and dropped when the data wave is low.


Data

Carrier

Modulated Signal
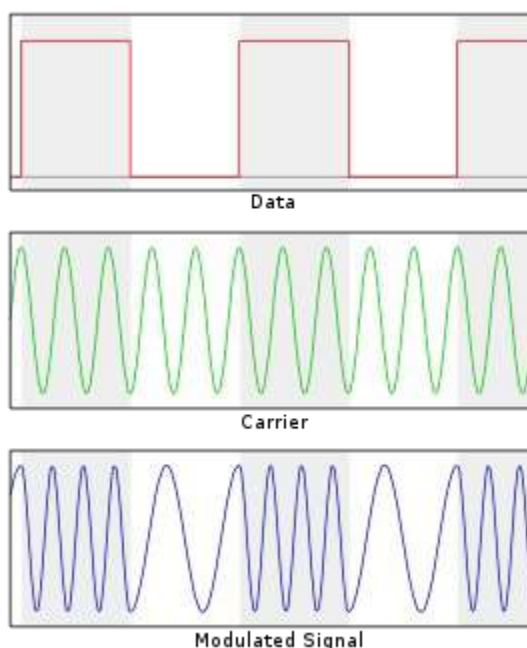
Gone is the 27 Mhz radio control band (27 million cycles per second), and now we have the 2.4 Ghz band. (Remember that's 2400 million cycles per second), That's 90 times as fast!
The use of this band is mostly based around the IEEE 802.11 specification. Which is all about digital communication. This is where our computer wireless networks live, and Bluetooth, and drones, My cell phone can scare the hell out of me transmitting into my hearing aids using this band. So this is what I have gleaned so far in reading about that technology.

First, the frequency hopping. To counter interference between devices using the band the transmitter and receiver are linked together to hop over a selection of frequencies set up in the range from 2.40 Ghz to 2.48 Ghz. These frequencies are 1 Mhz apart. That's the "Spread Spectrum". 78 different frequencies. Any one transmitter/receiver set uses between 16 and 32 of these 78 frequencies in a random pattern unique to the pair. Each hop lasts less than 0.4 seconds. But actually that's pretty slow, the carrier has cycled over a billion times in each hop.

Now, the digits. Our radios send information by varying the carrier frequency a little bit, they go high for a 1 and low for a zero. The change in frequency is a maximum of 216 khz up or down, or less than a quarter of the distance between the hopping frequencies. This is called "Frequency Shift Keying". We use "Keying" to describe it in a reference back to the days of the telegraph and the Morse code, when the operator switched the signal on and off with a spring loaded switch called a key. (Like a musical instrument key!). It takes some full cycles of the basic carrier frequency to detect the change, so actually the number of bits per second that can be sent is about 1 million per second.

Now the "Gaussian" bit in the description. We like to think of digital bits as instantaneous switches from one level to another. Actually there's no such thing. What actually happens is that the signal takes time to reach its peak and then more time to decay away again. If you control that time to make the curves up and down smooth then the bandwidth that the signal needs to have between the different signals is less. So the actual shape of the signal in time looks like the outside profile of a bell, that's a Gaussian curve, ramping smoothly up from the zero line then curving over a hump and smoothly down again. Well, that's smoothly from the point of view of modern electronic components, it is actually taking only a microsecond, instantaneous for us, but the carrier has completed 2400 cycles in that time.
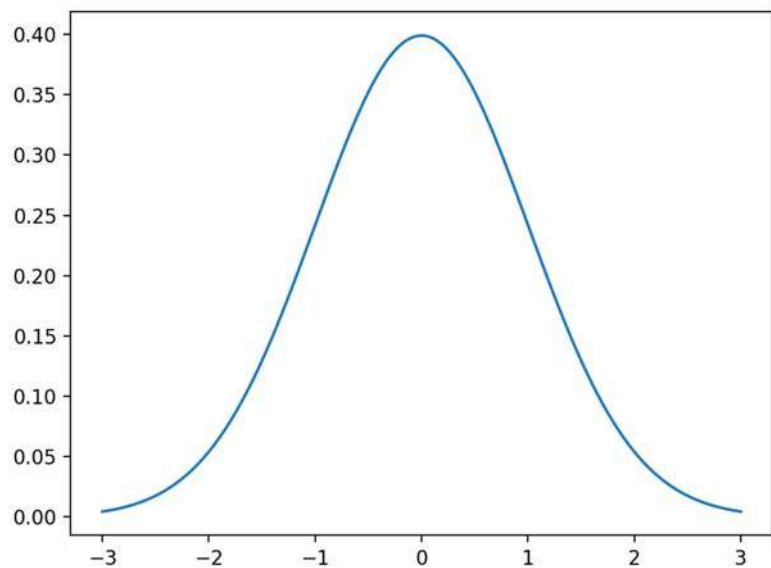
So, the system can pass a million "bits" of information every second. That's 400,000 bits during each hop. How much is that? 8 bits are called a byte, and a byte is enough to define 256 different symbols. If those symbols are defined as letters, numbers, and punctuation symbols, then 8 bytes, 64 bits, are enough to make an average word. So during each hop, information equivalent to 6250 words can be passed. That's 51 seconds to send the 800.000 words in the King James Bible.

