New Zealand Sea Scout Handbook

SCOUTING
NEW ZEALAND

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Acknowledgements

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Introduction

Sea Scouting is a branch of Scouting: "A good Sea Scout is a good Scout" and makes the same Promise and keeps the same Scout Law, and at the same time is keen on the sea. The Scout Badge, and Achievement Awards are so designed that if properly taught they are aIl good seamanship.

Sea Scouts learn to be quick with their hands, they learn to look after boats and their gear, how to scrape and paint them, and to do small repairs. They also learn that they must be able to do their tests under practical conditions; they find that it is no good only knowing how to make a bend or a hitch in the comfort of their Headquarters; they may find themselves in a boat in the dark, hanging on with one hand, and having to make fast the boat with their one free hand. Or find that they must be able to signal over a distance, perhaps from a small boat which is pitching and tossing, and above all they find that you must do a job well and truly the first time, for very often there is no second chance in Sea Scouting.

Boat work is only one side of Sea Scout training, but it is a most important one. There is probably no exercise in the world which will develop body and muscles in the way that boat pulling will, while the skill required and the thrill of sailing even a small dinghy need to be experienced to be realised. More important still, while boating is obviously fun, it is no place for stupidity. Sea Scouts must quickly understand that, especially in a boat, discipline is very necessary and every order of the coxswain must be obeyed at once if the utmost enjoyment is to be had by all the crew.

The observance of the Scout Law is just as important on water as it is on land, and if all the parts of the Law are related to whatever activity is taking place at the time, it will be clearly seen that boating, without the Scout Law, is just "not on" for a Sea Scout.

The aim of all Scout training is to produce decent God-fearing citizens and Leaders, while Sea Scouting in addition fosters the love of the sea.

The saying that "A good Sea Scout is a good Scout" is true because the only difference between a Scout and a Sea Scout is that a Sea Scout does most of his Scouting on the water. This does not absolve a Sea Scout from knowing all about Scouting on the land; in fact, a Sea Scout should be amphibious – equally at home on land and water.

Sea Scouts learn the Seafarers way of making the bends and hitches of the Scout Achievement tests and their uses at sea; they learn about the mariner's compass and the tides; and learn why it is necessary for seafarers to know first aid, and how necessary a keenly developed sense of observation is to the sailor.

Lord Baden-Powell's brother Warington, under whose guidance Sea Scouting originally developed, had this to say:

"Joining the Sea Scouts does not mean that you are going to take up the sea professionally; it means that you are going to make boating, sailing, camping, fishing, sailoring, and watermanship your pastime for your spare time and holiday. As you go on you will see how useful Sea Scouts may be as Scouts, and also how useful the training is for life after you are no longer a Scout, you may then so like the sea as to take up that profession absolutely, or you may join the Naval Volunteer Reserve, or a local Yacht Club, but in any event, after the Sea Scout as a youth, you will know that as an adult you are a more useful citizen to your country than one who knows nothing beyond their own trade or business."

This Sea Scout Handbook is especially written to guide Scouts equipped with the Standard 5.2m Cutter and the "Sunburst" sailing dinghy and this means mainly Sea Scout Troops. It should be read in conjunction with other Scout Handbooks.

In the last few years, we have seen the development of a new 5.2m Cutter made of glass-reinforced plastic. It will be the training boat of the future and will make competition between Sea Scout Groups very keen.

Since l988 girls have been able to join with boys in Scouts and take part in all the varied activities including boating.

Badges

Many of the badges in the N.Z. Badge system have been developed to encourage Sea Scouts to learn more of seafaring and Boat Work. Instruction for these will generally be included in the Troop's training programme, with emphasis on the boating and swimming during the summer months and Boatswain and Navigator during the winter.

A Suggested Sea Scout Course to Queen's Scout

SCOUT BADGE

BRONZE PATHFINDER

BOATMAN BADGE

SILVER PATHFINDER

OARSMAN BADGE

GOLD PATHFINDER

COXSWAIN AND SAILOR BADGES

SENIOR SCOUT AWARD

HELMSMAN BADGE

CHARGE BADGE

CHIEF SCOUT'S AWARD

BOATSWAIN BADGE

VENTURER BADGE

JOIN SEA VENTURER UNIT

SAILING EXPEDITION CERTIFICATE

ENDEAVOUR AWARD

SAILING EXPLORING CERTIFICATE

CHARGE CERTIFICATE

QUEEN'S SCOUT AWARD

Chapter I

Ceremonies and Tradition

To Sea Scouts the Troop meeting place is their ship; the floor becomes the deck, the walls bulkheads and ship's sides, the ceiling the deck-head, the Leader's room the Ward room, the main entrance the main gangway, and so on. This creation of a nautical atmosphere is an important part of Sea Scouting and many of the customs and traditions at Sea Scout meetings stem from the life at sea.

As nearly as possible the main deck should be made to represent the deck of a vessel. The kind of vessel will depend on the decision of the Group Council and the extent to which the Troop has use of the premises. Some Troops fit the main deck up with a replica of a bridge, complete with ship's wheel, binnacle and compass, etc., but it is well to consider in the planning the extent that such permanent structures will encroach on the available space.

Gangway stanchions can be let into the deck with man ropes rove between them to mark off an area for the Quarterdeck, and it is possible to make up a realistic binnacle with a ship's wheel and a mast complete with yard and gaff but which is also portable so that the deck can be cleared for games at "Stand easy". If it is not advisable to bore holes in the deck for the stanchions they can easily be made up of heavy water pipe set in solid bases so they will stand without further support, but are still easily removed.

As the Sea Scouts step on board over the main gangway they salute the Quarterdeck, thereby carrying out a custom of the sea that began centuries ago.

Sea history tells us that before the Reformation many of the great ships, particularly those of Spain and England, erected small crucifixes on the after part of the ship, and men passing by the crucifix saluted. Today all naval officers and men are required to salute upon coming aboard the vessel. The Officer of the Day returns all salutes. The Patrol Leader of the Duty Patrol or Duty Watch will tell off one of his Scouts to stand as Quartermaster at the main gangway to receive all visitors and conduct them to the Ward room and to acknowledge the salutes of all those boarding the ship.

The Boatswain's call is used throughout the meeting to call the 'Troop to muster and to "pipe up" the Colours. Colours are usually made at 0800 hrs and struck at sunset, but as Troop meetings usually take place in the evenings, Sea Scouts make Colours at the start of the parade, and they are struck at the end of the evening.

Side party is the term applied to a detail of Sea Scouts which falls in on the gangway as a Guard of Honour to receive distinguished visitors.

The tradition of having a side party in the ceremonial originated in the custom of posting a guard to keep unwelcome visitors from coming on board the ship, and for ceremonial purposes to form a Guard of Honour for important visitors.

In some Troops two or more Patrols may be formed into Watches either for games, competitions, instructions, etc. This is purely a local arrangement and it should not be forgotten that the Patrol is our basic unit.

There are many sea customs, but only those included in the Sea Scout programme are dealt with in this Handbook. Leaders should note that further additions to Troop ceremonial are to be discouraged.

The origins of many of these customs have interesting histories in themselves, and it is as well for Sea Scouts to have some knowledge of how the customs they observe developed.

The Ensign, Flags and Dressing Ship

In the days of Charles II a fleet of King's ships might number up to as many as 200 sail, and these were divided into three squadrons. The squadron in the centre flew the Red Ensign, and the Admiral in Command wore the Union Flag at the main, the squadron in the van flew the White Ensign, and the Vice Admiral had the Union Flag at the fore, the squadron in the rear flew the Blue Ensign, and the Rear-Admiral flew the Union Flag at the mizzen. Thus it could be told to which squadron a ship belonged by a glance at her ensign.

This system continued for many years, but it had its drawbacks, as a number of different ensigns in battle tended to cause confusion.

As ships got larger numbers became fewer, and the three Colours became less important, while foreigners sometimes had difficulty in understanding the changes of ensign. Therefore, in 1864, Queen Victoria gave orders that in future the White Ensign should be flown by all ships of war, the Blue Ensign by ships commanded by officers of the Royal Naval Reserve after receiving special permission from the Admiralty, and the Red Ensign by all other British ships, and thus it remains today. Actually the White Ensign is also flown by Royal yachts and yachts belonging to the Royal Yacht Squadron. Both the White and Blue Ensigns come under Admiralty control, and the Red too, if it is "defaced", that is if it carries some device in addition to the Union Jack,' and may only be flown by the holding of a personal warrant (or permission) from the Admiralty. The Blue Ensign defaced or the Red Ensign defaced may be flown personal warrants, and the Blue Ensign defaced is also flown by ships belonging to certain Government departments. The personal warrant must be carried, and the captain of any warship has the right to send an officer aboard to examine it; in addition, when the owner is not aboard the Red Ensign must be flown.

The correct position for the ensign in power-driven craft is from the ensign staff aft when at anchor, and from the ensign staff or at the peak of the gaff when under way. In sailing craft it should be flown from the ensign staff when at anchor and at the peak when under way.

The correct time to hoist Colours when in port is at 0800 hrs, the Colours being lowered at sunset. When at sea the ensign should always be flown, and on getting under way after sunset it should be hoisted if there is light enough to see it.

When a merchant ship or a yacht meets a warship she should salute by dipping her ensign; that is, she should slowly lower the ensign, keeping the halyards taut, and keep it dipped until the warship has answered by dipping hers and hoisting it again.

If a ship enters a foreign port as a courtesy gesture she may fly the ensign of that country from the masthead, wearing, of course, her own ensign aft.

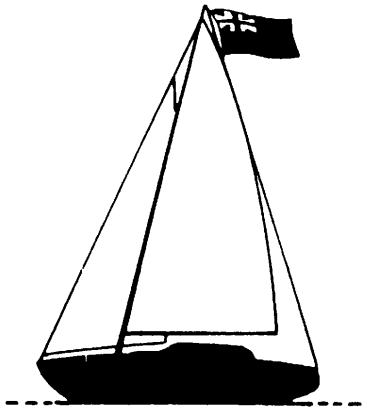
As a sign of national mourning the ensign should be flown at half-mast; if it has not been hoisted previously it should first of all be hoisted close-up and then lowered to half-mast, while to lower an ensign from half-mast it is first hoisted close-up and then lowered. Various reasons have been given for this custom, and one interesting suggestion is that the ship has been overcome by death, and that his invisible flag is supposed to be flying above the half-masted ensign. Another more probable reason is that it is just a mark of respect.

A national flag hoisted upside down is a signal of distress, and indicates that assistance is required, while to hoist another nation's flag upside down is an insult, so care should be taken that it is always hoisted correctly.

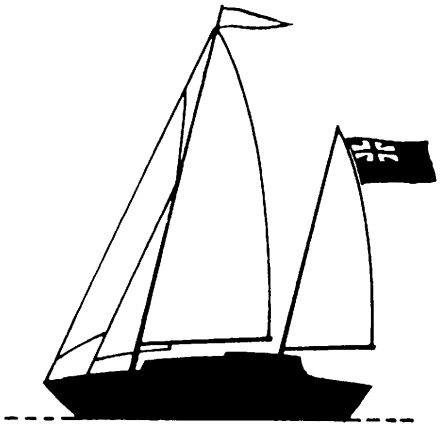
If a ship is seen with the ensign of one country flown above that of another on the same mast, it means that the ship has been captured by the country whose ensign is on top. This is the only occasion when two flags used as Colours may be flown on the same halyard.

Sea Scouts are principally concerned with the use of flags as ensigns or signals. A knowledge of the correct usage in respect to flags is an essential of good seamanship, since flags are used more extensively at sea than on land.

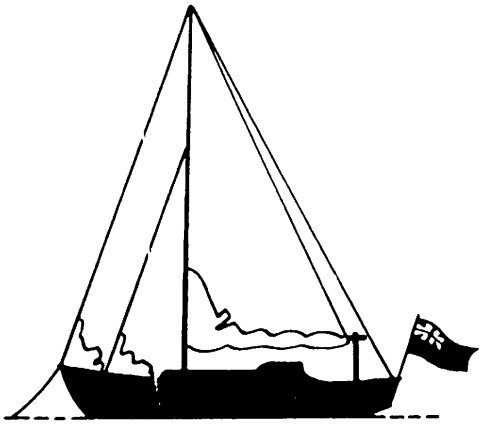
Girls and boys coming into a Sea Scout Group knows little about flags other than the New Zealand Flag or the Union Flag. The Troop is a good place for them to commence learning something about ensigns and signals and the correct use of them.



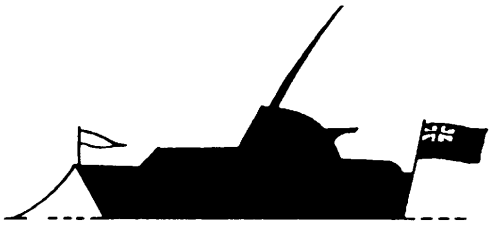
SAILING VESSEL
UNDER WAY



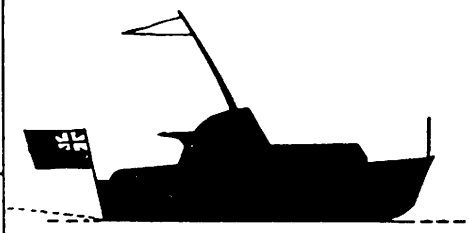
YAWL, KETCH OR
SCHOONER



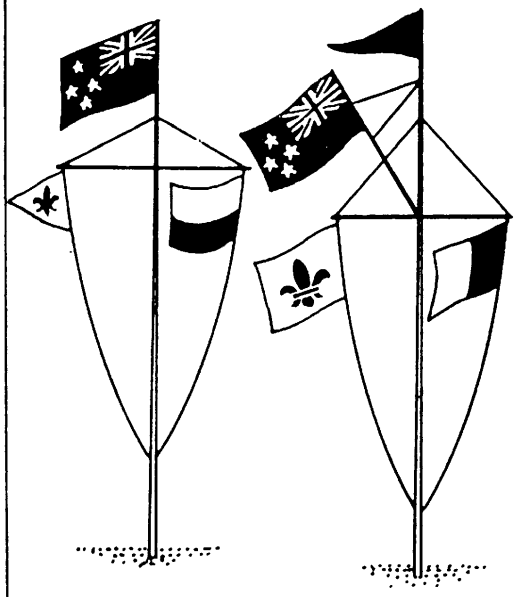
SAILING VESSEL AT
ANCHOR OR ALONGSIDE



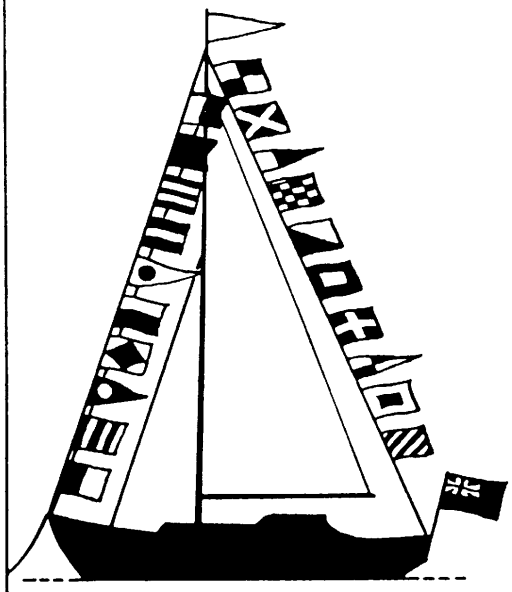
AT ANCHOR



UNDER WAY



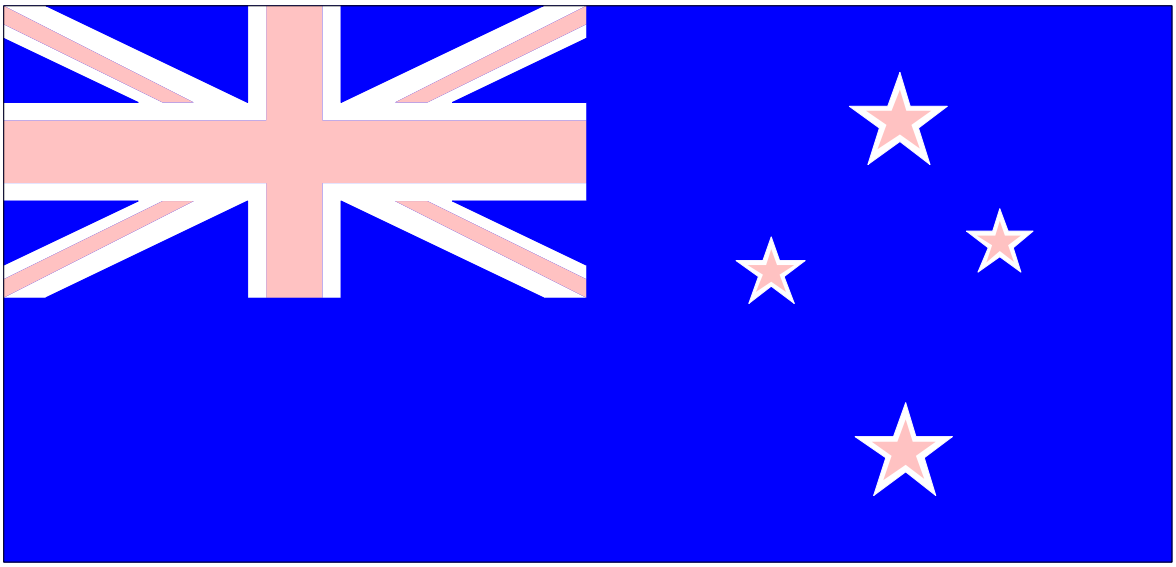
FLYING FLAGS AT S.S.H.Q.
OR AT CAMP



DRESSING SHIP

The New Zealand Flag, known as the New Zealand Ensign is the only flag which may properly be flown from a masthead or flag-staff ashore.

The New Zealand Navy Ensign used to be the British White Ensign but in 1968 both Australia and New Zealand introduced their own distinctive ensign.



The Union Jack in the upper hoise canton and the stars of the Southern Cross in the lower fly canton, the Australian flag having the additional Commonwealth Stars. The stars are red on a white ground, for the New Zealand Ensign and blue for the Australian.

The New Zealand Red Ensign is the proper national Colour for New Zealand merchant ships, yachts and other small craft. Certain yacht clubs and government owned ships wear the Blue Ensign. The distinguishing flag of a yacht club is the Pennant, and is worn by members of it, or, in the case of Sea Scouts, of the Troop concerned. Merchant ships also wear their company house flag from the main mast.

Since most Sea Scout Troops use their headquarters as the deck of a ship in harbour, we may make use of the nautical etiquette of flags and wear a blue ensign as our proper national Colours.

Flags are made of wool bunting or nylon, and it is correct to call all flags "bunting". In conversation and when giving orders remember the following: A flag is "worn", not "flown"; a flag is "made", not "hoisted"; a flag is "struck", not "hauled down". Bunting is made flying free and not broken out as in the case of the New Zealand Flag ashore. When making Colours they are to go up smartly, when striking they come down slowly.

The Boatswain's Call

In the fifth century B.C. the Grecian Navy was rising to fame, their vessels being manned by large numbers of men in the rowing galley. The chief difficulty was to see that the men rowed in unison, and the only way that this could be done was to have some signal which could be heard all over the ship.

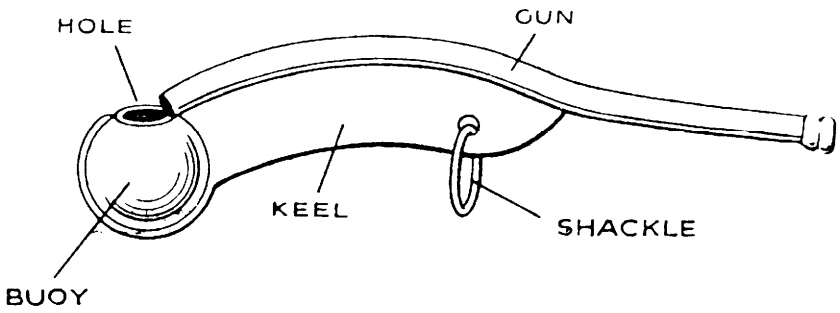
The instrument used in the Greek Navy was the flute, or whistle, and the oarsmen knew exactly what to do when each sound was played. So far as we know, this was the method used later in the Roman Navy and all other navies up to the time of Christ. Curiously enough, from the fall of the Roman Empire and all through the dark ages, very little is known of the history of this whistle.

During the reign of Edward I of England, from 1272 to 1307, it is stated that the man in charge of the rowers gave signals for each stroke of the oar with the whistle. The next clear reference to the whistle is mentioned in 1417, where a record is found that Stephen Thomas, Master of H.M.S. *Trinity Royal*, bequeathed his whistle to his successor, Thomas Cheese. During the next hundred years this whistle increased in importance because later mention is made of it in 1513 when the Lord High Admiral of the British Fleet, Sir Edward Howard, received a gold whistle and chain from the Queen in recognition of his victory in the attack on the galleons of France at Breast. It was called the "Whistle of Command" and the wearer was recognised as having a special commission from the Soverign of the country. From then on it came to be the mark of the Admiral of the Fleet.