But actually our choice of instructions to our models are far more limited than the language of the King James. Let's assume that we have a 10 channel system and that each channel can output 4096 different positions for very smooth operation. The actual command sent to set one channel would have the form "New Command, Channel Number, Position". We could use any symbol for "New Command", one byte, a single number from 0 to 9 for "Channel Number", one byte, and the binary signal for any number from 0 to 4096 for "Position", which is 13 bits, say two bytes. Add the commas at 1 byte apiece, and the whole command to control a channel fits into

7 bytes. Less than a word!

Assuming that we treat all channels as equals, we could reset each channel 625 times in the course of each frequency hop. That's way faster than any servo can actually move, and even more so than the ancient at the controls. Realistically, any reset rate faster than 50 times a second (20 times a hop) is going to be hugely redundant, so we have the capacity to do 425 other equivalent things in each hop. No wonder the thing has time, if we get the extra sensors, to send back the battery voltage, the prop speed, and other stuff to the transmitter.

I'll say it again: This thing cost me $85.

Learning the Ropes.

Bless her heart, my friend Vivian has sent me a copy of "A Young Sea Officer's Sheet Anchor" by Darcy Lever. This book was first published in 1808, so just three years after the Battle of Trafalgar, at a time when the British Royal Navy was at the very pinnacle of sailing ship development and handling, and the East India Company was the world's leading trading company.

Lever joined the East India company as a young man, likely in his late teens, and took passage in a company ship to serve in India. It was on this passage that he first began a lifelong interest in the details of working a sailing ship. He first put together the book for a young friend who wanted to become a professional seaman, and, realizing that he had produced something uniquely useful, promoted it and published it with the help of the Royal Navy, the East India Company, and Trinity House.

The great feature of the book is that every written page has an accompanying plate of illustrations, showing in detail drawings what the written text is about. It must have been an immense help for a new seaman in his first confusing years at sea, when his major lessons would have come in rounds of cursing for his mistakes.

Nowadays it is a wonderful resource for those of us who are fans of sea novels, enriching the narrative with a real understanding of the working of the ships that are the real heroes. I am reproducing four of its pages below.

Fore-sail

Fig. 294

Fig. 295

51
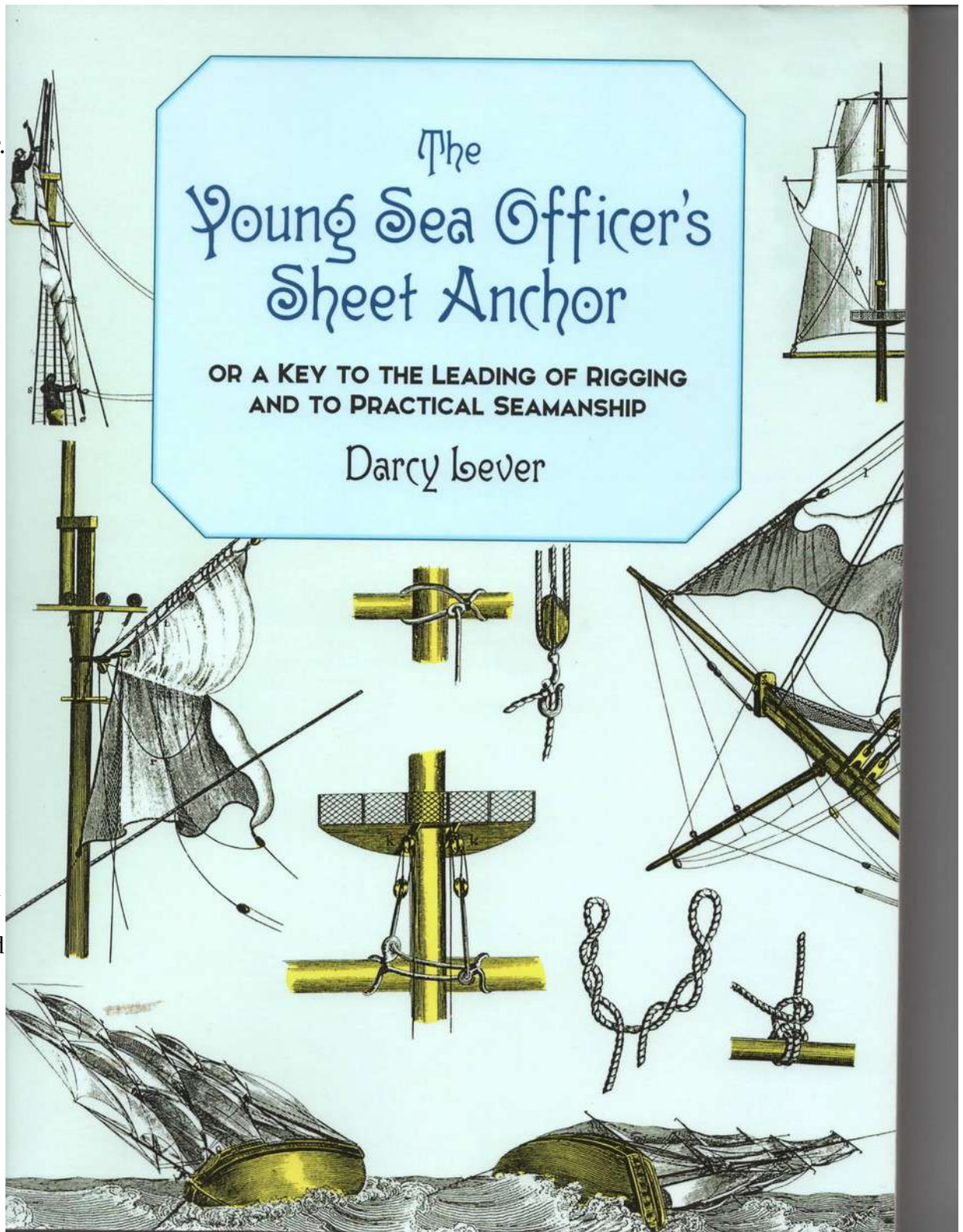
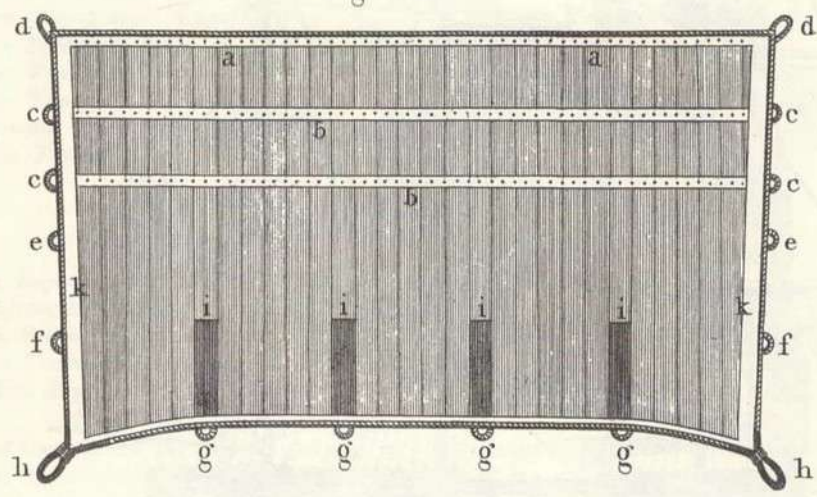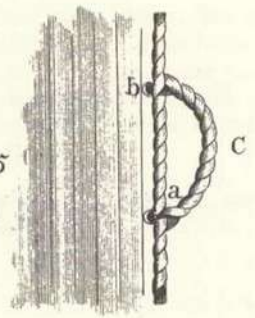## FORESAIL.