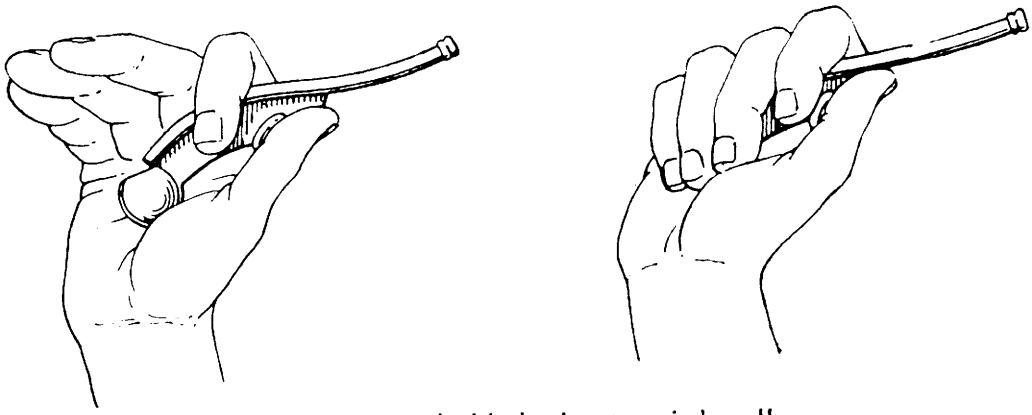
In 1532 Henry VIII decreed it the mark of the Master of a vessel. The law was actually written this way - "Master of the ship or other vessel shall wear a whistle of silver with :, chain of silver to hang same upon."

As ships were built larger, the silver whistle was worn by the Mates, and as the ships became larger still it was worn by the Boatswain's Mate, and still is in all the navies in the world. Although it has lost its designation as being the whistle of command and worn by the Commander, it is now recognised as the instrument by which the orders of the Commander are passed to the crew.

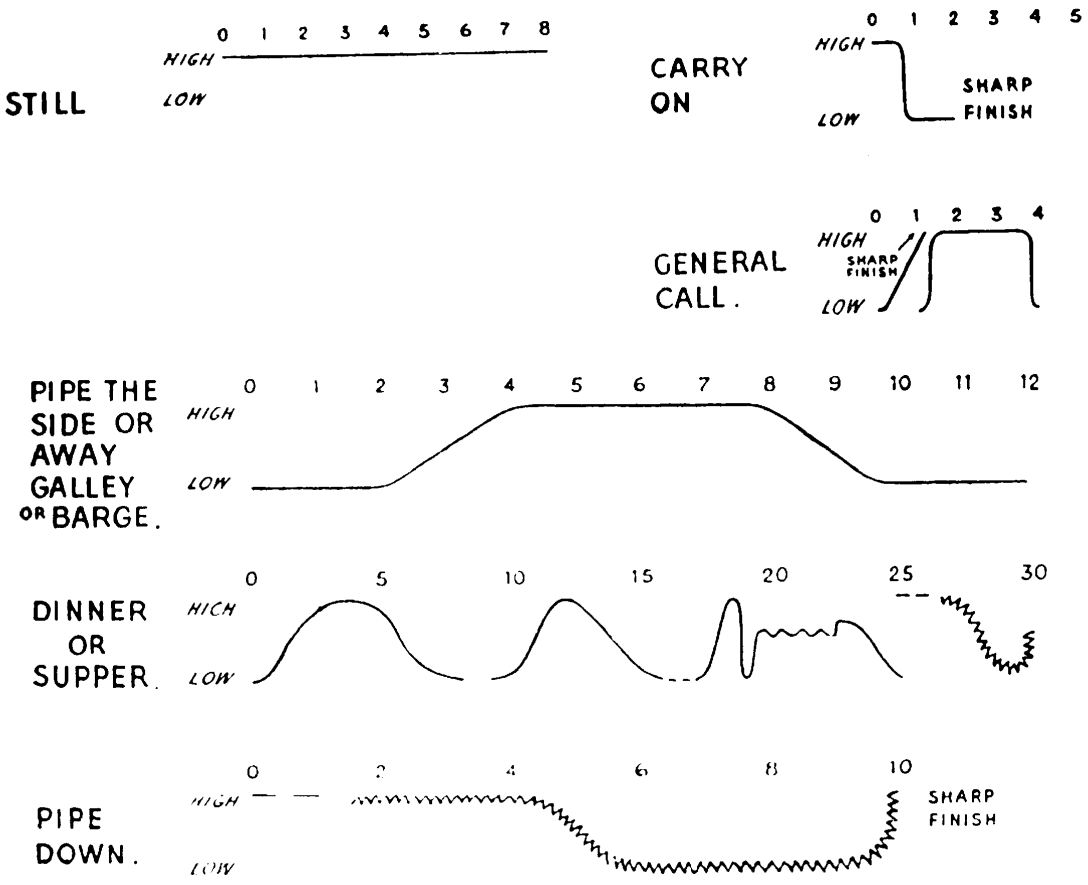
The expression "To pipe" means generally to sound the Boatswain's call and to give the spoken order which may qualify



(i) The boatswain's call.



(ii) How to hold the boatswain's call



it. Many pipes, however, are orders in themselves and do not require any verbal addition afterwards; for instance, it is unnecessary to call "Hands to dinner" after the pipe "Dinner" even supposing you had enough breath left to do so after having made the pipe.

There are two main notes, the "low" and the "high", and three tones "steady", and "warble" and the "trill".

The plain low note is produced by blowing steadily into the mouth of the gun with the hole of the buoy unobstructed by the fingers. The plain high note is produced by closing the fingers round the buoy, taking care not to touch the edges of the hole.

The warbel is produced by blowing in a series of jerks, which results in a warble similar to that of a canary.

The trill is produced by vibrating the tongue while blowing, as in rolling the letter "R".

"Dinner" is used to call the hands for a meal.

"Still" is used to call the hands to attention for the hoisting or lowering of Colours and as a mark of respect, or to stop all work to prevent an accident. It is followed at the required interval by the "Carry on".

"Lash up and stow" precedes the calling on the hands in the morning.

"Pipe down" means "Hands turn in".

"General call" precedes any routine order and the pipe is followed by a verbal order. For Troop use at H.Q. or Camps this pipe would precede the calling away of the boat, or a particular Patrol crew, or a particular Scout, or to precede the call "Troop, Fall in" on parade nights. When the pipe precedes general information call, "D'ye hear there?" before calling the information, eg. "The camp mail box will be cleared at 11 a.m." or "The D.C. will be visiting the ship today". In most Troops the Senior Patrol Leader wears the Boatswain's call on his lanyard.

Time Aboard Ship

"Strike the bell eight."

It would be difficult to estimate the number of times this order has been given for striking the bells on board ships to denote the passing of time. Long before the dawn of the Christian era, men had gone to sea in ships, and even prior to that men had sailed on the inland waters of the great continents. The very earliest records of China depict stories of Chinese ships travelling up and down its great rivers.

Clocks as we know them now were not invented until the fourteenth century. However, there were various ways of approximating time in the old days, including the sundial, the water clock, and the hourglass. On board ship it was not possible to use the sundial or the water clock because they called for a solid foundation and steadiness. So it was necessary to use the hour glass for denoting the passage of time. History indicates that in the early days, on large ships the emptying of the sand from the upper to the lower half of a so-called hour glass was announced by the striking of a gong in the central part of the ship.

Before the use of sails the passage of time was extremely important to the poor slaves in the days of the slave ships of Assyria and Egypt, and even in the time of the Romans and Greeks. It requires no stretch of the imagination to appreciate how welcome the sound of the gong must have been to the slaves who manned the oars of the biremes and triremes, the two and three-banked rowing crafts of the Greeks, Romans, and Carthegenians. They must have enthusiastically welcomed the sound of the gong informing them of the passing of time and approach of a rest period from their backbreaking work at the oars. The alternate work and rest periods were of variable duration, depending upon prevailing conditions. Certainly less time was spent rowing against the wind and tide than when rowing with these elements.

In these very early days, sand passed from one half of the glass to the other in approximately one half-hour, and a normal turn at the oars consisted of two shifts of the glass, that is, one hour of time. The gong was struck once at the end of the half-hour, and twice at the end of the hour.

When the use of auxiliary sails came into being, the spell at the oars was entended over a longer time - four turns of the glass. This period was indicated by striking the gong four times, with an interval between the second and third strikes. When sails entirely superseded oars, the length of time the crew were on watch (on duty) was extended up to eight turns of the glass, which corresponds to the present length of a watch, namely, four hours. Today these watches are indicated by the making of the ship's bell at half-hour intervals, thus making a total of eight bells for each watch. (It is common practice in Sea Scout Groups to make ship's bells throughout the meetings.)

The passage of time on board ship is now indicated by bells almost universally. It is interesting to note that official time on board English naval vessels was recorded by hour glasses as late as the year 1859 in spite of the fact that all other nations had long since been using clocks.

Today the day of 24 hours is divided into seven watches, and the three different methods of describing them are as follows:

Sea Time	***Civil Time***	***Watch***
0001 to 0400	midnight to 4 a.m.	middle watch
0400 to 0800	4 a.m. to 8 a.m.	morning watch
0800 to 1200	8 a.m. to noon	forenoon watch
1200 to 1600	noon to 4 p.m.	afternoon watch
1600 to 1800	4 to 6 p. m.	first dog watch
1800 to 2000	6 to 8 p.m.	last dog watch
2000 to 2400	8 to midnight	first watch

The purpose of the two dog watches is to make an odd number of watches in the 24 hours, thus giving the men different watches each day.

Time is denoted on board ship by striking a bell every half-hour, the rule being: one stroke of the bell at half past four half past eight and half past twelve, one more stroke being added for each half-hour until eight strokes of the bell or eight bells are reached at four, eight, and twelve. The dog watches are different, 6.30 p.m. being one bell, 7 p.m. two bells, and 7.30 p. m. three bells, but eight o'clock is always eight bells.

"Little one bell" is a light stroke struck five minutes before beginning of the night watches, and calls the relieving watch to muster.

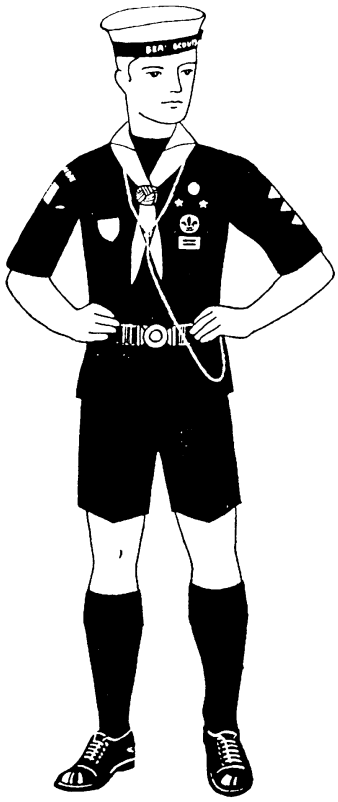
Why no striking of five bells in the last dog watch? Well, in 1797, five bells was the signal for the Navy mutiny at the Nore. The plot was discovered and the mutiny quelled, and thereafter the Admiralty decreed that five bells in the last dog watch should never again be struck in British vessels.

Sea Scout Uniform

The uniform for Sea Scouts is described in P.O.R.

The purpose of the uniform, of course, is to single you out as a member of a special Group, to mark you as one of the fine people of the world. The public always recognise this significance, and m the case of a Scout uniform knows that the wearer is a member of the Scout Association of New Zealand; and that same public knows that a Scout has a special way of living - that they can expect from them courtesy, thoughtfulness, honesty and help. Of course, the mere wearing of the uniform will not give you these qualities, but the very fact that you wear it should keep you aware of what is expected.

It is a privilege to wear the Scout uniform, but it is also a responsibility. Anything you do while wearing it reflects upon all Scouts. So it becomes your responsibility to keep your uniform correctly creased, cleaned, and cared for.



Chapter II

The Sea Scout Group

The Sea Scout Patrol

The Patrol is the unit that makes Scouting go.

A Patrol is a team, with all the members playing the game of Scouting, all of them working towards the same goal - "All for one, one for all".

Each Sea Scout Patrol has a name of its own. If you join an old Patrol that name will have a lot of history and plenty of tradition behind it.

The Patrol does not stand alone. It is part of the Troop; and just as certainly as the Patrol belongs to the members in it, the Troop belongs to the three or four Patrols that make it up. Every Scout is proud of their Troop. They wear a scarf with the Troop's colours and on their sleeve carries the Troop name. Scouts do their best so that the Troop in turn will be proud of them.

The way in which Patrols and Scouts help their Troop - and themselves at the same time - is by getting behind the Leaders and backing them up in their work to make the Troop a real Sea Scout Troop.

Outside of Troop activities, the Sea Scout Patrol does plenty of things of its own. It always has a lot of interesting plans under way, whether Patrol meetings, hikes, cruises, camps, good turns, maintaining the Patrol's boat or fixing up a Patrol cabin.

Patrol meetings are held once a week in the homes of the boys or in the Patrol cabin at the Troop's H.Q. Some Patrols meet more often. It is at the Patrol meetings that the Scouts help each other to advance their scoutcraft. It is there that the projects they want to do are planned. It is here that friendships grow.

The Patrol plans ahead. They know definitely what they are going to do for the next two or three months and have a general idea what they expect to accomplish after that. Members should not spend all their time planning and dreaming about the Patrol's "great future". Decide on the things that are immediately ahead and get cracking.

Every Patrol needs a Patrol box or sea chest. The sea chest has to stand up to some pretty rough handling and at the same time it should be possible for two Scouts to carry it. Let's take a look at some of the things which may go into the chest - it will help you to decide the best size and how to make use of the interior.

Signaling	- flags, buzzers, cards etc.
Mapping	- charts, rules, dividers, compasses.
First Aid	- bandages, splints, etc., for practice
First Aid Kit	- for real use only
Sundries	- paper, pencils, drawing pins, glue, chalk, crayons, etc.
Games	- tennis balls, etc.
Rope Work	- knotting ropes (one per Scout) each about 2 metres long, lashings, twine, rope for splicing, etc.
Cleaning	- clothes brush, shoe brush and polish, needles, and thread, etc.
Books	- record books, The Scout Badge Programme Book, Scouting for Boys, Pathfinder and Senior Scout Handbooks, N.Z. Sea Scout Handbook, Rules for Water Activities

Your sea chest can be painted in the Patrol colours and may bear the Patrol. emblem.

Be proud of your Patrol and your Troop. Help your Patrol Leader to make yours the best Patrol in the Troop.

The Sea Scout Patrol Leader

The responsibilities of the Sea Scout Patrol Leader are exactly those of his Scout counterpart, but in addition the Sea Scout Patrol Leader must be able to take charge of the Patrol standard boat for instruction in boat pulling and on Patrol cruises.'1'Ihis means that as well as wearing two stripes the Patrol Leader should have a Coxswain's and Helmsman's Badge. Gaining these badges not only marks a standard of seamanship and skill in boat handling, but also reflects the Leader's confidence in the Patrol Leader's ability to take charge of the crew. If every Patrol Leader makes the Seamanship badges his number one requirement, then the standard boat really achieves the objects for which it was designed and the Patrol can spend many pleasant hours learning the ways of the sea and exploring the coastline around the Troop H.Q. as a unit.

To make the most of the boats available and to ensure that all Scouts have ample opportunities to further their knowledge of practical seamanship and boat work, the Patrol Leaders' Council must set about planning the main outline of the Troop's boating programme, including training for regattas and other aquatic displays, early in the season, so let us consider a few likely annual fixtures.

Opening Day. Most Groups celebrate in some way the opening of the boating season. This generally consists of an inspection of the Group and the ship by an official of the Scout Association, Harbour Board or Yacht Club and is followed by a demonstration of boat work by the Scouts. No need to be too ambitious about this first display of the season - it is really a day to let the parents see the results of your work on refitting and maintaining the boats during the winter, so an inspection, a row past, a few well run races and a speech from the: guest of honour, followed by some light refreshments for the visitors while the Scouts take the Cubs for a short cruise, is just about enough. Try it on a Saturday morning around late September or early October.

For the next few months, training of the Patrol, especially the new recruit, will be towards Boatman and Oarsman Badges also to see they all qualify as swimmers. The Patrol Leader will be responsible for teaching his own Patrol boat pulling so, before you even set foot in the boat, have a clear idea of how much you hope to accomplish each day and make sure *you* know your stuff before you start.

A few pointers to bear in mind when teaching the Scouts to row:

Take charge of the crew and see that they pay attention.

Be clear in your explanations.

Be patient in dealing with faults.

Don't lose your temper or start shouting.

Correct faults individually, not by general remarks to the whole crew.

Have your Assistant Patrol Leader move around the crew, assisting those who have difficulty in getting the knack.

For the first few lessons it is a good plan to have the Patrol turn up at H.Q. with lunch and take the trip an all-day cruise. If training is confined to a small area around H.Q. the boat will be alongside as often as it will be away while the crew are "resting", so go somewhere and instruct while on the way.

District and Troop Regattas. If you are lucky enough to be near another Sea Scout Troop, then plan to have a regatta with them during November or early December. Much the same arrangements will need to be made as for Opening Day, and the programme can follow the races generally run at National Scout Regattas. Rowing races, remember, are much more spectacular than sailing races, so time the rowing events for that part of the day that you want parents to be present. Include a few novelty races to liven up the programme if you have time.

The District or Area Regatta has one disadvantage from the Patrol's point of view in that the Patrol seldom operates as a unit, the various crews being made up from the best oarsmen in each Patrol, but you will have done your bit if some members of your Patrol have been chosen to represent the Troop. The Group Regatta, on the other hand, is almost completely a Patrol affair and most events are inter-Patrol competitions. To avoid undue delay between races, try starting from just off the beach and out around a buoy and back. In this way no time is lost while the crews pull out to the start line. Dinghy rowing and sculling races, centipede races where the crew paddle the boat along instead of rowing (without rudders), and a steeplechase can help to make an entertaining programme.

A steeplechase could well start off with the boat being sculled over the stern, switching to paddling at the first mark, to towing by the crew swimming at the second mark, with the boat going over a moored spar and the crew under it, f1nally ending up with the crew rowing the last lap. There are endless possibilities and a meeting of the Patrol Leaders' Council is bound to come up with enough ideas for a first-class show.

The Christmas Camp is an excellent opportunity to polish off those outstanding Pathfinder and Senior Scout Awards, whether or not you have been able to take the boats. Remember a week in camp covers around the same time as six months of Troop meeting nights, so make the most of it. If you are lucky enough to have the boats along, then aim to have each member of the Patrol come home with the Seamanship Badge. Also while at camp, encourage the Scout who is a weak swimmer – confidence is all they need, and the Patrol can do a lot to help them gain it.

In the New Year it is time to think of introducing the Patrol to sailing. Doubtless they have all been away on a few cruises prior to this, but it is the new member of the Patrol we don't want to overlook. This means that an A.S.L. or a Venturer will be along with a Charge Certificate to help out, but will expect you to handle the boat and crew and to have done some preliminary instruction before actually going away under sail. Don't be one of those helmsmen who sticks to the helm all day - pass it round - every Scout needs to be able to do every. job in the boat. The Patrol Leader doesn't have to hold the helm to be in charge; all they should do is make sure the Scout detailed off to take the helm knows the orders to give and has had experience in the other positions in the boat.

Toward the end of the boating season the Troop should thin1k of another display day, using the boats, and the parents will expect this to be a much more polished effort than your opening day programme, so plan well in advance, rehearse each event, and make sure everyone is smartly turned out on the big day.

During the winter months get on to marline spike seamanship covered by the Boatswain badge and make a display of all the articles of rope work and canvas work you have made for inspection by the parents attending the Group Committee's Annual General Meeting. Don't forget to name the Scout responsible for each exhibit, include a series of photographs showing what the Patrol did over the summer period.

Finally, see that the Patrol is smartly dressed whenever they- are away in the boat or anywhere else. Scarves and jumpers or shirts are the only items of the uniform necessary in the boat except on formal occasions, but they do at least identify you as Sea Scouts, so when you are asking the neighbourhood to help out with Job Week; a Bottle Drive or Film Evening they will at least know who is asking for help and will see for themselves that their donations are being put to good use.

You are the leader - you set the standard, the rest is up to every Scout in the Patrol doing his best to maintain the standard you set.

The Sea Scout Group

"The unit for Scout organisation in the District is the Group."

This rule puts very clearly the important fact, which should not be overlooked in the building up of our organisation. At times we are apt to think only in terms of our Troops and Venturer Units if we happen to be concerned with the girls and boys off the age group 11 to 19, or of our Packs if we happen to be Cub Leaders, or of our Crews if we have our interest in Rovering.

It should never be forgotten that the whole scheme of Scouting – and the term applies, of course, to Sea Scouting – exists for one purpose: that of helping Scouts to be Healthy, happy and useful citizens". The objective is not attained in any one section whether it be Cub Pack, Sea Scout Troop, or Venturer Unit. Each section has its part to play in helping in the moulding of the character of the Scout, and because of their realisation of this, our Founder laid emphasis on the Group System.

There is no need here to recapitulate in full the provision of P.O.R. - sufficient to say that the channel is clearly marked and buoyed by these rules and there is no need to be in doubt as to how the Group functions. However, while a Sea Scout Group is similar to an ordinary Scout Group, there are matters to which space can well be given in this Handbook.

Group Leader

The Sea Scout Group which has a good, practical Leader as G.L. is fortunate. Such a Leader can do very much in coordinating the affairs and activities of all sections of their Group - from a longer view they can see the interdependence of the sections in providing training for the Scouts according to the needs of their ages. The G. L. should see that there is maintained in the Group that balance between Scouting and Seamanship which will give the Scouts the greatest benefit from Sea Scouting. The G.L. to succeed must be accepted by the Leaders of the Group as a friend to whom they can take their problems, and if they can give advice when needed from their own experience, then they are an asset indeed to their Group.

The Cub Pack

There is absolutely no difference in the training and running of a Cub Pack in a Sea Scout Group from that of any Cub Pack.

There are no "Sea Cubs". Boating does not become part of the training of a Cub Pack, whether in a Sea Scout or Scout Group.

Swimming. As it usually happens, Cubs remain in their own Group throughout their Scouting. The Pack could well give some thought to the training of the Cubs in meeting the requirements of the three stages of the Swimmer's Badge. If every Cub upon being invested could be certified as a competent swimmer, then it would be a good step towards the essential basic requirement for Sea Scouts that they should be able to swim at least 50m fully dressed before undertaking boating.