The Cloths have one side laid over the other, and are sewn together in the Royal Navy with waxed Twine; but in the Merchant Service the Twine is generally dipped in Tar, softened with Oil. Previously to the Sail being stitched to the Bolt-rope, it is hemmed pretty broad, by doubling it down: and this is called *Tabling* (a), Fig. 294. Holes are cut through the Tabling at the Head of the Sail: and small Gromets made to the size of them, are worked with Log-line. These are fitted to the Holes, and worked round with Twine.

A REEF BAND (b), which is a piece of Canvas one third, or one fourth, of the breadth of the Cloth, is sewn across the Sail at a proper distance, according to the depth of it. Holes similar to those in the Head of the Sail, and small Gromets fitted to the size of them, are worked into this band, for the points to reeve through. Some Sail-makers put two Holes in each Cloth; but others place one in each Cloth, and one in each Seam.

Opposite to the Reef-Band on each side, in the Leech Rope, a Gromet (c), called a *Cringle*, is worked thus: a Strand of good Rope (C), Fig. 295, is taken out, of a sufficient length: a hole being made in the Tabling in the Band, this Strand is reeved through it, and through two of the Strands in the Leech Rope (a), then through the Hole (b), in the same manner; and one part is laid over, till it resembles the Rope (as described in making a Gromet, page 11), the ends being pushed through between the Strands of the Leech Rope, as in splicing.

The Earing Cringle (d). Fig. 294, is made by the Leech Rope being spliced into itself.

In the middle of the Sail, a Cringle, called the *Upper Bowline Cringle* (e), is passed through the Strands, and laid up as before, but not put through the Tabling. Half way between this and the Foot, another is worked in the same manner, called the *Lower Bowline Cringle* (f): and, at equal distances in the Foot, are two or more Cringles (g), called BUNTLINE CRINGLES. All these Cringles are now generally worked round Thimbles.

The CLEWS (h), or lower corner of the Sails, are made of larger Rope than the Bolt-rope in the Royal Navy; but in the Merchant Service it is generally omitted as unnecessary, being heavy and unhandy. The Clew is now a continuation of the Foot Rope: and if it be thought necessary to strengthen it, a Strand, of the same sized Rope, is opened and laid round it.

The Clews are wormed, parcelled and served: and Holes being made in the Tabling, the Sail is marled down to it, because the Service is too strong for the sail Needle to enter: the two parts are seized together with a round Seizing. It was found, by experience, that the large Clews generally necked at the Seizing, and, not uncommonly, were the cause of splitting the Sail.

Bolt Ropes, in the *Merchant Service*, are generally one third less than those formerly used; and were they still less, it might be found to answer the purpose. The Sails would be thus light and handy, which is a matter of great consequence where Ships are so lightly manned: and to shew the insufficiency of those very large Bolt Ropes, we need only observe a Dutchman's Jib, which is in the opposite extreme, being frequently not much stronger than Hambro' Line.

In the Wake of the Buntline Cringles, additional Canvas (i), is stuck on; these are called *Buntline Cloths*.

Additional Canvas (k), called the *Lining*, is also stitched on the Leeches, the breadth of a Cloth: these, and the Buntline Cloths, are placed on the fore part of the Sail, and when half worn, an additional Cloth, called a *middle Band*, is sewn across the Sail between the Bowline Cringles.

76

SEAMANSHIP.

TACKING BY THE METHOD FORMERLY PRACTISED.

The system of tacking formerly practised, and which was commonly used as a general rule, will best define the principles, and tend to elucidate the other evolutions more clearly to the young Sea Officer: although the sudden putting down of the Helm, &c. is erroneous.

The Ship, Fig. 399, is now on the *starboard* Tack, with the wind at E N E, and it is found necessary to put about, and stand on the *larboard* Tack. Now, with the wind at E N E, she will lie with her Head North, which is six points from it: therefore when she brings the wind right a-head, she will of course lie E N E; and when she is close hauled on the *larboard* Tack, she will lie with her Head S E, which is also six points from the wind, as may be seen by the Compass, Fig. 403.

When every thing was ready, such as the Weather Braces stretched along, the *lee* Tacks, *weather* Sheets, and *lee* Bowlines hauled through the slack, it was the custom to put the Helm hard over to leeward, and then the word was given—" THE HELM'S A-LEE, FORE SHEET, FORE TOP-BOWLINE, JIB AND STAY-SAIL SHEETS LET GO!" *(The Helm was put a-lee, to bring the Ship's Head towards the wind, the Fore, Jib, and Fore Topmast Staysail Sheets let go, to take away the power of those Sails which lie before the Center of Gravity, and give all the effort to those which lie abaft it, and the Fore Top Bowline let go, that the Fore Topsail might the sooner* CATCH *aback; and to assist it still more, as soon as that Sail began to touch, the Weather Fore Topsail Brace was hauled on, and as she came to, the Yard was braced up again.)*

Suppose this word to have been given, as above, in the Ship, Fig. 399, which had her Head North, as per Compass, and that in consequence she was coming round gradually to the Eastward, and approaching the wind: when she arrived at the position of the Ship, Fig. 400, her Head would be N E by N, (see Compass) within three points of the wind, which blowing on the Leeches or Extremities of the after Sails, made them shake; at this moment the word was given, " OFF TACKS AND SHEETS!" when the Main Tack, Sheet, and all the Staysail Tacks and Sheets were let go, because they were of no farther use in bringing the Ship to the wind; it having no effect upon them but to make them shake. *(at this time the Tacks and Sheets of the Staysails were shifted over the Stays, to be ready for the other Tack; and the Main Clew-Garnet hauled a little up, that the Yard might come about the easier).*

During this, she was coming rapidly to, and when in the position of the Ship, Fig. 401, (being then Head to wind, E. N. E, as per Compass) the word was given, " MAINSAIL HAUL!" *(The Mainsail, Main Topsail, Main Top Gallant Sail, Mizen Topsail, and Mizen Top Gallant Sail, having their Bowlines and lee Braces let go, and being quite becalmed by the Head Sails, were braced about, as in the Figure: the larboard Main Tack got down to the Chesstree, and the Sheet gathered aft. The Ship then being liable to sternway, the Helm was shifted over to starboard (see Rudder, page 71), that the starboard side of the Rudder acting against the water might send her Stern to port, consequently her Head to starboard: the Spritsail Yard was topped the contrary way by the starboard Brace, and the larboard Jib Guys set up).*

She was then falling off rapidly, and when so much so that the after Sails were full, the word was given, " LET GO AND HAUL!" the Fore Tack and Bowline were raised, and the Head Yards braced about, the larboard Fore Tack got on board, and the Sheet gathered aft; but the Head Yards were not braced sharp up, that she might come to. *(for after hauling the Head Yards, her falling off would be rapid; but as she would soon get head way, the Helm which was a-starboard assisted in bringing her to again, and it was eased as she approached the wind).*

The Yards were then braced sharp up, and the Bowlines hauled, when she would be in the situation of the Ship, Fig. 402, on the larboard Tack, with the wind as before, close hauled, and her Head S E, as per Compass. The principal errors in this mode of tacking a Ship, are as follow:

Tacking by the Method formerly practised.