The new invested Scout could, if desired, be given his first run in a boat as a Sea Scout.

The Sea Scout Troop

The Sea Scout Troop is intended to cater for girls and boys whose ages range from 11 to 16, while those over that age come within the scope of the Sea Venturer Unit. A Troop is divided into Patrols of five to eight members under the leadership of a Patrol Leader who is assisted by an Assistant Patrol Leader of his own choosing. The Scout leadership is an important part of the Scout

method and it is the basis on which B.-P. intended the Troop to be formed and worked. The Standard boat was developed to foster this work in Patrols during the training afloat and boat work and cruises should as far as possible be carried out in Patrol units with the Patrol Leader responsible for as much of the instruction as their own technical standard permits. The Skipper or A.S.L. can keep an eye on the training thus carried out and assist where necessary without reducing the authority of the Patrol Leader. The advancement of the Patrol Leaders and their Assistant Patrol Leaders is the responsibility of the Skipper-(Scout Leader) who either attends to this instruction himself or delegates it to a senior A.S.L. It is generally carried out on a night other than the Troop meeting night. District and Area staff frequently run special Sandford courses for Patrol Leaders, and these are of equal value to Sea Scout Patrol Leaders as their Scout counterparts.

Sea Venturers

With the older Scouts from 15 to 19 years, thought must be given to the Venturer as an individual, and groupings for activities will often be in small *ad hoc* groups according to individual interest, rather than in Patrol units. Many Groups have developed very efficient and smart units and, ü providing the Group Committee can find additional Leaders for this section, a Venturer Unit should be formed in every Group. Additional Leaders are essential before such a unit is formed. Venturer Leaders need not necessarily be technically experienced in all phases of sea training, but they do need to be able to secure outside help from specialist instructors, with the help of the Group Committee, and, in conjunction with the Unit Committee, to plan an effective training programme so that, at the end of a year's work, the Venturers know they have- learned something of value.

While it is desirable, for the purposes of continuing instruction, to appoint an Assistant Venturer Leader, it is important for the V. L. to remember that the Venturers themselves should play a major part in the planning and running of the Unit. The Venturer Leader's Handbook deals with Venturer Units in general.

Group Committee

This Committee which is elected annually by the parents should be regarded as an administrative section of the Group. Finance, property, manpower, etc., are usually looked after by small subcommittees of the Group Committee. The G. L. and Chairman and Secretary who have a close contact and regular meetings with something of interest planned for each meeting usually results in the development of a Group Committee, where the members enjoy the meetings. A regular meeting time and place is advisable and a polite reminder by the Secretary is valuable.

Let us endeavour to build our Groups strong in each section and rich in the tradition of good Scouting so that they help to produce "Good Citizens"

New Zealand Sea Scout Administration

Sea Scout Groups are administered under normal District and Area arrangements as Scout Groups and should play a full part in District and Area activities. In addition there is a National Adviser and staff as set out here to foster the formation of Sea Scout Groups and encourage and guide the nautical aspect of Scout training in accordance with National Executive Policy.

National Water Activities Adviser.

Assistant National Water Activities Advisers.

National Sea Scout and Water Activities Panel.

The members of this panel comprise the National Adviser and his Assistants, the Chief Executive Commissioner, all Area Advisers, specialist advisers and some active Sea Scout Leaders, and a Secretary.

Each of the l2 Scout Areas appoints an Area Water Activities Adviser who forms an Area Committee consisting of Sea Scout Leaders and Group Chairmen. G.L.s or their nominees form the executive of this Committee. The Area Adviser is also responsible for the supervision of Boat Surveyors to annually survey all Sea Scout boats, surveys should be completed by 31 October.

The Area Adviser also supervises all Charge Certificate Examiners in his Area. (Applications for examination are to be made on the appropriate forms obtainable from National and Area offices.)

The Area Committee plans all Area Regattas, Nautical training courses, etc., and meets as necessary, but at least once each quarter. At least once each year Area Committee should invite all Sea Scout Leaders to its meeting, together with Surveyors and Examiners, at which the Area Adviser should review the past year's work and plan the programme for the coming year.

Training afloat for Sea Scouts is governed by the Scout Boating and Bathing Rules, in P.O.R. and in "Rules for Water Activities".

National Scout Regattas

Sea Scouts are "webfooted" Scouts. Basically the training is the same; consequently we compete with our brother Scouts in camping competitions on a District, Area and National basis and fraternise and take part in Jamborees, but with the growth of the Sea Scout section and the advent of the N.Z. Standard Sea Scout Boat it became possible for Sea Scouts to meet and compete with one another in friendly rivalry at a camp of their own and do the things Sea Scouts want to know and do.

It was felt much good could be gained from such gatherings in experience of Scoutcraft, Campcraft and Seamanship as it applies to Sea Scouting.

The first National Scout Regatta was held at Picton in 1945, and from it developed the enthusiasm and the scope of the present-day camp and regatta, making it the ambition of Sea Scouts to attend at least one of the National Regattas.

The minimum age has been kept as low as possible, as have the minimum requirements for Camping, Cooking and Swimming, so as to encourage the younger Sea Scout to participate and gain experience of camp life, and with the enthusiasm that is engendered at these gatherings to return as a Sea Venturer in three years' time.

The camps and regattas have been held in different parts of New Zealand, alternating as much as possible between North and South to allow the young people the thrill of adventure in travelling to other places, and to act as a stimulus to the Area in which the events are held.

To attend a National Scout Regatta is to see Sea Scouting in its true perspective. Here the Groups fend for themselves and compete in friendly fashion to outdo each other in Campcraft, Scoutcraft and in Seamanship, competing in rowing, sailing, swimming and lifesaving.

The awards are designed to encourage the young people to do their best in all parts of our training, for in these great canvas towns adjacent to water, Sea Scouts need to put into practice all they have learned, and they gain much more from seeing others living and working together as a team in the true Scouting spirit.

Spare-time activities are encouraged for the leisure hour and for those "knocked out" in the early heats of aquatic events. They include fishing competitions, talent quests, films, overnight hikes, daylight explorations, adventure cruises and hikes.

The local organising committee organise a fun filled challenging programme in the form of challenge awards for Scouts and Venturers.

Royal New Zealand Naval Recognition

Recognition is granted to the top Troops at the National Scout Regatta.

The presentation of the Recognition Pennant will be made at the Troop's H.Q. following the inspection by a naval officer.

The badge is worn by Sea Scouts, Sea Venturers and Sea Branch Leaders who are members of recognised Groups.

Venues of National Sea Scout Camps and Regattas

Event	Year	Location	Event	Year	Location
1st	1945	Picton	13th	1971	Whangarei
2nd	1947	Tauranga	14th	1973	Mana, Wellington
3rd	1949	Nelson	15th	1975	6th National Jamboree, Tokoroa
4th	1951	Motuihi Island, Auckland	16th	1977	Waihola
5th	1953	Southland	17th	1979	Picton
6th	1955	Gisborne	18th	1981	8th National Jamboree, Hastings
7th	1957	Mana, Wellington	19th	1983	Whangaparoa, Auckland
	1959	Pan Pacific Jamboree, Auckland	20th	1985	Timaru
8th	1961	Akaroa	21st	1988	Tauranga
9th	1963	Motutapu Island, Auckland	22nd	1991	Evans Bay, Wellington
10th	1965	Mana, Wellington	23rd	1994	Picton
11th	1967	Waihola	24th	1997	North Shore, Auckland
12th	1969	5th National Jamboree, Kaiapoi	25th		

(Since 1985 Scout Regattas have been held at 3 year intervals)

Chapter III

Boat Pulling

Standard Boat Construction

The New Zealand Sea Scout Standard boat was designed in 1944 by the firm of Miller and Tunnage Ltd., of Dunedin, to the order of the Dominion Commissioner for Sea Scouts, Mr A. J. Black. The firm were asked to design a boat similar to the Royal Navy's 16-foot skiff and the "Standard" is the result of their efforts.

Up until this time Sea Scouts used almost anything which would float, and this included a large number of ex-naval whalers and gigs, which had become very hard to acquire and too expensive to build, apart from which they were rather heavy for the smaller lads to handle.

The first two Standard boats to be built were completed in time to be used at the Picton Regatta in January 1945. One of these, the *Takitimu*, was built by the designers in Dunedin and the other, the Rodney, was built in Auckland. Since then boats have been built in yards alI over the country, including the Naval dockyard, which is building the boats for Sea Cadets units.

Briefly, the Standard is a 5.2 m long,1.5 m beam clinker built open rowing and sailing boat. In clinker built boats the planks run fore and aft with the lower edge of one plank overlapping outboard, the upper edge of the plank below it. The planks are fitted to the timbers of the boat and to each other by copper nails which are clenched over washers called "roves". For single skinned boats this is a strong and light method of construction and is also comparatively easy to repair because a damaged plank may be removed and replaced without unduly disturbing the adjacent planks. In 1966 a mould was taken from a Miller and Tunnage boat and the hull reproduced in fibreglass. These hulls have become very popular and are being used alongside the wooden boats.

Principal Parts of a Standard Boat

Apron: A piece of wood fitted to the after side of the stem and extending throughout its length, to which are secured the forward ends of the planks.

Benches: The seats fitted round the sides and after end of the stern sheets. (See "Stern Sheets.")

Bilge: The space between the bottom of the boat and the floorboards.

Bilge Rails: Lengths of wood fitted along the outside of the turn at the bilge.

Bottom Boards: Slats of wood which form the flooring of the boat. They can be removed if required. (See also"Floorboards.")

Breast Hook: A piece of wood of the thickness of the gunwale and grown to shape, which is fitted to the curve of the gunwale in the eyes of the boat where they join the apron and so serves to strengthen the bows of the boat.

Capping: A strip of timber which is fitted to the top of the gunwale or washstrake to strengthen and protect it. At intervals it is pierced to take the sockets for the crutches.

Centre-Plate or Dropkeel: A metal plate which can be lowered through a slot in the keel so that it projects below the boat and thus checks the leeway when under sail. It is housed in a wooden casing known as the "keel box" or "centre case"

Counter: The overhanging part of a square-sterned boat.

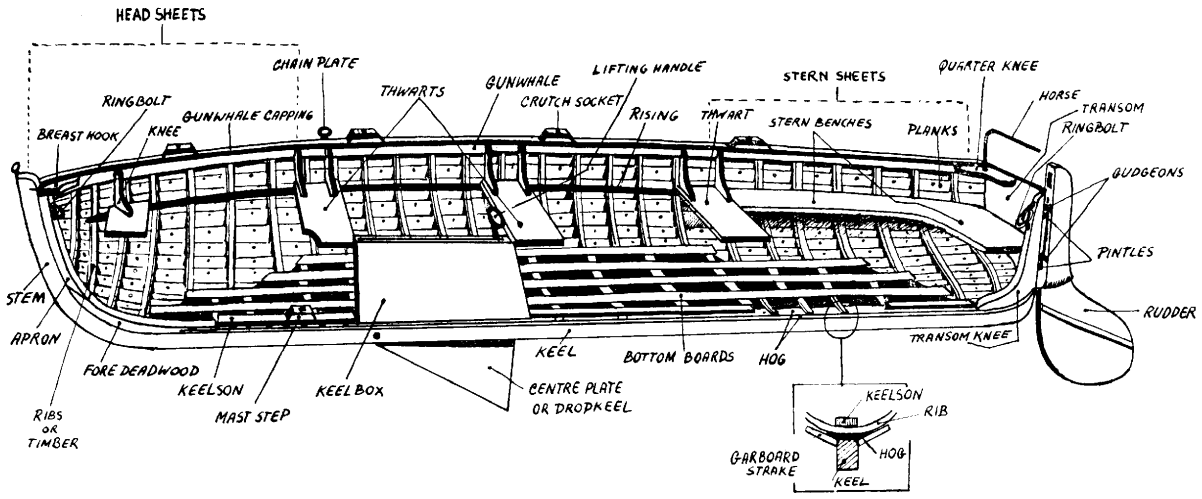
Deadwood: The piece of timber which joins the apron to the hog thus strengthening the joint between the stem and the keel or the sternpost and the keel.

Eyes: The foremost part of the boat just abaft the stem.

Floorboards: These consist of removable gratings or planks which form a platform over the bottom of the boat extending from the head sheets to the stern sheets. Some Standard boats are fitted with floorboards in the head and stern sheets only and have bottom boards between them.

Garboard Strakes: The line or strake of planks which runs next to and on either side of the keel.

Gudgeons and Pintles: The fittings by which the rudder is hung and pivoted to the transom. The pintle is the verticle pin, and the gudgeons the horizontal eyebolts into which the pintle fits.



N.B. Buoyancy not shown. PARTS OF A BOAT

Head Sheets: The space in the bows of the boat between the stem and the bow thwart.

Hog: The length of wood fitted tv the upper part of the keel. With the keel and deadwood it prvvides the anchorage for the inner edges of the garboard strakes and the lower ends of the timbers. It also serves to strengthen the keel.

Keelson: A length of wood fitted to the upper part of the hog. The inboard edges of the floorboards are secured to it. Some Standards do not have a separate keelson but incorporate it with the bottom boards.

Knees: Wooden fittings which secure the thwarts to the side of the boat.

Mast Step: A piece of wood shaped to take the heel of the mast and fitted to the keel.

Number: All standard boats are registered with N.H.Q. The number is carved in the transom on the starboard side or otherwise permanently affixed. It is also carried on the mainsail in numberals 30 cm high and of black material 0.65 cm in width.

Plug: A wooden bung, cork, or screwed metal plug which fits into a hole bored into one of the garboard strakes for draining the boat.

Risings: (see "Stringers").

Rubbers: Strips of wood extending from the stem to transom outside the washstrake. They protect and strengthen the top strakes.

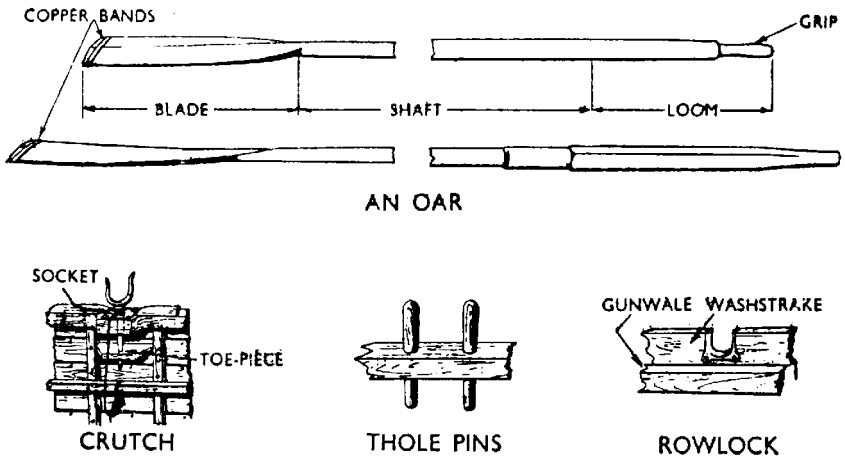
Sockets: Rouncd holes in the capping and gunwale lined with metal to take the crutches.

Stem: The foremost vertical member of the hull, the lower end of which is scarfed to the keel.

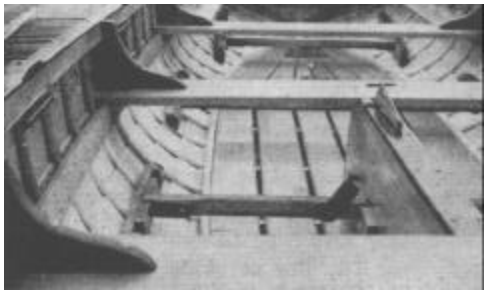
Stern Sheets: The space extending from the stroke thwart to the transom, and round the sides and after end of which are built the stern benches.

Strakes: Lengths of planking which in clinker built boats extend parallel with each other from stem to stern.

Stretchers: Adjustable wooden bars fitted athwart the bottom boards to provide footrests for the oarsmen.



Parts of an oar and ways in which it is pivoted



Fitting Stretchers

Stringers: Lengths of wood extending fore and aft over the timbers to which they are fastened. The stringers which support the thwarts are called "risings"; these are the only stringers fitted in a Standard boat.

Thwarts: Benches fitted athwart the boat on which the oarsmen sit.

Timbers: Curved pieces of wood which extend upward from the keel at short intervals throughout its length. Frequently called "ribs".

Top Strake: The uppermost strake of a boat's planking.

Transom: A board which is fitted to the after side of the stern post and extends to each side of the boat. The after ends of the planking are fastened to it.

Transom Knee: A piece of wood grown to shape which fits between the hog and transom of a square-sterned boat. It is extended almost the full height of the transom in a Standard boat and also serves as a sternpost.

Fittings

Boat's Cable: A length of 30 mm rope by which the boat rides when at anchor. Usually 20 meters in length and rove through the stem ringbolt and secured to the foremost thwart.

Buoyancy: 1.5 cu. m of buoyancy is fitted at the bow and stern of the standard boat. It is usually made of polystyrene or polyurethane foam blocks or could be made of copper tanks. The buyoancy is fitted to give the boat a greater safety margin in the event of swamping or capsize. Fibre Glass boats have the buoyancy built into the hull and thwarts.

Chainplates: 15 cm metal eye plates fitted to the stemhead and the outside of the top strake to take the forestay, shrouds and runners.

Cleats: Shaped pieces of wood or metal on which the halyards and runners are belayed.

Crutches: U-shaped fittings which fit into meal sockets in the gunwale and are always secured in the boat by a lanyard.

Horse: A curved bar of brass, fitted along the top of the transom to which the block of the mainsheet is shackled; the block travels from side to side of the horse when the boat is put about.

Mast Clamp or Bracket: A metal clamp or bracket fitted to the mast thwart for clamping the mast in position.

Painter: A length of stout cordage (generally 30 mm) secured to the fore ringbolt and by which the boat is secure when alongside or at a boom.

Ring Bolts: Eyed bolts with a ring through the eye clenched through the stem and the sternpost.

Sternfast: A rope similar to the painter, secured to the after ringbolt for marking fast the stern of the boat.

Checking the Equipment of a Standard Boat under Oars

Before taking away a boat the coxswain should see that all the equipment is correct.

l. The plug should be securely inserted in its hole.
2. There should be a full complement of oars and one spare. Blades forward in a double banked boat, looms squared off on the stroke thwart.
3. There should be a full complement of crutches and one spare, all secured to the boat by their lanyards.
4. A stretcher should be fitted for each oarsman.
5. The rudder should be shipped and the tiller secured with its pin.
6. The painter and sternfast should be secured and coiled down.
7. The inboard end of the anchor cable should be passed through the fore ringbolt and secured to the foremost thwart. If the boat has a fairlead fitted on the gunwale it will not be necessary to lead the cable through the ringbolt.

8. Bailers and fenders should be secured to the boat by their lanyards.
9. The boat hook should be handy to the bowman forward and the lifebuoy on the bottom boards aft within easy reach of .the coxswain.

It is an old Navy saying that a ship is known by her boats, and this is equally true of Sea Scout Troops. When away in a boat, remember that you carry the credit of your Troop with you. See that the crew man the boat smartly and that they are properly dressed and the boat's gear neatly stowed.

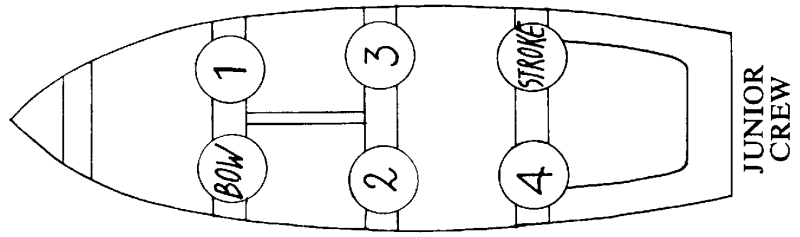
No member of the crew should be allowed to stand in the boat except when necessary to carry out his duties, and the crew should be warned against placing hands or arms on the gunwale, especially when coming alongside.

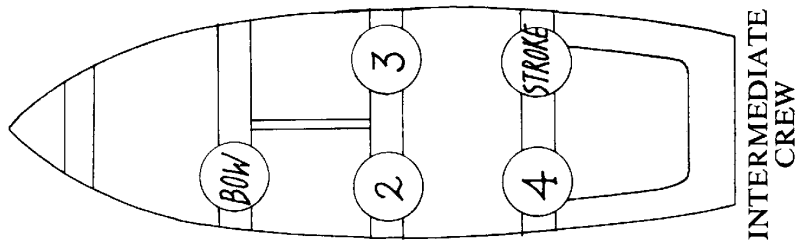
If thüe boat is to be away from H.Q. for the day it is a good plan to carry a "Boat's Bag" containing gear to enable minor running repairs to be carried out if necessary. It should include the following:

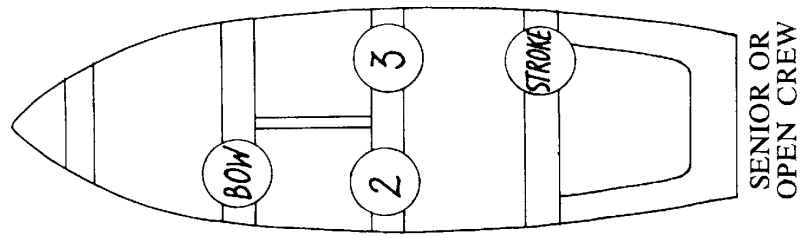
Palm and needle
Sailmakers twine
A hammer
A spare plug
A pair of Semaphore flags
Dynel cloth, tape
Red hand f1ares, orange smoke float, and day glow square of plastic sheet
Marline spike
Spare cordage
Some copper nails
A torch
Copper tacks
Fibreglass resin

Instruction in Boat Pulling

The crew should be detailed off for their thwarts before manning the boat. There are three basic arrangements of oarsmen for four, five or six rowers respectively as illustrated.







It will be noted that Stroke is always the aftermost oarsman on the starboard side and that the numbering of the positions of other oarsman does not alter with changes in the sizes of crews.

Only in the case of a 6 oar crew are two bow oars carried. This is also a convenient arrangement of rowers for Patrol cruises.

If during rowing instruction it is desired to distinguish between the bow oars, number the starboard bow oar one, preserving the general rule of odd numbers, starboard; even numbers, port.

When boarding the boat the crew should be taught to step (not jump) on to the thwarts or benches, thence on to the bottom boards; they should also be taught to avoid stepping on to the gunwale, to move carefully in the boat, and to step over thwarts and not jump from thwart to thwart.

The crutches should be unshipped, fenders out and oars squared off at the stroke thwart, blades forward.

Each rower should sit squarely and upright on their thwart, with the after edge of the thwart where their buttocks meet their thigh muscles. The stretcher should be adjusted so that when their feet are resting on it, the knees are slightly bent.

Getting Under Way in a Standard

From Alongside: At the order "Bear off" the bowhand bears the boat off and the near side crew on the stroke thwart springs the boat ahead.

From a Boom: If at an inner berth order the bowhand to bear off by pushing the boat astern to clear the other boats alongside. At an outboard berth order the bowhand to spring the boat ahead.

From a Buoy: Order the bowhand to "Let go". Have the remainder of the crew at "Oars" to immediately be able to get under way.

In Fenders: Bring fenders inboard.

Ship Crutches: Place the crutches in their sockets.

Sight Your Oars: Each rower grasps their oar (stroke oarsman outboard oars) and raises the blade to the gunwale.

Toss Oars: The oars are raised smartly to a vertical position with the looms resting on the bottom boards - blades fore and aft.

Oars: The oars are lowered gently into the crutches, care being taken not to allow the blade to touch the water. The crew sit squarely and upright on their thwarts with the oars horizontal and blades "feathered", i.e., parallel with the water. NOTE: When given under way "Oars" is an order to stop rowing and assume the position described above.

Give Way Together: is then ordered.

In a tideway it may be necessary to have the crutches shipped and the oars tossed before ordering the bowhand to bear off to avoid the boat being carried away by the tide.

These orders are given in rapid sequence and are executed in precise unison by the crew.

In all methods of rowing the oar is pivoted at about one-third its length from the grip, and is used as a lever by dipping the blade in the water and pulling on the loom, thus driving the boat through the water.

The sequence of body and arm movements is shown in the accompanying illustration.

The hands should grasp the oars about 30 to 45 cm apart, the inner hand on the grip. The grip on the oars should be firm but light, fingers on top, thumb underneath. Both elbows should be kept close in to the body and the back straight.

At the commencement of the stroke the rower leans forward keeping the shoulders braced back. Then lowers the blade of the oar into the water by raising their hands, then pulls the blade aft through the water by driving their feet against the stretcher and, while keeping the back and arms straight, swinging the trunk of their body backwards until it is from 10^{o} to 20^{o} beyond the vertical. The end of the stroke is made with the trunk still in this position by bending the elbows and pulling the loom of the oar on to the chest with the arm and shoulder muscles, which should bring the oar with the blade just clear of the water at an angle of 45^{o} with the vertical.

From the moment the oar enters the water, and throughout the stroke, the legs should exert a powerful drive against the stretcher.

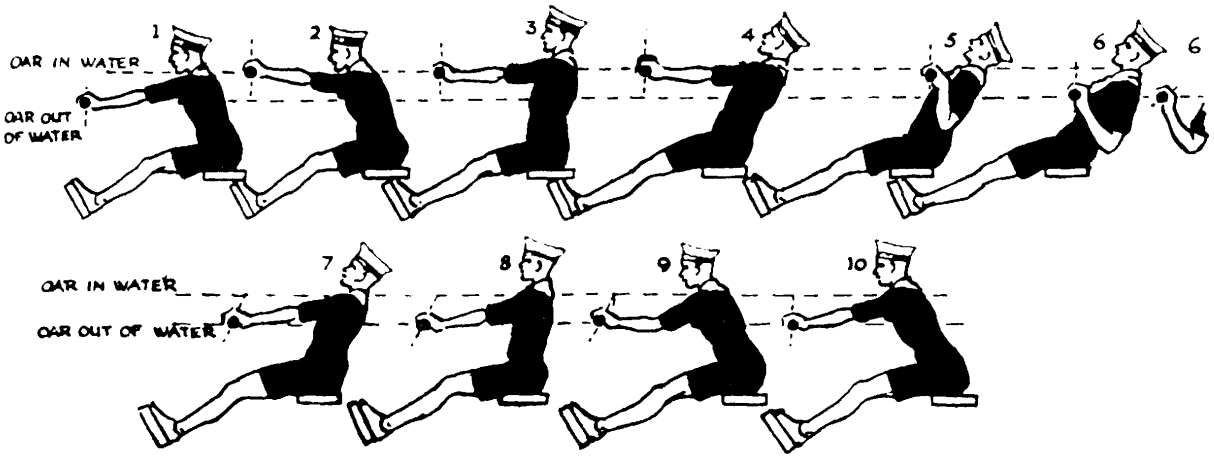
The cycle is completed by lowering the hands slightly to make sure the blade clears the water, dropping the wrists to feather the blade. The arms are then thrust forward and the trunk swung upright by the stomach muscles.

The crew should reach well aft at the commencement of the stroke and raise the wrist so that the blade of the oar presents the correct angle to the water. The catch should be made exactly

together, with as much weight as possible on the looms of the oars, and the arms should be kept straight until the body reaches its backward position. If this is done correctly the oars will come home easily at the end of the stroke.

There are then four parts to a complete stroke:

l. Leaning forward and lowering the blade in the water ready to start the pull.
2. The sweep of the blade toward the stern to give the headway.
3. Raising the blade out of the water and turning it flat (feathering).
4. Swinging the oar back to position for the next stroke. Be careful not to make this recovery too rapidly. Give the crew time to breathe correctly.



Pulling Orders

When a pulling boat is under way, any order to the crew except "*Hold water*" is obeyed one completing one full stroke after the order is given.

All such orders should be given at the moment when the blades of the oars are in the water. Obeying the order the crew should take their time by the stroke oars.

When "Port" or "Starboard" is included in the order it refers to the bank of oars on the port or starboard side of the boat respectively, i.e., "*Give way port*" if only the port bank of oars is required to give way.

"*Back together*" is the order to back water together by pushing on the looms of the oars instead of pulling (or "*Back port*" or "*Back starboard*").

"*Easy All*" is the order- to pull less vigorously so that the speed of the boat will be reduced. If the boat is being turned, "*Easy port*" or "*Easy starboard*" may be given. To resume normal pulling the order- "Give way together" is given.

"*Stroke together*" is the order for all to give one stroke together.

"*Oars*" is the order to stop pulling which is given when the oars are about to be boated or tossed. NOTE: If the oars are not to be boated or tossed the order "*Oars*" is given; for example, when ordering "*Rest on oars*". This order allows the crew to relax by laying their oars athwart the boat with the grips on the gunwale, blades flat. (With a heavier oar, such as is used in naval whalers and cutters, the grip is slipped under the gunwale, the weight of the outboard end of the oar holding it in place.)

Oars, crutches, etc., are "shipped" when placed ready for use and "*boated*" when stowed away in the boat.

"*Mind your oars*" is a warning to the crew to keep the blades of their oars clear of some obstruction ("*Mind your port oars*" – "*Mind your starboard oars*").

"*Eyes in the boat*" is an order to the crew to keep their gaze from wandering abroad and to pay attention to the job. There is, tendency with new Scouts to watch the blade of the oar, which should be discouraged at an early stage.

Going Alongside in a Standard

When the boat is within 50 metres or so of her destination the order, "*Fenders out*", is given, followed by the order, "*Bows*". At this the bowhand tosses their oar and then boats it, passing the loom aft.

The bowhand then stands in the head sheets with the boat hook vertical and stands by to fend off the boat. They should also make sure the painter is clear and ready to be made fast.

Then the order "*Oars*" is given, followed by "*Toss oars*" and "*Boat oars*", at which order the oars are lowered gently into the boat, stroke oars nearest gunwale, blades forward and squared off at the stroke thwart. The crew then unship their crutches and the stroke stands up in the stern sheets ready to fend off or check the way and make fast aft.

Where there is insufficient height for the oars to remain tossed the order, "*Toss and boat your oars*", is given after "*Oars*". The oars are tossed and held vertically for an instant and then laid in together.

Oars are never tossed when going alongside in heavy sea or swell in case the blades of the oars catch under some projection and drive the loom through the bottom.

Under such conditions "*Oars*" – "*boat your oars*"- is given, and the oars are lifted clear of the crutches and the blades swung forward in a horizontal arc and as the oars are boated the looms are passed aft.

Making Fast

Learn to make fast by making a knot using a bight in the rope instead of hauling yards of rope through to make a knot at the right length.

If the painter is long enough, pass it round some object (ringbolt, bollard, etc.) ashore and secure it back in the boat.

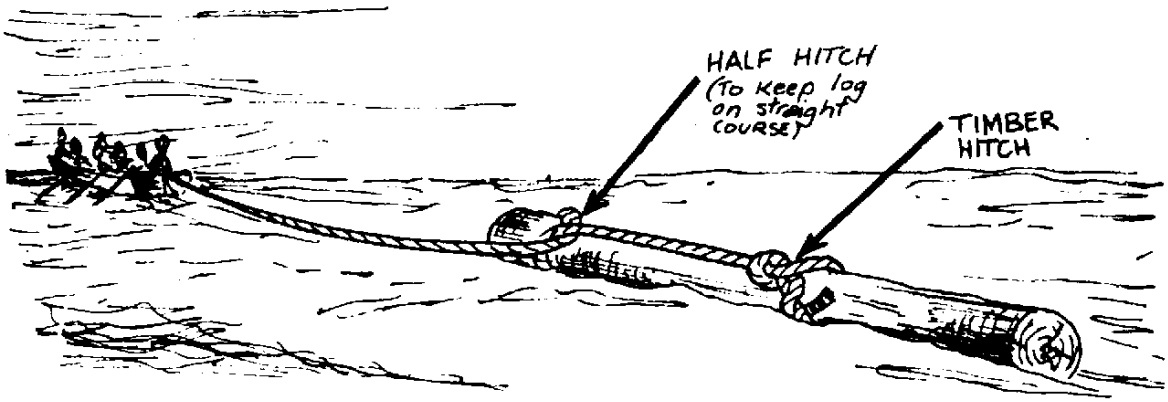
If the boat is likely to be alongside for long, **don't forget the tide**. It's no fun to return to find the painter secured under water or the boat slung up by its painter.

Towing and Being Towed

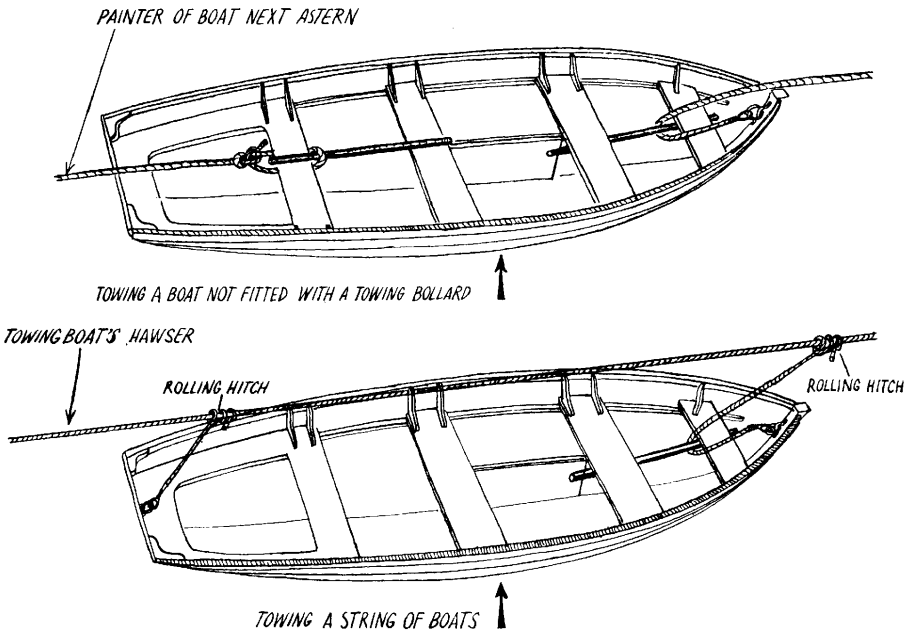
Towing and being towed may both be dangerous, and one must realise the dangers in order to guard against them. The dangers are chiefly of the towed boat broaching to and capsizing or of running her nose under and filling. It is essential then that the tow rope should be able to be let go or cut immediately from either end in case of emergency. A knife should be kept handy during these operations.

To Tow: The tow rope must be made fast at either end with a knot which can be slipped easily. It is usually made fast amidships so that the vessel can be steered properly. If you are a power vessel take the strain gently so as to avoid breaking the rope or unduly straining the boat being towed. If more than one vessel is being towed one behind the other, the largest boat should be behind the towing vessel and the smallest last. If towing with a Standard boat, make an eye in the tow rope with a bowline and pass the rope inboard under the stroke thwart, bringing it up between the stroke and midships thwart. Pass the loom of an oar or a spar across the top of the thwarts and through the eye so that the tow can be immediately slipped by pulling the oar out.

Towing a log or spar



Being Towed: The towing rope must be led directly from the bows and, in the case of a Standard boat, the tow rope should be led in over the bows and passed under the foremost thwart and up between the foremost thwart and the mast thwart. An eye should be made in the tow rope with a bowline as when towing and an oar or spar laid along the top of the thwarts and through the eye so that the rope will slip immediately the oar is withdrawn. Keep the weight aft and have the crew sitting on the bottom boards. The coxswain must steer in the wake of the towing vessel. Never tow directly off the fore ringbolt as this imposes too much strain on the bows. If it becomes necessary to tow by the painter, pass the painter back over the foremost thwart and secure as shown in the illustration.



Sculling

A Sea Scout should be able to scull a dinghy over tic stern. The boat needs to have a notch in the transom or a crutch socket fitted to the transom.

Face aft, feet well apart, and for a start hold the oar with both hands, with the wrists under the oar and the thumbs towards you.

Make the strokes without pause, the hands, describing a horizontal figure of eight. Let the wrists work loosely, acting as hinges pulling the hands after them as the strokes are made.

If the wrists are allowed to act in this way, the blade of the oar will twist naturally at the end of each stroke and assume the correct angle for the return stroke.

Once the knack has been acquired, sculling can be done single-handed with either hand.

Riding to a Sea Anchor

If a boat is overtaken by a gale and has little sea room it is best to ride out the gale to a sea anchor, which is a cone shaped bag of canvas open at both ends and with one end much larger than the other. It is streamed over the bows secured to the boat's cable (anchor warp) to the full extent and the boat then rides to the sea anchor with her head to wind and sea as she drags it slowly through the water.

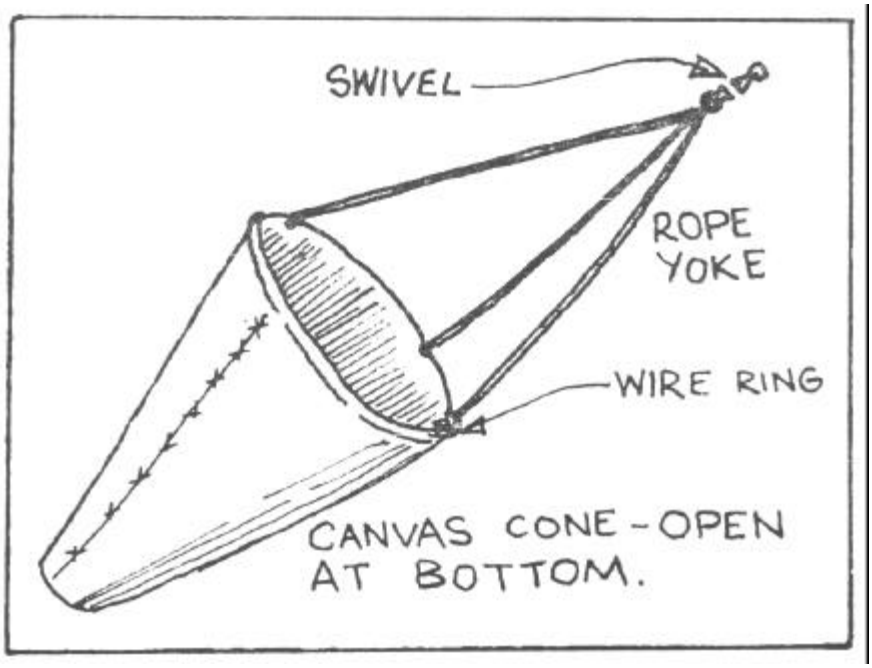
For a Standard the dimensions of the sea anchor will be as follows:

Diameter of the mouth ..... 40 centimetres
Length of sea anchor ..... 70 centimetres
Diameter of tail ..... 0.6 centimetres

The mouth is strengthened with wire to keep it open.

A jury sea anchor can be rigged by securing the foresail by its luff to an oar or spar and weighting the clew with the anchor. Bend a three-legged bridle on to the three corners and secure to the boat's cable.

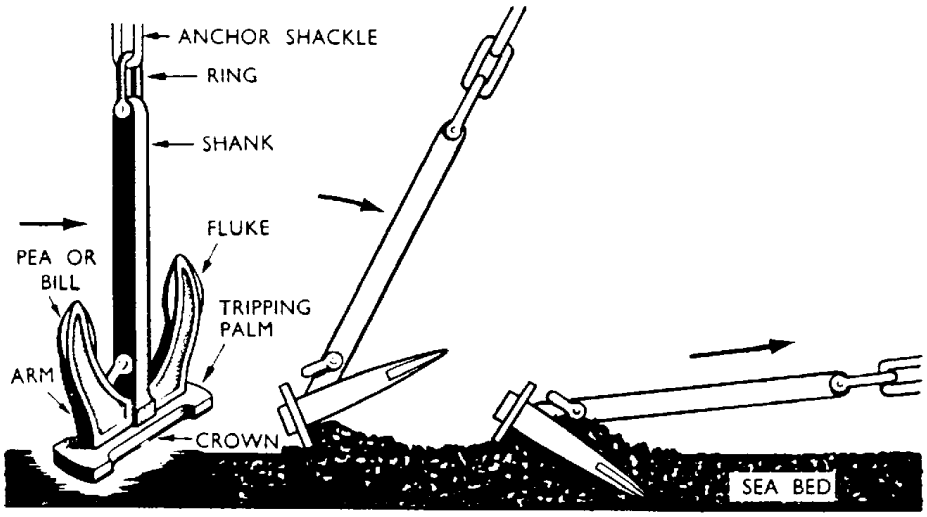
If no sails or awnings are available a sea anchor can be made by securely lashing together oars, stretchers, and other such fittings and securing them to the boat's cable by a two-legged bridle so that the boat will tow them broadside through the water.

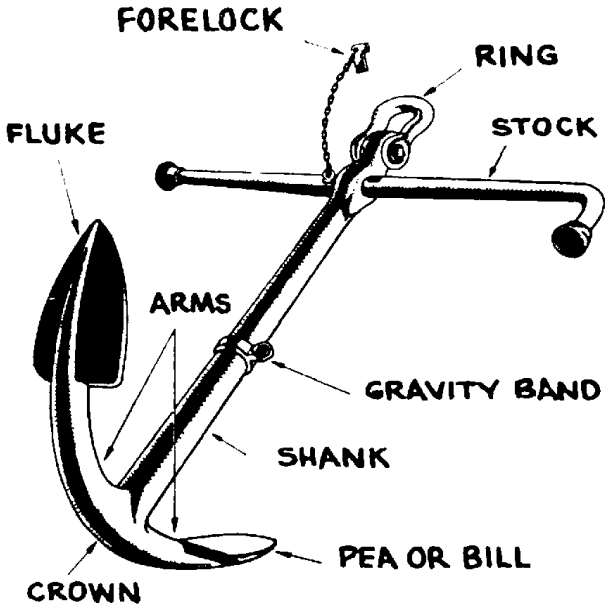


Anchors and Anchoring

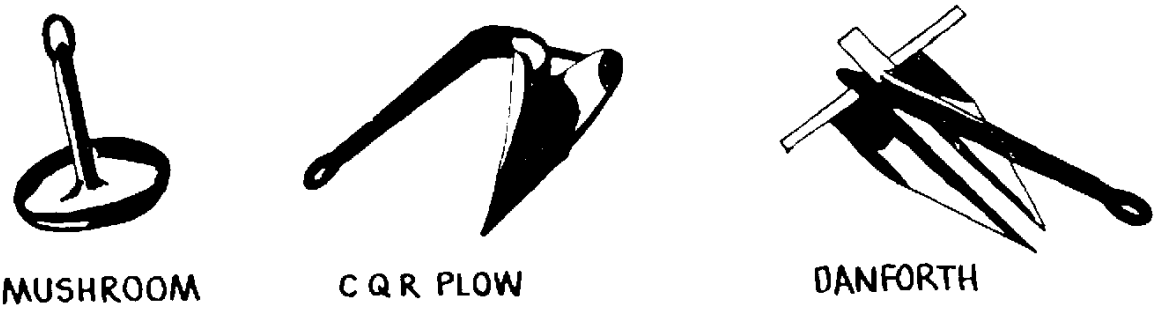
Ships cannot be anchored where the water is too deep. It is not just a question of whether the cable is long enough to reach the bottom; it is important to remember that an anchor is designed :

To hook firmly into the sea-bed when the cable is pulling straight along the ground from the anchor; and to break out of the ground easily when the cable is pulling from above.