Page 76

Fig. 399   Fig. 400   Fig. 401   Fig. 402

Fig. 403
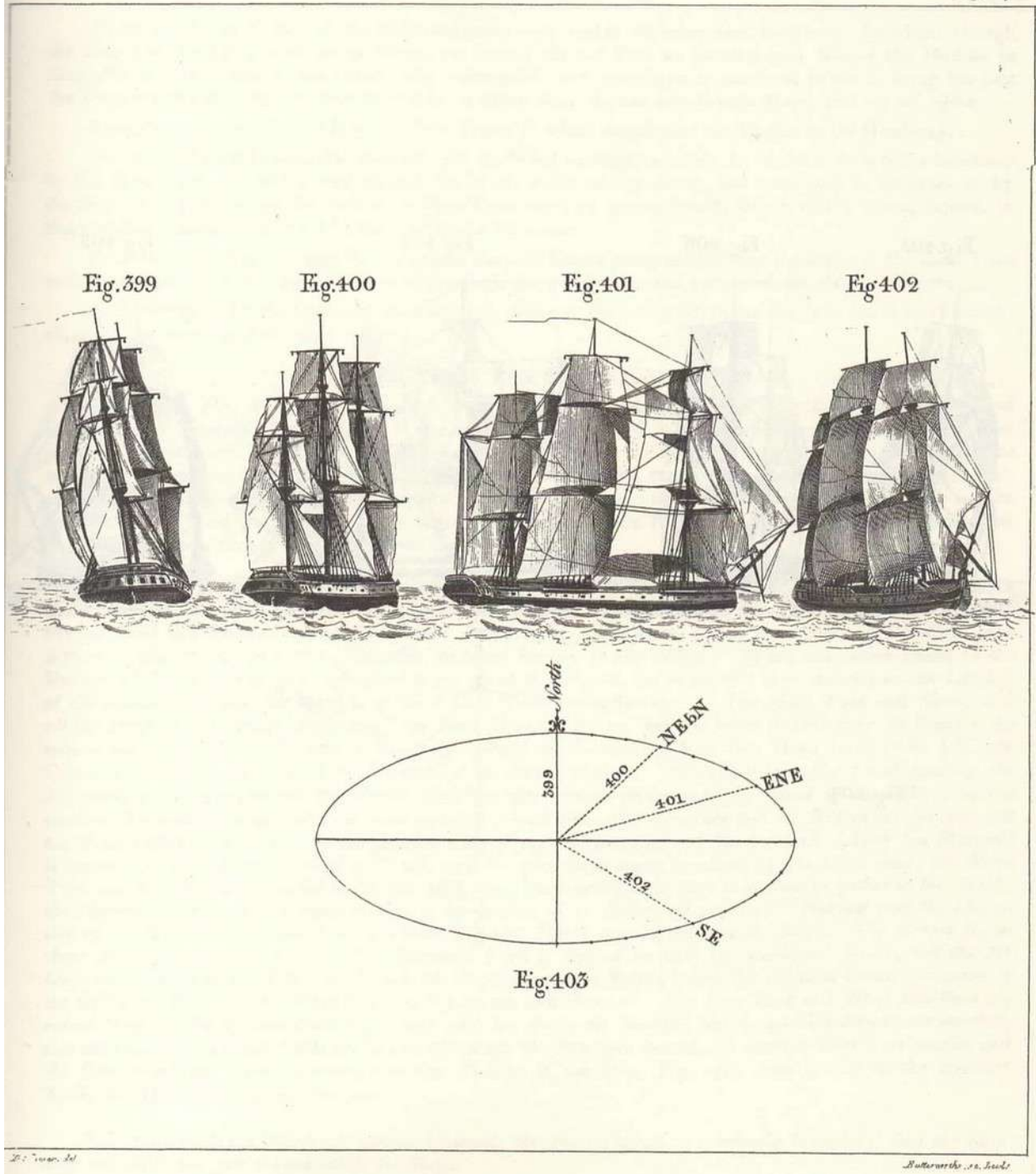
I have found that reading these pages in conjunction with continuous reference to the plates attached, is very powerful in making exactly clear what the author is trying to teach. There are very few words wasted, yet very little is left out. I can imagine that a young officer could use this book to show how he valued all the efforts of the skilled seamen, and to ask them really intelligent questions about their work. He should learn fast, show respect, and quickly become a competent and respected officer.

The book is available on the internet for $20 -$30, and is a real pleasure to own and to browse.

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Our Website is at vmss.ca