Several types of anchor are available for use with small craft, but those most commonly used with Sea Scout boats will be the Stocked anchor of the Admiralty pattern; the Stockless or Patent anchor and Danforth anchor. Of these the Danforth has the greater holding power, weight for weight. All have the advantage that they can be easily stowed, the Stocked anchor having a stock which can move through the shank after removing the pin and which stows alongside the shank (the reason for the curve in the stock).



Other useful anchors are C.Q.R. (Plough) and the Mushroom anchor which is used for permanent moorings, in mud it not only buries itself deeply, so that the weight of the mud in the bell adds to its holding qualities, but it actually sets up a suction condition, making it extremely hard to break out.

Points for Guidance when Anchoring

Always make sure the inboard end of the cable is secured aboard the boat. (Many an anchor has been lost overboard with all its cable.)

Always check the depth of water and, if possible, the type of bottom before anchoring. (Clay, mud and sand are good holding grounds; shingle, shell and rock make poor holding ground.)

Don't choose an anchorage where the water is too shallow-otherwise at low tides you may find yourself aground.

Leave plenty of swinging room. If the boat is swung round by the wind it may strike or chafe against any obstruction.

Approach your anchorage heading into the wind or current, whichever is the stronger. Use moored boats as a guide and turn your own boat in the same direction.

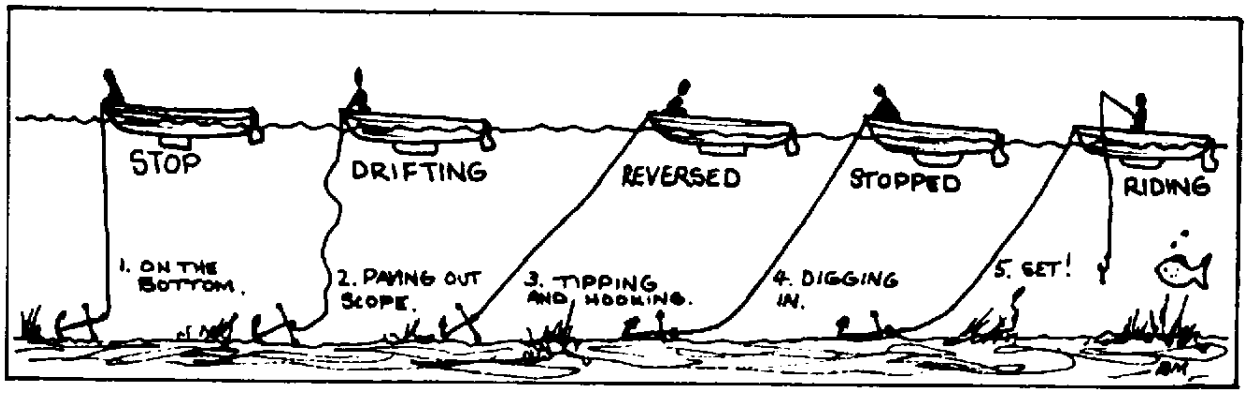
Before the anchor is let go (never attempt to throw it) see that the boat has lost her headway, and backwater. This helps to lay the rope along the bottom. When you have paid out rope to twice the depth of water, snub it and feel the anchor starting to hold, then pay out the require length, which should be about three times the depth of water. Pay out more rope in strong winds.

Make sure your foot is not inside a bight of the rope before you let go.

In a boat under sail it is advisable to drop the foresail as the boat rounds up into the wind and "let fly" the mainsheet.

Wait until you are satisfied the boat is secure. Thereafter check your position regularly.

If it becomes necessary to anchor on a rocky bottom, bend the cable to the crown of the anchor and stop it to the anchor ring or shackle with a seizing of some light line so that if the anchor becomes wedged under a rock, a sharp pull on the cable will snap the seizing and the anchor can be pulled out by its crown.



Refitting

Every year the Group Council and the Patrol Leaders Council have to spend time planning the annual refit of the Troop's boats to bring them up to top line before survey for the next year's Boat Certificate of Seaworthiness.

The planning has to cover the extent of the refitting of each boat, which falls into three main categories:

Hull,
Fittings (chain plates, centre plate, horse, floors, etc.),
Equipment (oars, spars, riggings, etc.)

And the hands to do the job. This means making provision for the Sea Scout tackling the Boatswain badge.

The Group Council will need to detail off a Leader and Patrol Leader to make out a full "Defect List" under the categories listed above and Patrol Leaders will be required to supply a list of Scouts wishing to qualify for the badges. With this information the planning can proceed.

The Hull

Preparation: The hull must first be thoroughly scrubbed out and hosed to remove all sand and dirt, particular care being taken to clean out between ribs and planks. All paintwork should then be well washed down with painter's sugar-soap, and then well washed down to remove all traces of the soap and caustic.

The paintwork can then be sanded down, using a medium grade paper to start with. Broken paintwork must be removed. Sanding down is a long job and a case where many hands make light work. Even the youngest Recruit can help.

Avoid using a blowlamp if at all possible because in unskilled hands the timber can be badly charred, and also the heating of the copper nails tends to loosen the roves. Scrapers and coarse sandpaper on broken paintwork are a safer proposition. See that all sanding is done with the grain or the general run of the planks as cross sanding will take a lot of removing when it comes time to finish off the work with a fine paper. If the paintwork is in good condition sand it down just enough to provide a smooth, even surface.

Painting: Where the preparatory work has exposed bare wood a primer coat of paint must be applied. It is most important that the wood is dry or the paint will not adhere to the surface satisfactorily. When the primer has dried hard, a light sanding with a fine paper will smooth the surface. The undercoat should be applied next, and this should be a similar colour to the final coat as the two will blend more easily and any knocks later will be less noticeable. When dry, the undercoat can be smoothed, using wet-and-dry paper, and the hull washed down with a turpentine-laden rag and wiped off with a clean rag before applying the final coat.

The final coat will be enamel, and care is to be taken to avoid the coat being applied too thickly, which will cause "curtains" and unsightly runs. Take care, too, to avoid any "holidays"-

unpainted patches. It is better to have two thin, even coats than one thick one. Turn the boat upside down on trestles if possible to do the outside of the hull.

Cutting a Waterline: Set the boat on an even keel, decide on the height of the waterline and mark off, using a square to the floor at intervals round the hull. These marks can then be joined up in pencil. Once the waterline has been marked it is a good plan to score it lightly into the hull so that the business of measuring off does not have to be done when next time a repaint is due. Paint the lighter hull colour first, using a masking tape to ensure a straight waterline, unless a "tame" skilled painter is available to help.

Points to remember when painting boats:

Be sure that the surface is clean, dry and free from grease.

Be sure that the atmosphere is free from dust as this will settle on the wet paint, causing a rough surface.

When painting in a salt-laden atmosphere, as is likely in a boatshed over the water or near the sea, be sure that no salt deposit has formed on the surface to be painted. If it has, wipe the area over completely with a turpentine-laden rag and wipe off with a clean, dry rag.

Spars

At the end of the boating season the sails will have been removed from the spars, washed and stowed away where air can circulate feely round them. Masts, spars and oars should all be scraped down to bare wood and sanded off. When this has been done a generous coating of raw linseed oil should be worked into the wood. The first coat should be about three-quarters linseed oil and one-quarter kerosene to carry the oil deep into the timber. When dry apply the second coat, which is to be 100 per cent raw linseed oil.

When the oil is dry the spars can be varnished with a clear spar varnish, the varnish being warmed gently before application in thin coats. If two coats of varnish are necessary, wipe the surface lightly between coats with turpentine. Hard clear polyurethane varnishes are often used on spars nowadays. Oars may be varnished, but must be well oiled first.

Rigging

All rigging should be inspected periodically for frayed or broken fibres or wires, and wire rope should be well lubricated with boiled linseed oil. Particularly inspect the lower ends of shrouds and' stays, and if there is any sign of rust remove the serving over the eye splices, wire brush and treat with boiled linseed oil before re-serving. Removing all shackles from the stayband, wire brush and lubricate with graphite grease. Stainless steel rigging will only require a good inspection.

Replace all lanyards on the stays, check the blocks and masthead sheave to see they are free running, and grease lightly.

Drop-keel

Remove from the centre case and inspect the pin for wear. Scale off all rust and paint with K16 or some similar rust proofing paint, or fit a stainless steel pin.

Repairs to (G.R.P.) Gtass Reinforced Plastic Boats

With the increasing use of fibre glass boats with their relative maintenance free operation, Sea Scouts should be aware that these boats will only be maintenance free if they are looked after very carefully. With use the surface of these boats will become scratched, or may become cracked. As

the result of an accident it may have a hole punched in it. Repairs should be done while they are still small; if damage is left it could get worse and harder to patch up. Small repairs can be done by the Sea Scout Group. A large repair job is probably better left to an expert or boatbuilder.

Small scratches may be repaired by first removing any loose material, then cleaning and drying the affected area. An epoxy resin putty is applied to the area, smoothed off and allowed to harden. After hardening it may be sanded smooth. With deep scratches and gouges which are into the laminate layers an epoxy resin is used. The first step is to apply a reinforcing material, depending on the size of the gouge or deep scratch. With large gouges the reinforcing material (usually dynel cloth) should cover. well beyond the damaged area. Several coats of resin are laid on. The final coat should be covered by cellophane to give it a smooth finish and stop the resin from undercuring. At all times the manufacturer's instructions should be followed when using the resin. When the repair has set hard the cellophane is removed and the patch sanded smooth. Patches may be coloured by using tinting pigments. It is very hard to match colours as the hull colour will have faded. An easy way round this is to paint the patched area only. Bad cracks should be repaired from inside the hull where this is possible. Care should be taken that any resin used will not destroy the polystyerene buoyancy if it comes in contact with it.

To keep the hull of your fibre glass boat looking good, clean the boat well inside and out with detergent, then polish the hull well with a good car polish. Don't leave your boat banging against jetty piles, alongside other boats or lying on a beach banging around in the waves. Always stow the boat on a flat surface and well supported on padded chocks. When the boat is being transported by trailer make sure the chocks are set exactly to the hull of the boat or you may arrive at a regatta ready to win but with your bilges stove in. On no account should you tow more than one boat, and if you are being towed in a group your boat must be attached to the tow line independently; this prevents excessive strain being put on the hull. Looked after carefully a fibre glass boat will give many years of good service.

The Little Scout Book No. 22 "Rules for Water Activities" contains advice on General Boat Maintenance.

Wooden Boats

The older wooden cutters and dinghys can be stripped of paint using blow lamps, gas torches or better still hot air paint stripping guns. When the boat has dried out it can be treated with Evidure or similar compound before painting.

The caulking along the keel and garboard strake can be done using a flexible caulking compound applied with a pressure gun. Maintained well your wooden boat will last a long time.

Chapter IV

Boat Sailing

Sailing Rig of a Standard Boat

The Standard boat is “Sloop” rigged; that is to say, it has a single mast carrying one headsail, called a foresail, and one mainsail. The mainsail is Gunter rigged, a compromise between Bermuda and Gaff rigs.

This rig means that while the sail is cut to almost the same shape as Bermuda sails, the top half of the luff, or the head of the sail, is secured to a gaff, which is hauled close up to the mast and serves as an extension to it. It is particularly suited to the Standard boat because of the desirability of having a mast which can be stowed inside the boat.

The sails are usually made of terylene, a hard wearing light fabric which lasts longer than cotton or canvas.

Sails and Rigging

The parts of three and four-sided sails are named in the accompanying illustration of a Standard boat. The details are common to most fore-and-aft rigged boats.

Additional information about boat sails and rigging follows:

A bolt rope is the roping on the edge of a sail. It is always sewn on the side of the sail which will be to port when the sail is set. The luff, head and foot of a Standard mainsail are roped.

A sheet is a rope bent to the clew of a sail by which the sail is trimmed as required and is named after the sail to which it is bent, i.e., fore-sheet, mainsheet. To check a sheet is to ease it away so that the sail is eased out. To aft a sheet is to haul it in so that the clew of the sail is hauled aft, and to “let fly” a sheet is to let it run so the sail flaps and the wind is spilled out of it.

A halyard is a rope by which a sail is hoisted and lowered, and to “settle” a halyard is to ease it away.

Cringles are eyes worked into the bolt rope at the sides and corners of the sail and to which are bent the halyards, sheets and tack hook, in the case of a Standard foresail, and the peak, throat, tack, and clew earings of the Standard mainsail. Two extra cringles are fitted at the end of the line of reef points on the mainsail, and these become the tack and clew when a reef has been taken in.

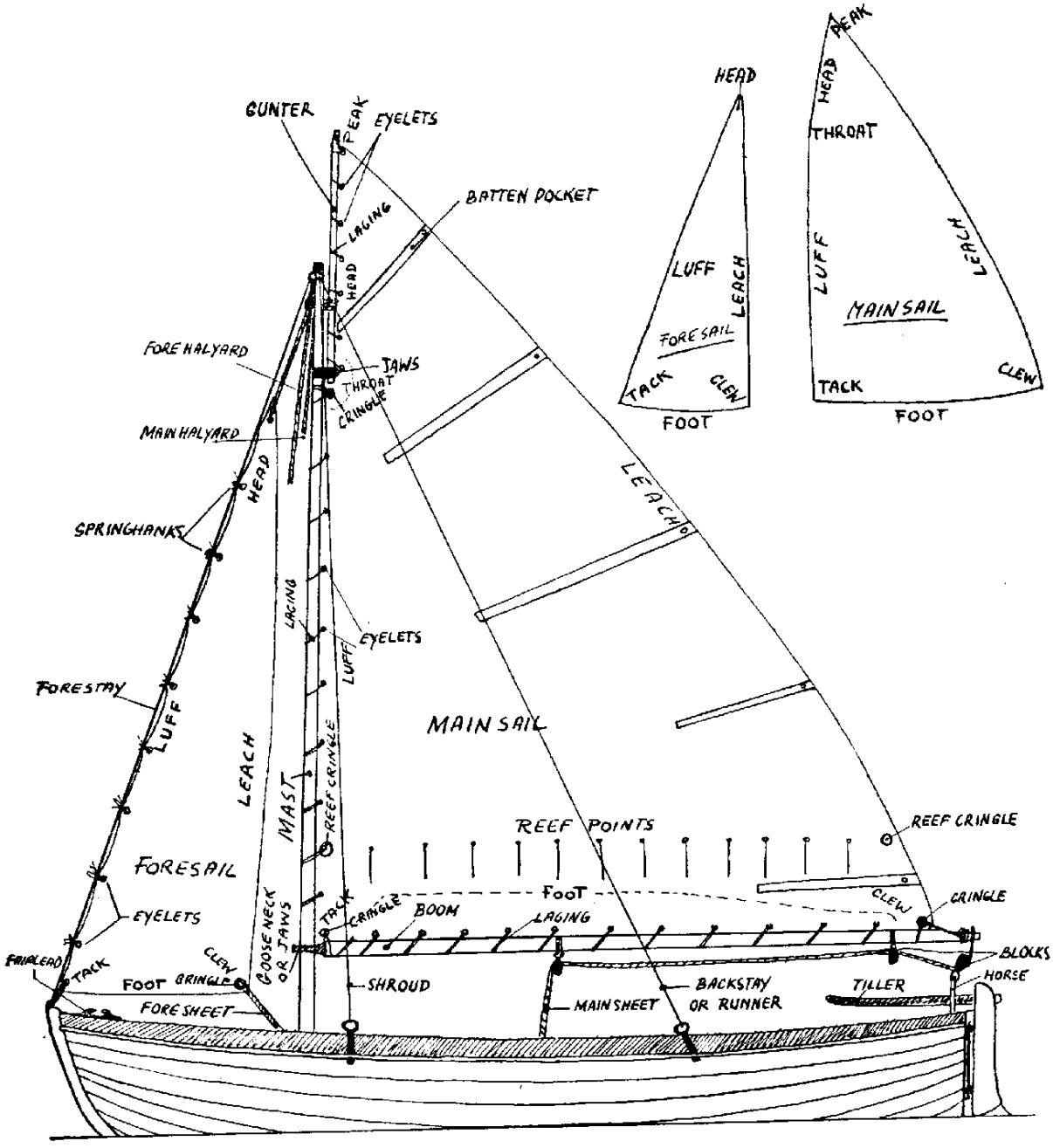
Eyelets are eyes worked into the head, luff, and foot of the sail for lacing it to a spar.

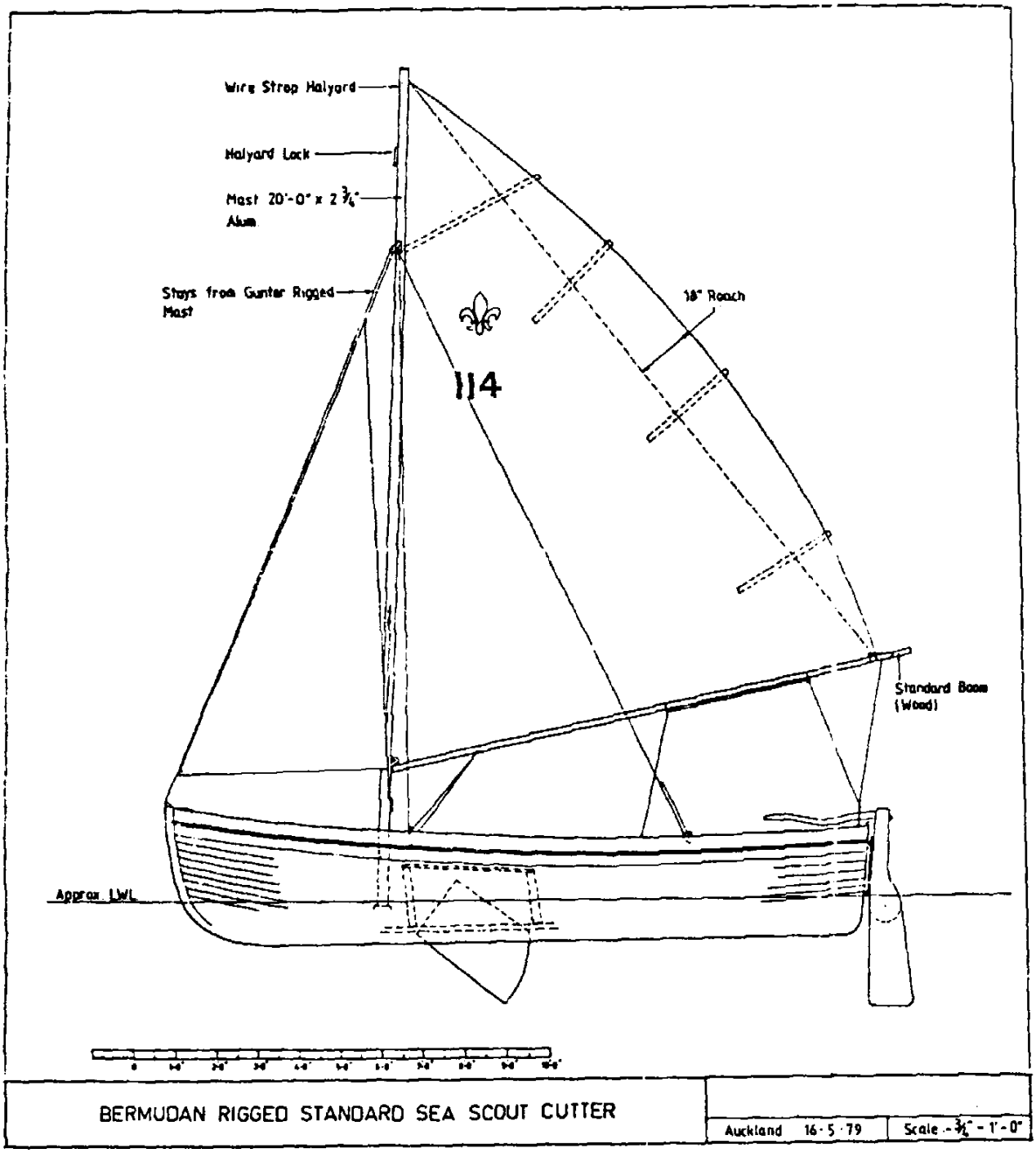
An earing is the lashing which secures the throat, peak, clew or tack of a sail to its spar.

Yard and gaff. The head of a four-sided sail is bent to and supported by either a yard or a gaff has a yard crosses the mast, but a gaff has jaws at its throat which fit around the mast.

Reef points are short lengths of line secured to each side of a sail in pairs, above its foot, and are used for reefing the sail. To “reef” a sail is to reduce its area to prevent heeling too far over and capsizing. A Standard is reefed by settling the halyard until the reef points can be secured round the foot of the sail. “Taking down a reef” is putting a reef in a sail and “shaking out a reef” is to take it out again.

The foresail is the sail set before the mast. (NOTE: The Standard headsail is a foresail, not a jib. A jib is any headsail set before the foresail.)





STANDARD SCOUT CUTTER ALTERNATE RIG

Mast	Aluminium extrusion with Continuous luff groove to the following dimensions: Length: 6100 mm (20'-0") Cross Section: 77 x 63 mm. *minimum* No buoyancy to be added. A 16 mm diameter hole to be drilled in the base for drainage.
Goose Neck	Either fixed or adjustable – Material: Stainless Steel.

Halyard	Two locks to be fitted to mast so that main sail can either be fully hoisted or lowered to reef point.
Boom	Either original wood or aluminium. Aluminium extrusion with continuous foot groove. Length: 3860 mm (12'-8") Cross Section: 63 x 57 mm *minimum*.
Boom Vang	Own choice.
Jib Sail:	Jib Foot: 1651 mm (5 '-5") Luff: 3530 mm (l1'-7") Leach: 3251 mm (10'-8")
Main Sail:	Foot: 3632 mm (11'-l1") Luff: 4699 mm (15'-5") Leach: 5410 mm (17'-9") Leach Roach: 457mm (1'-6") 1 Reef Point: 914 mm (3'-0") Either slab or reef points at 3' up luff.

N.B. If aluminium boom is used then foot of main sail requires bolt rope sewn in.

A trisail has been designed for the Standard. It is a triangular, loose-footed sail set in place of the mainsail.

A forestay leads forward from the masthead and is secured either to a stemhead shackle or a chainplate on the stemhead.

Shrouds lead from the masthead to chain plates on the sides of the boat and support the mast athwartships.

Backstays, commonly called "runners", lead aft from the masthead to support the mast, particularly when sailing with the wind abaft the beam.

Standing rigging comprises all the permanently fitted and secured wires such as stays and shrouds. In a Standard these are made from 20 mm steel wire rope with served hard eyes each end and are shackled to the masthead spiderband with D-shackles. Nowadays stainless steel wire with talurit splices are used for the stays. The lower ends are fitted with lanyards, usually a nylon cord.

Running rigging comprises all the movable ropes such as sheets and halyards. Made from 30 mm rope in Standards, usually nylon.

Rigging a Standard

Stow the oars under the thwarts, blades aft, two each side of the centre case on the bottom boards.

Place the mast in the boat, heel forward, and the mainsail on its spars alongside the mast, peak aft.

Step the mast through its bracket into the mast step and secure the forestay and shrouds, taking care to evenly divide the strain.

Set up the runners (if fitted) and leave them slack.

Bend the foresail halyard to the peak of the foresail, and attach the clips on the luff of the foresail to the forestay. The tack of the foresail should be secured to the stemhead chainplate by a shackle or lanyard so that the foot of the foresail when set will be approximately the same height as the foot of the mainsail.

Secure the foresheet leading blocks to the shroud chainplate and reeve the sheets (put a stopper knot, such as a figure of eight, in the ends of the sheets to prevent them unreeving), leave the foresail lowered and belay the end of the halyard to the cleat on the starboard side of the mast.

Secure the main halyard to the gaff with a rolling hitch (with the two turns toward the peak), and make sure the knot is so made that the halyard leads fairly into the masthead sheave, otherwise the gaff will twist and upset the set of the sail.

Check that the peak and clew earings have been hauled taut and secured. (This should be done ashore before the sail is placed in the boat.)

Hoist the sail, passing back and forth lacing from the lull round the mast.

Fit the battens and secure them in their pockets, with the exception of the bottom batten unless it is intended to leave the sail hoisted.

Pass the eye of the mainsheet over the outboard end of the boom, then reeve the sheet through the single block on the horse, then through the block at the end of the boom and forward through the leading block above the stroke thwart and coil down on the bottom boards.

The tack of the mainsail is secured by a short tack line if the boom is fitted with jaws. The tack line prevents the boom from riding up the mast and keeps the luff taut. Larger vessels have a tack tackle. There is no tack line if the boom is secured by a gooseneck swivel.

When the sail is fully hoisted the boom should be about a foot above the gunwale and the gaff close up to the mast with no slacking away at the peak.

The halyard should then be belayed to the cleat on the forward side of the mast. Always use this cleat for the main halyard, and the cleat on the starboard side of the mast for the foresail; then there can be no mistakes among the crew if a halyard is required in a hurry.

Some boats have tracks fitted to the mast and runners or slides sewn on the luff. They are a very satisfactory alternative to lacings, but care must be taken when handling the mast to avoid damaging the track, thus causing the slides to jam.

Fit the sailing tiller in the rudder head and secure it with its pin. Lower the centre-plate.

Sailing Terms

Close-hauled: A boat is “close-hauled” when all the sails are drawing and it is sailing as close as possible to the direction from which the wind is blowing.

Sailing Free: A boat is sailing free whenever the sails are filled and it is not sailing close-hauled, i.e., when it is free to manoeuvre freely on either side of it’s course without having

to go about.

Reaching: A boat is reaching when it is sailing free, with the wind abeam or a little before the beam.

Running: A boat is running when sailing with the wind abaft the beam.

Port and Starboard Tacks: When either close-hauled or reaching a boat is on the “port tack” when it has the wind on the port side and the “starboard tack” when it has the wind on the starboard side.

Tacking and Going About: A boat “tacks” or “goes about” when it changes from one tack to another by altering course into the wind and then away from it on the opposite tack. The order “Ready about” is a warning to the crew to stand by to tack.

Beating: When a boat works close-hauled to windward in a series of tacks it is said to be beating.

Wearing: A boat "wears" when it changes from one tack to another, stern to wind, ie., opposite to tacking.

Gybes and Gybing. As the boat's stern passes through the wind when wearing, the mainsail will be blown from one side to the other and the boat is then said to "gybe". When running with the wind on the starboard quarter the boat is said to be on the "*starboard gybe*" and with the wind on the port quarter it is said to be the "*port gybe*".

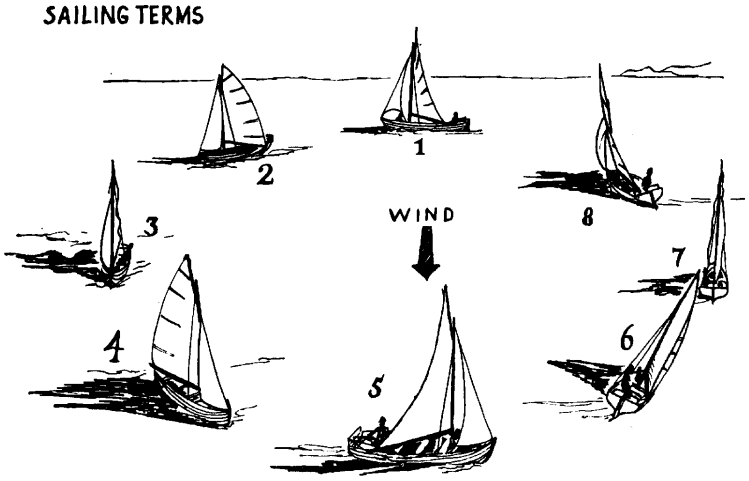
A boat running before the wind "gybes" when either purposely or accidently the mainsail is blown across to the opposite side of the boat.

To Miss Stays: A boat "misses stays" when it fails to go about from one tack to the other and pays off on the original tack.

In Irons: A boat is "in irons" when it fails to go about from one tack to another and lies head to wind unable to pay off on either tack. It is then necessary to "back the foresail" and check the mainsail to get it to pay off on to the new tack. If it gathers sternway it is necessary to put the helm over to the opposite side.

The Helm: The coxswain always sits to windward of the tiller. "Up helm" or "Bear up" are orders to the coxswain to move the tiller up to windward and the bows will pay off from the wind. "Down helm" is an order to the coxswain to push the tiller to leeward and the bows will turn toward the wind. "Weather helm" is when a boat tends to come up into the wind even with the helm held amidships, and "Lee helm" is when the boat tends to pay off with the helm amidships. Most Standards carry a weather helm.

To "weather" an object such as a buoy is to pass on the windward side of it.
To "luff" is to bring the boat's bow closer to the wind.
To "back a sail" is to trim it so as to catch the wind on its fore side (i.e., back the foresail).
To "heave to" is to lie close to the wind and stopped, by backing the foresail.
To "hug the wind" is to sail as close to it as possible.
To "pinch" is to hug the wind too closely so that the luff flaps and the sails are not properly filled.
To "set" or "make sail" is to hoist sails and get under way.
To "goose wing" is to set the foresail and the mainsail on opposite sides when running before the wind.



1. REACHING ON THE STARBOARD TACK. 2. RUNNING ON THE STARBOARD GYBE. 3. GYBING FROM THE STARBOARD TO THE PORT GYBE. 4. RUNNING ON THE PORT GYBE. 5. REACHING ON THE PORT TACK. 6. SAILING - CLOSE HAULED ON THE PORT TACK. 7. GOING ABOUT FROM THE PORT TO THE STARBOARD TACK. 8. SAILING CLOSE HAULED ON THE STARBOARD TACK

Sailing a Standard

Having got our boat rigged and a fair idea of the terms arid orders used, we are ready to set sail. The set of the sails is almost as important as their trim and the chief factor in setting sail is to see that the luff is hauled up taut. The position of the halyard in the gaff is all-important if the sail is to set correctly and, once found, so that the sail is the correct height above the gunwale and the gaff hard up to the mast, it should be clearly marked. The correct lead of the foresheets is also important. There should be a sufficiently wide gap between the leach of the foresail and the luff of the mainsail for the wind to flow freely between them. When correctly led the sheet should approximately bisect the angle of the clew, and the pull of the sheet should tend to tauten the leach rather than the foot. The mainsail is cut to set in a slight curve whose greatest depth is just abaft the luff.

Trimming the Sails: The strength and direction of even a steady wind is continuously altering and the art of sailing a boat lies mainly in paying constant attention to its slightest change and then altering course or trimming the sails to meet it. The sheets should always be kept in hand and never belayed.

Getting Under Way: With the sails set and the lee back-stay slack, order the bows to “bear off’, the “aft fore”, “check main”, and the boat will pay off on to the wind. If you are alongside a jetty and can hang on aft until the bows have paid off, so much the better. As soon as the bows have come round “aft main”, then pay attention to the trim of the sails and shift the crew to balance the wind and keep the boat upright. Sailing the boat along with the lee gunwale nearly awash may look fun, but a lot of the wind will be spilling off the top of the sails instead of driving the boat along. Keep a curve in your sails – they can be set flatter in a high wind than in a light wind. When sailing on the wind, as when beating, the luffs of the sails should be just not shivering, so keep an eye on the luff of the mainsail, and if it starts to shiver ease up on the helm until the sail is steady.

Going About: Before going about from one tack to another the boat should be paid off a little so as to gather way to enable it to get round; the coxswain calls “Ready about”, ease the helm down gently, and the, boat sails through the wind to opposite tack. As the helm is put down the mainsheet should be hauled aft and the foresail checked slightly, and as the bows pass through the eye of the wind the foresail should be backed by hauling aft the windward foresheet, and the mainsail should be checked; this helps the boat to pay off on the other tack. As soon as it is certain that the bows will pay off on the new tack, the order, “Let draw, aft sheets,” should be given, the Ice foresheet and the mainsheet being hauled aft.

When reaching keep the boat on as even a keel as possible and check the sheets until the sails start to shiver, then haul them in a little until the sails are well filled and taut.

When running the sails should be set so they are at right angles to the wind. When running dead before the wind the sails may be goose-winged and the centre—plate up, but running dead before a strong wind is to be avoided as the boat will tend to yaw uncontrollably and may gybe, broach to and capsize. If your destination is down wind, steer a zig-zag course, keeping the wind well on the quarter. No time will be lost doing this as the boat sails faster with the wind on the quarter.

Wearing is the reverse of tacking, the boat changing from one tack to the other, with the stern passing through the wind. To wear, the helm should be eased up gently and the mainsheet hauled aft as the helm is eased up, and checked quickly as soon as the wind is on the other side of the sail. It is important to avoid gybing the boat heavily because the weight of the boom swinging over may carry away the shrouds or backstays and heel the boat over before the crew have a chance to trim it on the new tack, in which case it may capsize.

Rough Weather: When struck by a squall the sheets should be quickly checked, particularly the foresail, and the helm eased down to luff the boat up and spill the wind from the sails; the sheets can then be hauled aft and the boat paid off as necessary to continue on the original course.

Reefing: Take in a reef as soon as the boat starts to get "wet", that is, when the water starts to splash in over the lee gunwale. Luff the boat up into the wind, take out the bottom sail batten and lower the main halyard so that the sail when reefed will set at the correct height above the gunwale. Tie the reef cringle earings around the boom, mast end first; then tie the reef points round the foot of the sail, gathering the sail neatly. To shake out a reef reverse this procedure, i.e., luff up and spill the wind from the sail, untie the reef points, let go the reef earings, then haul taut on the main halyard and replace the bottom sail batten.

Capsizing: In the event of a capsize instruct the crew to stay with the boat. If possible the standing and running rigging should be cast off or cut off, the sails, spars and rigging hauled clear, the drop keel raised and the mast unshipped and secured to the sails and spars and allowed to float clear of the boat but secured by a line. Whenever possible a swamped sailing boat should be unrigged and the mast unshipped before it is taken in tow.

With buoyancy fitted in the boat it may if weather conditions permit be possible to recover the boat. By righting, lowering the sails and getting one Scout in to start bailing for all he is worth, with a large bailer.

Going Alongside: Always go alongside head to wind if possible, approach the landing place on a reach, checking the sheets to control the speed. Order the bowhand to stand by and at the same time order the fenders out. Haul the sheets aft as you ease the helm down to round up into the wind and "let fly" when you judge the boat to have sufficient way on to come exactly alongside without

bumping. Remember that a heavily laden boat will carry her way much further than a lightly laden one.

Crew Overboard. If a member of the crew falls overboard, immediately throw the lifebuoy, then detail one of the crew to keep their eyes on them. If you are beating or reaching, wear your boat round so as to bring it to leeward of the person, then you can approach them close-hauled and luff up alongside them. If you are running you must run on for a bit, then bring your boat round close-hauled on the same tack and then go about, so that you will come up just to leeward of the person and so able to luff up alongside them. In either case the boat must be nearly stopped as you come alongside them or the crew will not be able to hold on to them.

Sailing is an art which required practice to develop skilled coxswains. Get out as often as you can and try out these instructions in handling.

Boat's Sails

Care of the Sails

Boat's sails must always be carefully handled and properly maintained, otherwise they will not set correctly and will lose their effectiveness, cotton and canvas sails stretch when new, terylene does not stretch.

The best method of stretching new sails is to sail with them on a sunny day in a light breeze, but the following precautions must be observed:

Do not set up the halyards or tack line too taut, otherwise the luff may be stretched more than the leach.

Do not haul the sheets flat aft because this may distort the clew or stretch the leach.
Constantly take up any slack in the head and foot with the peak and clew earings.

Keep the sails dry and do not reef until the sails are fully stretched, and, if the sail should get wet, settle the halyard and ease away the peak and clew earings.

Do not stow sails away with metal fittings or wet sheets.

During the winter sails should be unbent from the spars for stowage in a locker in which the air can circulate freely. During the boating season ease away the peak and clew earings before stowing the sails away. When this has been done lay the gaff on the boom, then gather the bight up underneath. The last of the bight should then be rolled up round both spars.

No sail should be stowed away wet; if wet from salt water it should be rinsed in fresh water, then dried before being stowed.

Dirty sails can be washed in fresh water with soap and, if necessary, very lightly scrubbed.

To Bend a Sail to a Spar

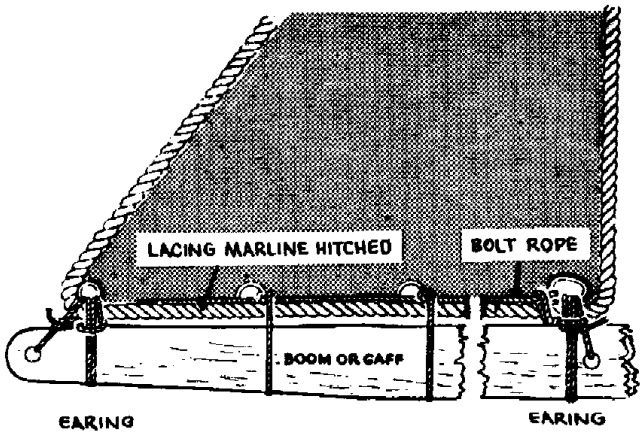
The head of a mainsail is bent to the gaff by peak and throat earings and a lacing; the throat earing is the fixed anchorage and the peak the movable one.

The foot of the mainsail is bent to the boom by tack and clew earings and a lacing; the tack earing is the fixed anchorage.

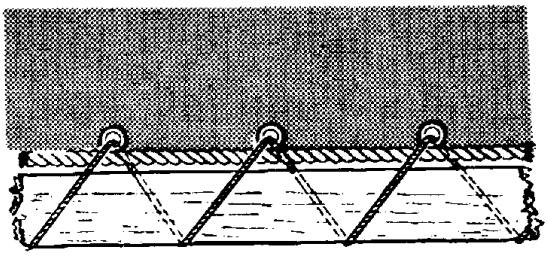
The sail may be laced to the spar by any one of the three methods illustrated, lacing from the throat or tack towards the peak or clew.

The spiral lacing is the best for light sails because it allows the head and foot to take up a natural set along the spar. Heavier sails are usually marled to their spars or secured by single stops.

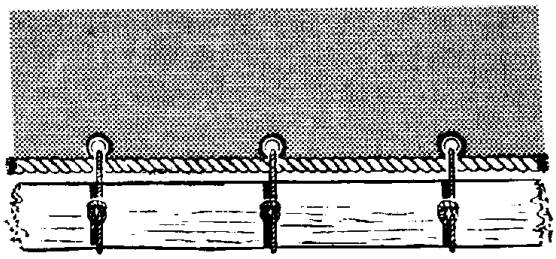
The luff of the mainsails is laced to the mast by the back and forth lacing shown in the illustration. If the lacing is passed spirally it tends to jam when the sail is hoisted or lowered.



MARLINE LACING

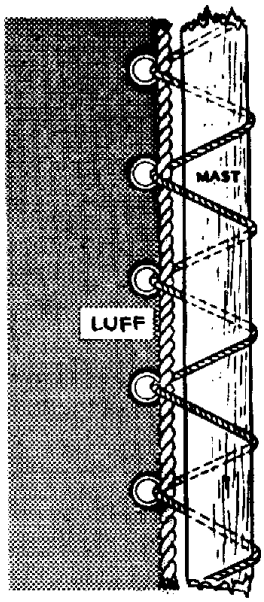


SPIRAL LACING



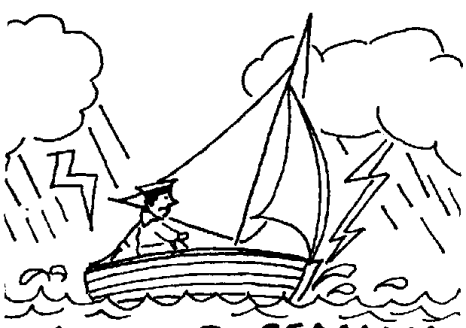
SINGLE STOPS REEF-KNOTTED

(i) BENDING THE HEAD OR FOOT OF A SAIL TO A GAFF OR A BOOM

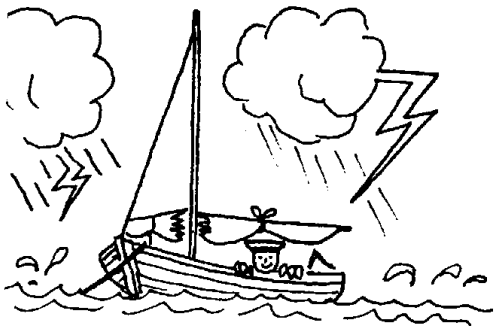


BACK-AND-FORTH LACING

(ii) LACING THE LUFF OF A SAIL TO A MAST



A POOR SEAMAN



A GOOD SEAMAN

Fibreglass Cutter

Chapter V

Safety in Boats

Lifebuoys and Life Jackets

The National Scout Boating Rules require that every boat manned by Sea Scouts shall carry a lifebuoy within easy reach of the coxswain. The way in which this lifebouy is thrown and the way to use it are shown on the previous page.

The National Sea Scout Rules further require every member of a sailing boat's crew to wear a life jacket. This is important and may save your life, so choose a strong type that will stand up to wear and which conforms with N.Z.S.S. 5823; 1982. "Life jackets for use in sheltered waters

Most new jackets are reliant on closed celluar rubber foam for buoyancy.

If it is kapok filled (kapok is a water resistant fibre and very light), keep it dry. Do not use them as cushions — this compresses the fibres and reduces their efficiency. The kapok is enclosed in an oil-tight inner plastic covering.

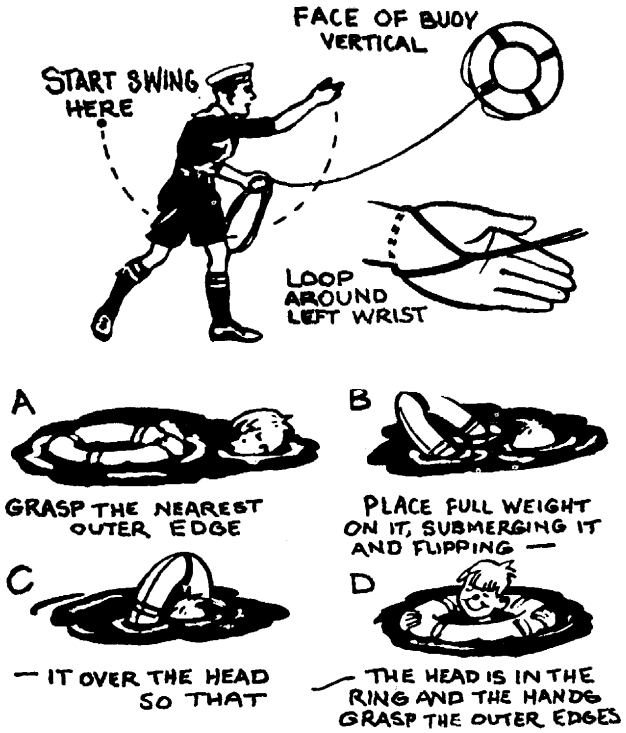
Keep it clear of snags and nails. See it has as many airtight sections as possible.

Use only a type which will keep the wearer's head above water should they be unconscious. Remember a jacket incorporating skirt and sleeves will help combat cold and risk of exposure.

If the jacket does not have long sleeves and waist protection a parka, which need not be worn at all times, must be carried.

Inflatable types are not recommended for Sea Scouts.

All members of the sailing crew should have a seaman's knife, a single-bladed knife with folding blade and a marline spike on the back secured to a lanyard worn round the waist. The lanyard should have a small eye at one end which can be passed over the wrist when working outboard, or in the event of a capsize to ensure the knife is not lost if accidentally dropped.



Avoid Overloading

Care must be taken to see that the boat is not so overloaded with stores or passengers as to hinder the free working. The maximum numbers which may be carried in a Standard under oars is 10 and under sail seven. When loading the boat with stores, care must be taken to keep heavy weights from the ends of the boat or it will be sluggish rising to the waves, and may bury the bows heading into the sea or be pooped by a following sea. Stow the heavier gear low-down amidships, keeping the boat trimmed slightly by the stern.

Rescue Breathing

Don't Waste Time — Begin at Once

Place the victim on their back and begin rescue breathing. Your first blowing efforts will show if the air passages are blocked and, if they are clear, will provide the urgently needed oxygen. If the throat is blocked, clear it quickly with your fingers. Slaps between the shoulder blades should dislodge a stubborn blockage.

Rescue breathing through the patient's nose is Less likely to force air into the stomach. If the nose is blocked, however, try rescue breathing through the mouth.

In an unconscious person with the head slumped, the tongue blocks the throat and little or no air can get into the lungs. Lift their neck and tilt the head right back—half-way tilt is not enough—and they may start breathing for themselves. If they do not, start rescue breathing.

Hold the head fully tilted with chin pulled forward. Take a deep breath, open your mouth wide (fig. 1), and seal your lips on the cheeks round the nose, keeping the mouth closed and taking care not to pinch the nostrils (fig. 2).

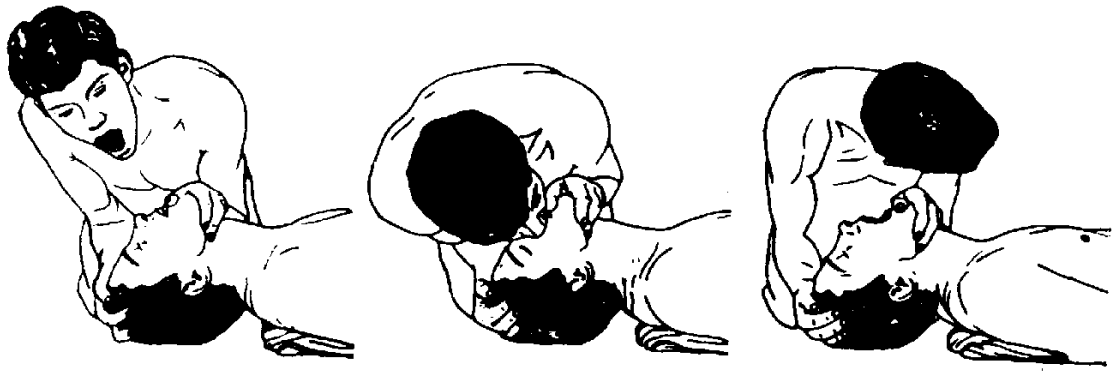
Then blow until you see the chest rise. If you are rescue breathing through the mouth, seal your lips round the opened mouth, blocking the nostrils with your cheek — or pinching them with your fingers — to prevent air leakage.

Remove your mouth and listen to them breathing out through mouth and nose — part their lips if you are breathing through their nose—while you are taking another breath (fig. 3). Inflate their lungs again as soon as they have breathed out.

Use only puffs from your cheeks for infants. Stop blowing as soon as the chest starts to rise. Repeat breaths at least 20 times a minute.

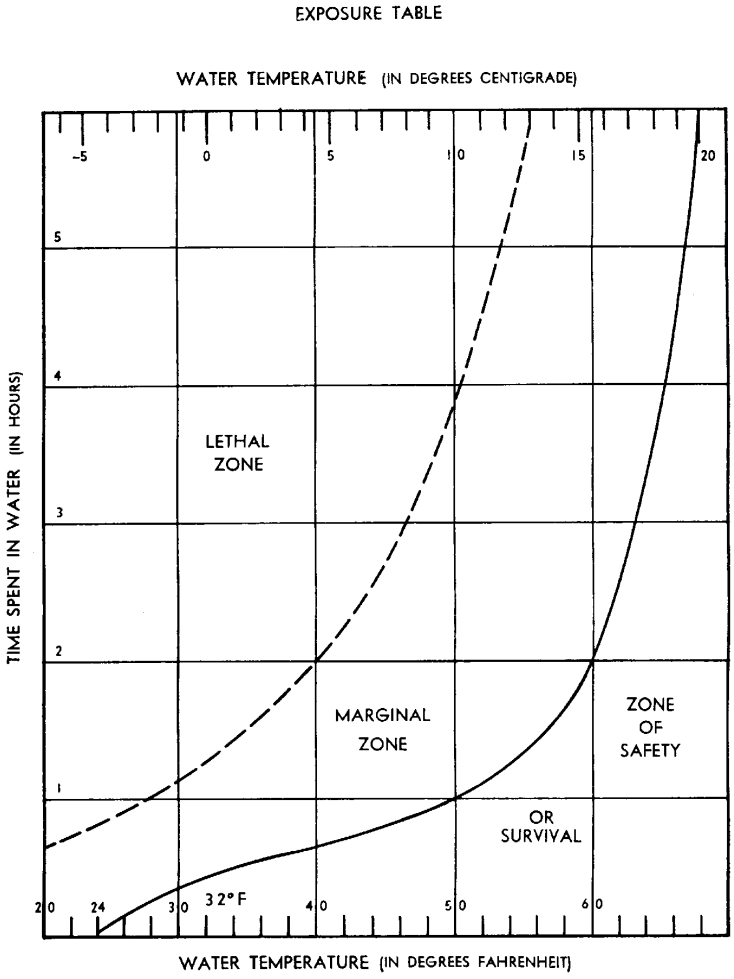
Make the first 5 to 10 breaths deep and rapid. Then continue with 10 to 15 breaths a minute. When they start trying to breathe for themselves, keep your breaths in time with their efforts.

Fig. 1 Fig. 2 Fig. 3



Exposure

A close look at the exposure table will show that exposure in cold water can kill, and kill quickly. We often hear of fit, healthy young people dying from exposure. Then we find that they usually had inadequate clothing to protect them from cold weather, the victims passing from consciousness to unconsciousness to death very quickly. Leaders and Charge Certificate holders must remember that as cold on mountains kills, so can immersion in cold water, exposure often causing death, instead of drowning.



How can we fight exposure caused by immersion in water? Stay ashore! This is not the spirit of Sea Scouts, so all reasonable precautions must be taken when sailing in cold conditions. Wearing an approved life jacket, even one with a skirt, is not enough. The body can lose a lot of heat through the limbs and these should be covered. Woollen clothing should be worn next to the skin. Woollen underwear, jerseys, bush shirts, long trousers, socks and sand shoes, towel round neck and waterproof yachtsman's parka and trousers are all garments which will help to keep a person warm in water. Woollen clothing is good as it insulates the body by reducing the circulation of cold water over the skin, and keeps the layer of water next to the skin still, giving it time to warm up.

Rubber wet suits are often used as they are better than woollen clothing.

Fresh water lakes are usually much colder than salt water harbours at any time of the year, and the risk of death by exposure is much greater. Do you know what the water temperature at your boat shed is? Compare it with the table some time and make sure when you go sailing in cold conditions that all your crew is adequately dressed so if you do capsize and rescue is slow in coming you all have a chance of survival.

Distress Signals

When a vessel or seaplane on the water is in distress and requires assistance from other vessels or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, namely:

1. A gun or other explosive signal fired at intervals of about a minute:
2. A continuous sounding with any fog-signal apparatus:
3. Rockets or shells, throwing red stars fired one at a time at short intervals:
4. A signal made by radiotelegraphy or by any other signalling method consisting of the group • • •— — — • • • in the Morse Code:
5. A signal sent by radiotelephony consisting of the spoken world “Mayday”:
6. The International Code flag signal of distress indicated by flags N.C.:
7. A signal consisting of a square flag having above or below it a ball or anything resembling a ball:
8. Flames on the vessel (as from a burning tar barrel, oil barrel, etc.):
9. A rocket parachute flare or hand flare showing a red light.
10. A smoke signal giving off a volume of orange coloured smoke.

The use of any of the above signals, except for the purpose of indicating that a vessel or a seaplane is in distress, and the use of any signals which may be confused with any of the above signals, is prohibited. For small boats within sight of shore or other boats, a good “I need help” signal to adopt is that of slowly and repeatedly RAISING AND LOWERING ARMS OUT-STRETCHED TO EACH SIDE. This is a distinctive signal not likely to be mistaken for a greeting. To be as effective as possible the signal should be given from the highest vantage point on the boat, with consideration being given to colour contrast. This signal is more effective if articles of white clothing are held in each hand.

If you see or hear any of the above, inform the police immediately and give all possible assistance. Emergency telephone number 111 or local police number.

NOTE - The Little Scout Book No 22 RULES FOR WATER ACTIVITIES. Contains rules and guidelines that cover boating and other aquatic activities.

Chapter VI

Rule of the Road at Sea

The international regulations for prevention of collisions at sea, commonly known as the "Rule of the Road", are to the seafarer what the highway code is to the driver of a car. Steering and sailing rules, which form a most important part of the regulations, tell them when they must give way to another vessel and when they can expect another vessel to give way to them.

The steering and sailing rules direct that all mechanically propelled vessels, and this includes boats under oars, shall keep clear of vessels under sail, and that all vessels keep out of the way of a ship they are overtaking.

The main principles are:

That each Captain is responsible for the safety of their own ship.

That one ship should hold their course and speed.

That the ship which has to keep clear shall do so by altering course or reducing speed and avoid passing close ahead of the other.

That, broadly speaking, ships "keep to the right".

Do big ships have to obey the international rules in restricted water?

The answer to that is: It is your duty to keep out of the way of big ships in channels and near wharves. This is a New Zealand Government regulation contained in a publication called the General Harbour Regulations. It makes sense since small vessels are more manoeuvrable than large ones and can use shallower water.

The actual regulation reads:

"The master or person in charge of every motor launch, yacht, or small sailing or rowing boat shall, when that vessel is in a narrow, confined channel, or when within 500 metres of any wharf, keep out of the way of any vessel of 500 tons net register or upwards."

In diagrammatic style the basic rules of international prevention of collision are shown on the following pages.

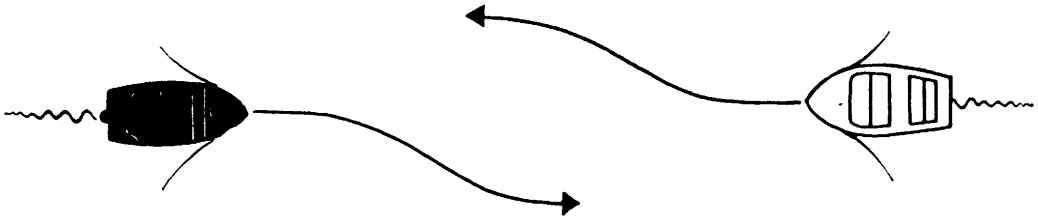
What happens if you don't observe these rules?

Well, you are guilty of a crime, and any damage caused through that lack of observance will have been caused by your wilful neglect — which boils down to the fact that you will probably have to pay for it.

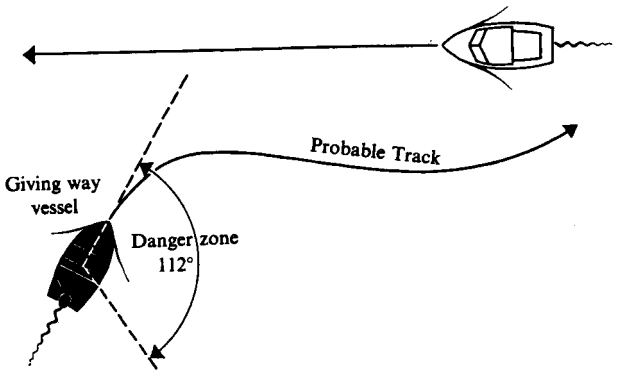
But this is a very strict reason. The main reason for following the rules is to be courteous and safe.

Caution should be exercised at all times. Never take chances by relying entirely upon the speed and manoeuvrability of your vessel, or by guessing at the capabilities of another vessel.

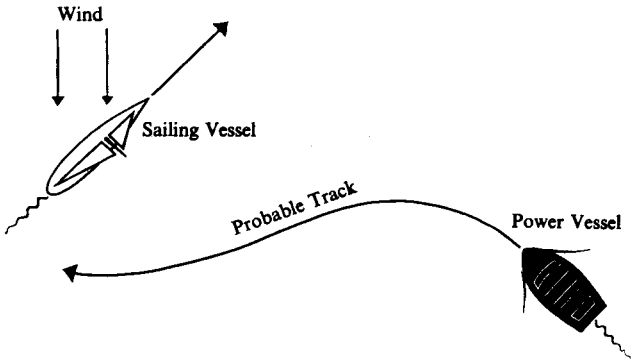
Rule 18: When two power-driven vessels are meeting end on, each shall alter course to starboard (right) so as to pass on the port side of the other.



Rule 19: When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her starboard (right) side shall keep out of the way.



Rule 20: When a power-driven vessel is in danger of collision with a sailing vessel, the power-driven vessel gives way.

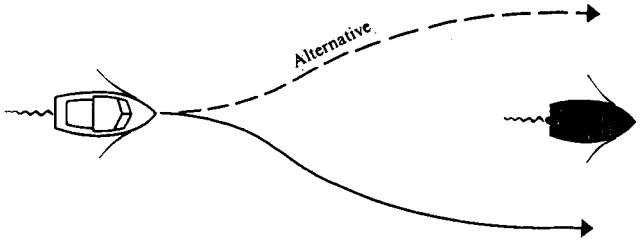


Rule 21: When another vessel gives way to you under the rules, you are obliged to maintain your course and speed.

Rule 22: When giving way to another vessel, avoid crossing ahead of that vessel.

Rule 23: If necessary use your motor to stop your boat or go astern — but only if you are the giving-way vessel.

Rule 24: The overtaking vessel gives way. This applies to any overtaking vessel, which includes sailing vessels.

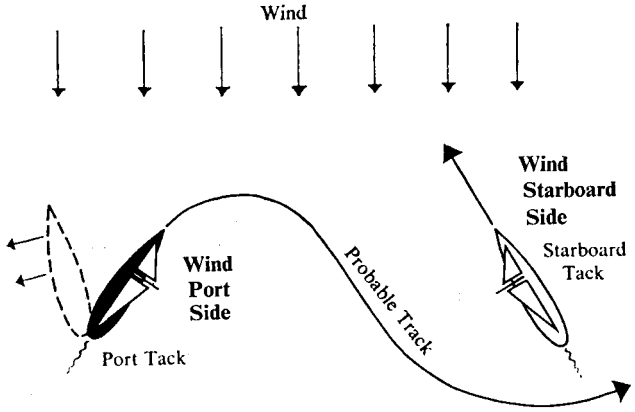


Rule 25: When in narrow channels keep to the starboard (right-hand) side.

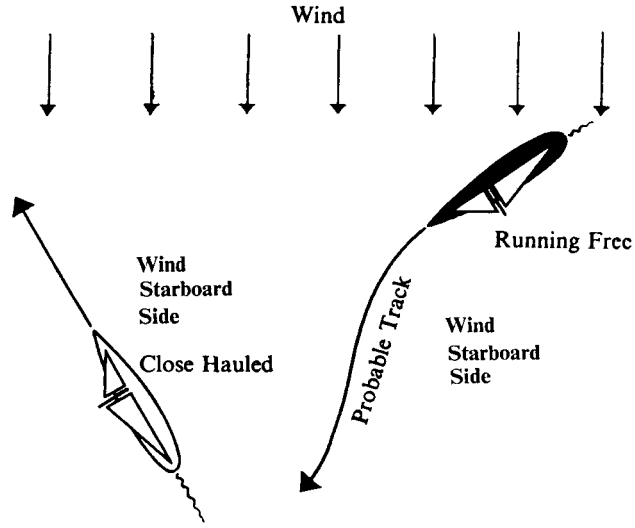
Sailing Vessels

Rule 17(a): When two sailing vessels are approaching one another, so as to involve risk of collision, one of them shall keep out of the way of the other as follows:

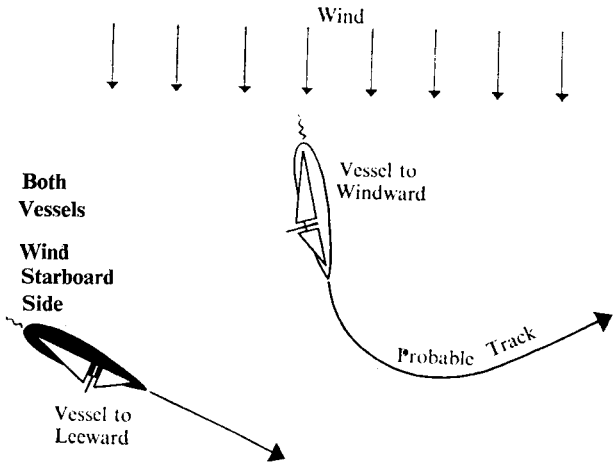
(i) When each has the wind on a different side, the vessel which has the wind on the port side shall keep out of the way of the other.

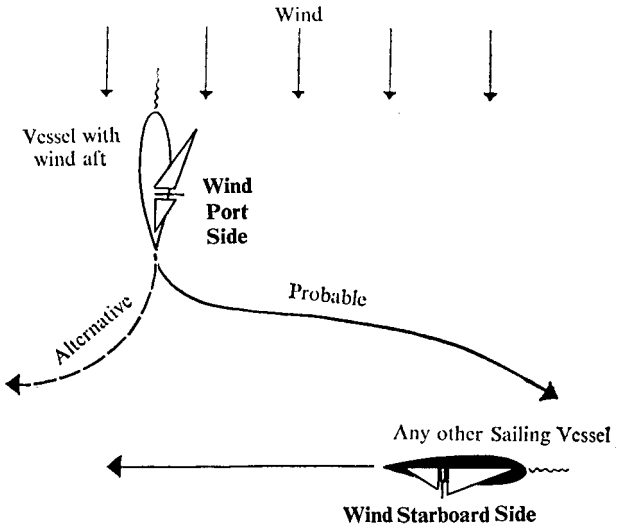


(ii) When both have the wind on the same side, the vessel which is to windward shall keep out of the way of the vessel which is to leeward.

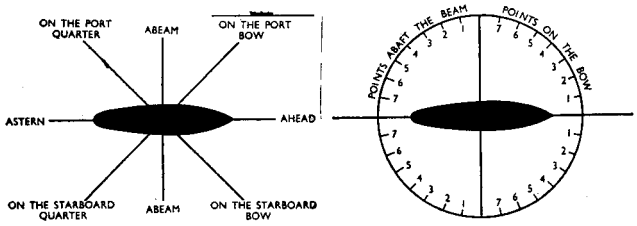


Rules 17 (b): For the purposes of this rule the windward side shall be the side opposite to that on which the mainsail is carried.



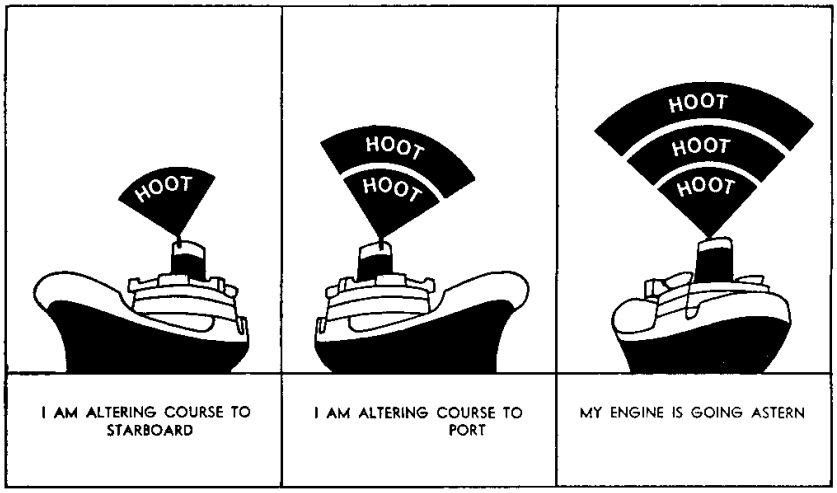


Note: The Collision rules have been condensed and simplified as a guide. Attention is drawn to the regulations themselves for full details and amendments.

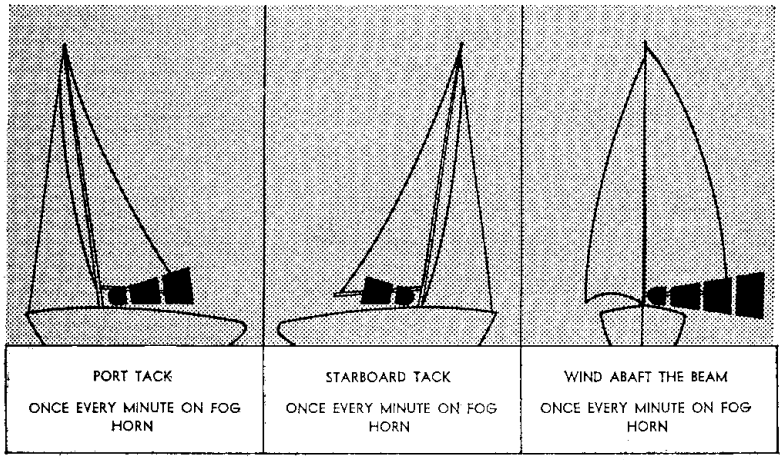


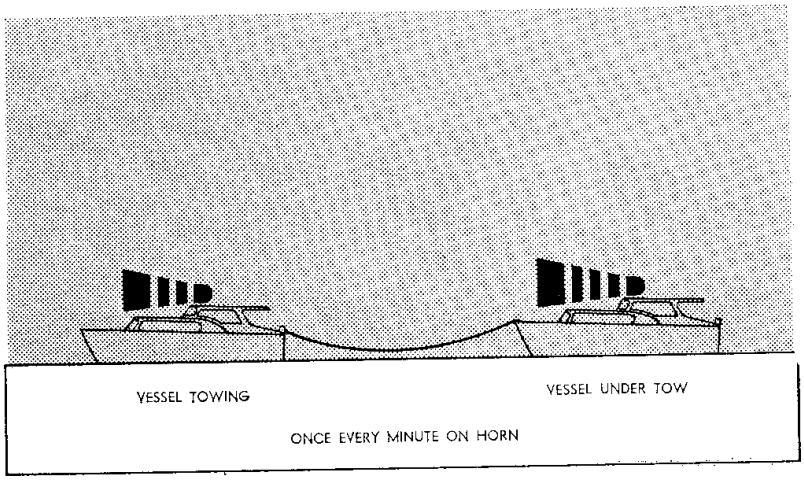
Sound Signals

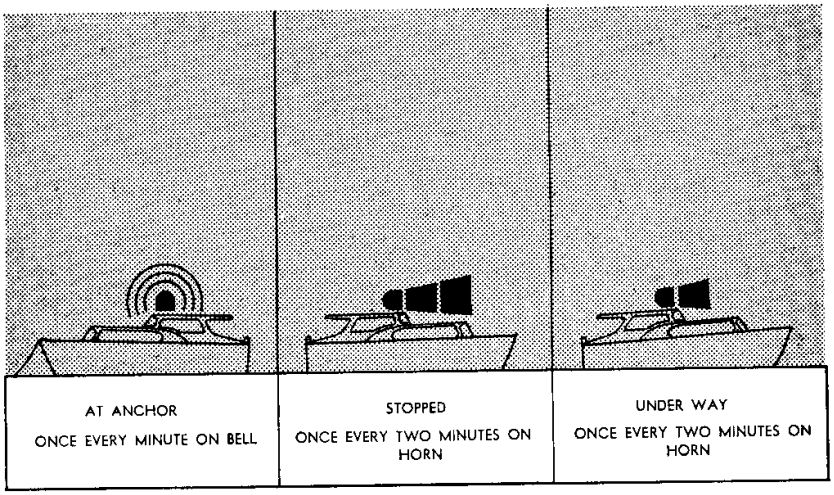
When two vessels are in sight of one another



Vessels in Fog







In Fog:

Steam vessel having
way upon her ..... 1 long blast on the whistle every two minutes

Steam vessel under way
but stopped ..... 2 long blasts on the whistle every two minutes

Sailing vessel under way
on the port tack ..... 2 blasts on the fog horn every minute

Sailing vessel under way
on the starboard tack ..... 1 blast on the fog horn every minute

Sailing vessel with the
wind abaft the beam ..... 3 blasts on the fog horn every minute

Vessel at anchor ..... 5 seconds' rapid ringing of the ship's bell every minute

Navigation Lights

For Steam Vessels:

Steaming Light: One bright light forward (e.g., on the foremast) visible right ahead to two points abaft the beam on either side. A second steaming light may be carried similar to the first but fixed further aft and higher than the first light.

Side Lights (sometimes called Bow Lights): These are placed lower than the steaming lights. On the port side a **red** light shows from right ahead to two points abaft the port beam. A **green** light shows from right ahead to two points abaft the starboard beam.

Stern Light: (sometimes called Overtaking Light): All vessels show a white light aft from right astern to two points abaft the beam on the either side about the same level as the side lights.

For Sailing Vessels:

Sailing vessels and vessels under tow, show side lights and stern light only.

For Standard Boats:

Standards and similar small open boats under way at night show an all round white light where it can best be seen, or carry a torch which is shown in plenty of time to prevent collision:

The Motor Launch Regulations

Harbour boards have their own bylaws for the waters under their control so the Motor Launch Regulations 1962 apply to all other sea waters and to all navigable lakes and rivers. Many harbour boards have made their bylaws similar in extent to the regulations to ensure as far as possible that there is uniformity throughout the country.

Over recent years many complaints have been lodged that the noise of boats has disturbed local residents, picnic parties, and fish.

Do you know that the exhaust from your boat motor must be discharged through an efficient silencing device?

Other complaints have also been received about the behaviour of power boats and water skiers in anchorages and near crowded beaches.

Do you know that it is against the law to travel at a greater speed than 5 knots when within 200 m of the shore or when passing within 30 m of any other vessel, whether under way or moored, or any person bathing or fishing?

With the upsurge of the sport of water skiing it became necessary to provide for some means or the skier and tow boats to have access through the speed restricted area when proceeding to and from the shore.

Water skiers are unable to proceed at so low a speed as 5 knots.

Do you know that water skiers and their tow boats may not leave or approach the shore except in a properly designated "access lane" or where a special area of water has been set apart in which the speed restrictions do not apply?

It is difficult for a tow-boat driver to watch a skier and the water ahead at the same time.

Do you know that boats towing water skiers must carry another person as well as the driver?

There are many navigable waters less than 400 metres across and under normal circumstances prohibited to vessels travelling at a greater speed than 5 knots.

Provision, however, has been made in the regulations for suitable parts of such waters to be declared available for use by motor boats and water skiers where the 5 knot speed restriction would not apply.

As with motorcars, drivers of speed boats should be a responsible age.

Do you know that in order to drive any power boat capable of 10 knots or more, the driver must be at least 15 years old?

From time to time special regatta days, boat races, speed trials, etc., require to be held in areas where no access lanes or special areas have been declared.

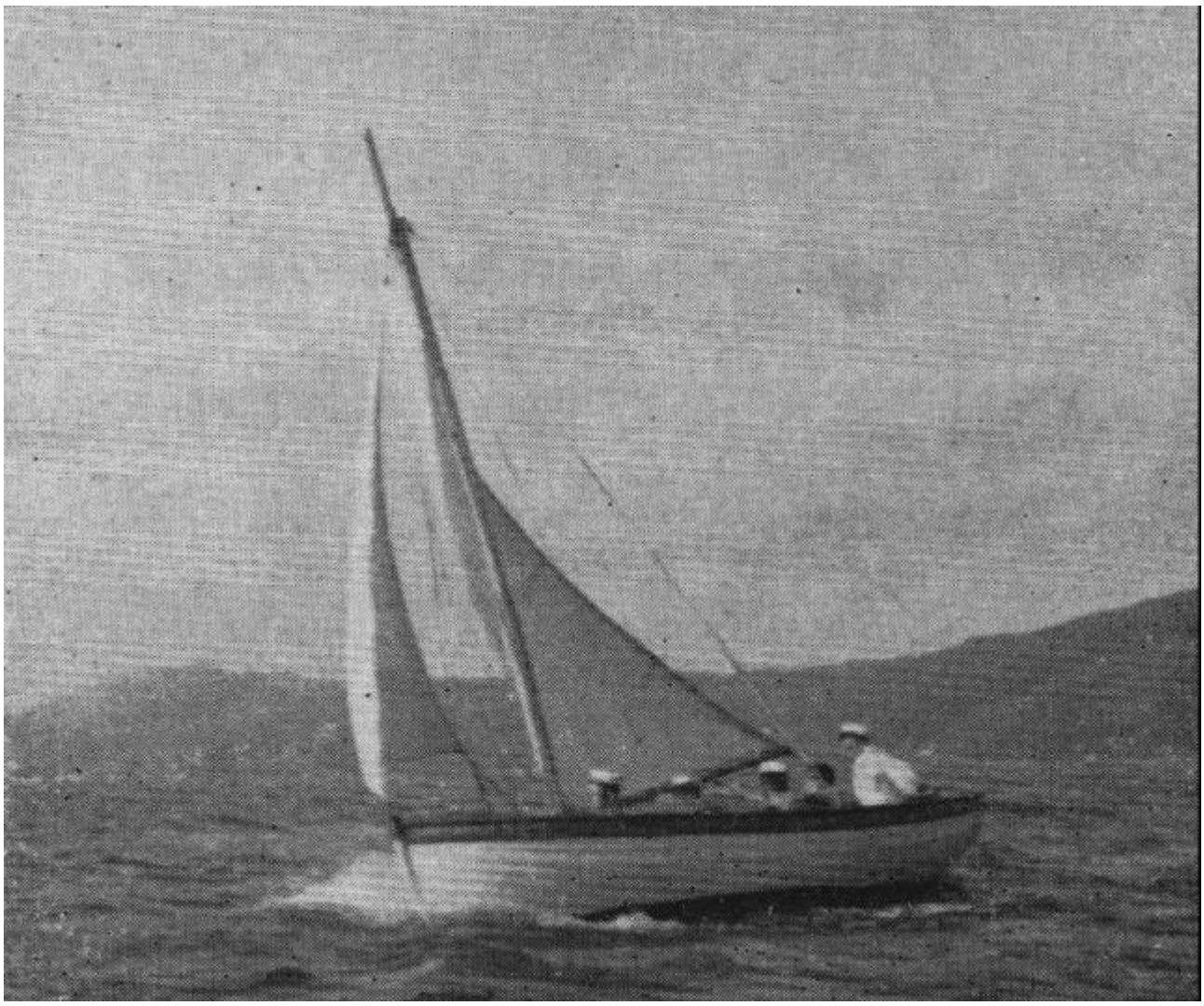
Supervising officers have been appointed in many places. They have power to authorise the suspension of the Motor Launch Regulations for special regatta days, etc.

General Harbour Regulations 1954

Pleasure craft must keep clear of merchant ships of 500 tons net register and upwards, in New Zealand harbours.

Yacht Racing Rules

Where possible Sea Scouts sail their races to the "International Yacht Racing Union", Yacht Racing Rules. These rules are contained in a booklet available from marine shops.



Chapter VII

Navigation and Pilotage

Navigation is the art of taking ships from one place to another when out of sight of land.

Pilotage is the art of taking ships from one place to another when land or navigational marks are in sight. Ships are navigated and piloted by the aid of charts, which are maps showing the coastline and the depths of water in different parts of the sea, the latter marked in metres (old charts were printed in fathoms and feet) as stated on the chart. These charts are made by the surveying ships of the Royal Navy and are published by the Hydrographic Department of the Admiralty or, in the case of New Zealand charts, surveyed and published by the R.N.Z.N. Hydrographer.

When within sight of land the position of the ship is usually obtained by taking bearings by compass of two or more prominent objects marked on the chart. These bearings are then drawn on the chart in pencil. The point where the lines cut is the position of the ship.

When out of sight of land the position of the ship is obtained by observations of heavenly bodies with a sextant.

The essential equipment required for coastal navigation consists of a compass, charts of the localities to be visited, parallel rules and dividers. In order that this equipment can be used to the best advantage, a thorough understanding of both compasses and charts is necessary.

Compasses

Two types of compass are used at sea, namely, the gyro-compass and the magnetic compass, and the principles on which they work are entirely different.

The gyro-compass is mechanically and electrically operated from the ship's electric power supplies; it is very accurate.

The magnetic compass is operated by the magnetism of the earth.

The magnetic compass consists of a card attached to a float contained in a watertight bowl. To the underside of the float, magnets, usually a pair, are fitted. These magnets provide the directional property of the compass and when horizontally suspended point to the North magnetic pole.

The card, which is of various diameters according to the size of the compass, is fitted to the top of the float. The card is marked in degrees from one to 360, usually in ten degree divisions. North is indicated by 000^{o}, East by 90^{o}, South by 180^{o}, and West by 270^{o}

The card is fitted on to the float so that a line from 000^{o} to 180^{o} through the centre of the card is parallel to the magnets.

In the centre of the floats a small jewel, usually an agate, is fitted and in the centre of the bowl an iridium pin is fitted. The bowl is filled with a mixture of two parts of distilled water and one part clear alcohol.

The function of the alcohol is to lower the freezing point of the liquid. This allows the compass card to sit lightly on the iridium centre pin and the agate is fitted to reduce friction to a minimum. The main function of the liquid is to dampen the oscillations of the card and so give it a "dead beat" property. This means that when the card is deflected it will take up its direction position usually after three oscillations.

A dry card compass takes ten to fifteen oscillations to come to rest, and due to vibration in power driven craft, the card would be continually oscillating to a degree that would make the compass practically useless.

The compass bowl is fitted with a lubber line so that the direction of the ship's head can be indicated by the compass card. The bowl is also fitted with a diaphragm to allow for expansion and contraction of the liquid due to changes in temperature.

The compass bowl is fitted with gimbals so that the card maintains as near a horizontal position as possible when the craft is under way. The suspension points of the outer gimbal ring should be in the fore and aft direction.

Preferably the compass should be placed in the centre line of the ship, so that a fore and aft line from the centre of the compass is in line with the keel. If it is not on the centre-line the compass should be so fitted that a line through the centre of the card and the lubber line should be parallel with the keel.

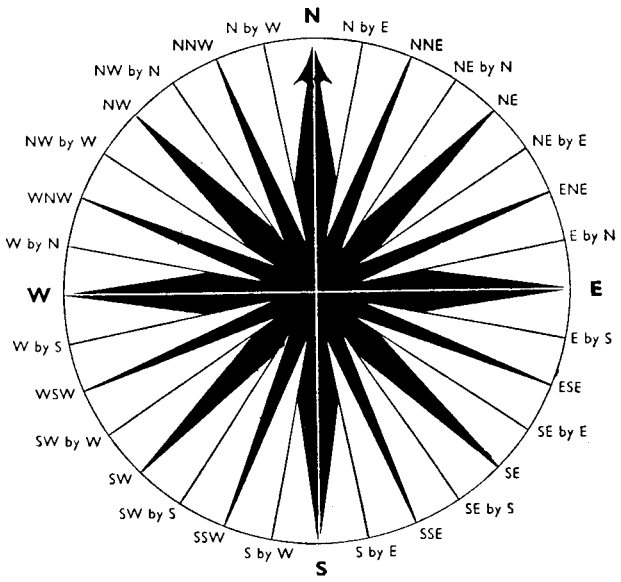
The compass should be fitted so that bearings can be taken to the best advantage.

In small ships it is not always possible to take bearings with the steering compass. In such cases use can be made of a hand bearing compass fitted with a sight vane and prism. When using this type of compass the navigator should stand clear of any metallic objects, and in steel craft should stand as far as possible clear of the hull.

Compasses cannot be checked by comparing one with the other unless they are at least four feet apart.

In earlier designs the compass card was divided into 32 points and each point was divided into half and quarter points. No doubt this system of division of the card was adopted because 32 was evenly divisible the greatest number of times.

Being able to name the 32 points in their correct sequence was known as "Boxing the compass". The disadvantage of this notation of the card was that a point measured 11¼°.



"Point" compass card — *Boxing the compass*

Consequently the more convenient 360° notation became universally adopted.

On most compass cards the eight points are shown N, E, S and W, known as the cardinal points, and N.E., S.E., S.W., and N.W., known as the quadrantal points.

When using the compass the navigator should express direction in the 360° notation. For example North East would be expressed as zero-four-five. South East as one-three-five. South West as two-two-five and North West as three-one-five. As an aid to memory it will be seen that the sum of the figures used to express the cardinal and quadrantal points in the 360 notation add up to nine.

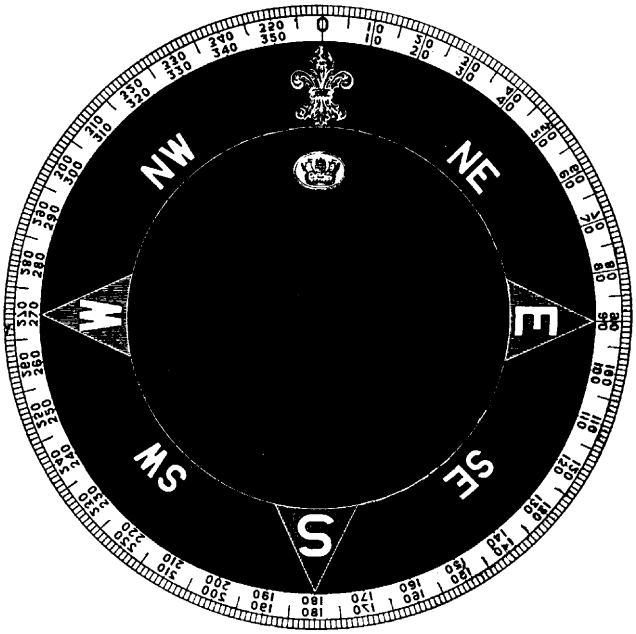
The simple theory of the directional feature of the compass is as follows: The earth is considered to be a huge magnet with a North and South Pole, and lines of magnetic force flow from one pole to the other. The magnetic poles do not coincide with the geographical poles so that the

lines of force do not flow in a true North and South direction. A magnet such as a compass needle, free to move in a horizontal direction will align itself with these lines of force which appear to flow irregularly in a North and South direction. The compass will therefore indicate magnetic North.

Variation and Deviation

The difference between the True North and Magnetic North is known as the variation of the compass. Variation of the compass is the number of degrees the North point of the compass needle is deflected from True North. When the needle is deflected to the right it is known as Easterly Variation and when to the left Westerly Variation.

Variation of the compass is not a constant quantity and has different values in all navigable parts of the world and it is also subject to periodic changes. The variation of the compass at Auckland is at present 18^{o}E and is increasing at the approximate rate of 1^{o} in ten years. This is marked on the compass rose on the chart of an area. It need not cause Sea Scouts great concern, however, as long as they remember to use the variation given on the nearest compass rose on the chart to their position.



A second disturbing influence on the compass is caused by magnetism in the ship or its fittings in the vicinity of the compass. This is known as deviation of the compass and is named in the same way as variation. Deviation is due to the lines of magnetic force being distorted by the presence of magnetic material in the vicinity of the compass. These lines of force when flowing take the line of least resistance and flow through magnetic material easier than through the atmosphere. That is why compasses is small steel craft give so much trouble. If the compass is fitted in a steel wheelhouse the lines of magnetic force flow around the walls of the wheelhouse. This weakens the magnetic field in the vicinity of the compass and makes the compass more susceptible to the deviating effects of the iron in the ship. Deviation can however be corrected by introducing an opposing magnetic field by placing magnets around the compass in a fore and aft or athwartship position.

The combination of variation and deviation which is found by adding like names and subtracting unlike names is known as the error of the compass and it is the amount the compass needle is deflected right or left from true North. For example in a ship heading 063^{o} the deviation was found to be 3^{o}W variation 18^{o}E the error will be 15^{o}E. The true course is found by adding Easterly error or subtracting Westerly error. The true course in this example is therefore 078^{o}.

Deviation of the compass varies as the course varies, and if it exceeds 5^o the compass should be adjusted.

Deviation of the compass is also an unstable quantity and should be checked frequently. Various practical methods of doing this will be explained when dealing with the use of charts.

Deviation in small wooden boats is negligible and is usually considered to be non-existent. (Beware of steel drop keels.)

This rhyme may help (to find True North or to obtain True Bearing from Magnetic):
Variation East, Compass Least (Less than True).
Variation West, Compass Best (Greater than True).

Charts

A chart is a map of a locality which shows all features essential to the navigator to fix the position of the ship and to proceed from one place to another by the shortest route and to avoid dangers which may exist.

Navigational charts are drawn on what is known as the Mercators projection so named after its inventor Gerhard Mercator, a Flemish geographer. In any plane projection of a curved surface such as the earth some distortion must occur. The Mercators projection is a plane projection and shows the meridians as straight lines running in a North and South direction and the parallels of latitude as straight lines running in an East and West direction.

Only at the equator is a degree of longitude equal to a degree of latitude, viz 60 nautical miles. The degree of latitude remains constant from the equator to the pole while the degree of longitude varies from 60 nautical miles at the equator to zero at the poles. At Auckland the length of a degree of longitude is 48 nautical miles. The importance of this to the navigator is that distance must never be measured on the longitude scale, but only on the latitude scale on the side of the chart.

To compensate for the distortion of the meridians the distances between the parallels of latitude are increased progressively as they recede from the equator to the poles. Consequently when measuring distance the latitude scale on the edges of the chart should be used abreast of the locality over which the distance is being measured.

Charts are to a large degree self explanatory but much of the information is set out in an abbreviated form. Space does not permit a description of all the abbreviations used but a catalogue chart describing and explaining these abbreviations can be procured from chart agents and this should be obtained by anyone who wishes to make intelligent use of navigational charts.

Perhaps the best way to illustrate the use of charts is to make an imaginery passage from Auckland to Whangaparoa Harbour, Great Barrier Island. Assuming the navigator to be a stranger to Auckland, the need would be for three charts to cover the intended passage.

The charts required will be Auckland Harbour No. 5322 Approaches to Auckland No. 532 and Bream Tail to Kawau Is. Point No. 522.

Get these charts and the parallel rules and on the charts plot the course to take. This area has been chosen because it is a popular one for boating and will include most of the features found on any chart and will also demonstrate most of the things one needs to know for basic harbour and coastal navigation.

The Passage

Using chart No. 5322 departure is taken off the end of the Eastern Tide Deflector. The chart indicates that the end of the tide deflector has three fixed lights, red, yellow and red vertically displayed. From the departure position the course is set to pass the buoy showing a quick flashing green light, to port. The true course is 076^o. The compass course should be 076^o - 19^o (variation) = 057^o. An approximate check on the compass is thus obtained.

On this course it is noted that the ebb tide has a rate of two knots at springs. The direction of the flood tide is indicated by a feathered arrow and that of the ebb tide by a plain arrow. No arrow is shown for the flood tide because in this vicinity the rate of flood tide is irregular due to the Eastern tide deflector.

On the port side the navigator will see two green lights and then two red lights, all fixed. In daytime these beacons can be recognised by their white triangular topmarks. These mark the sides of the prohibited anchorage which is the track of the telephone cable from Auckland to the North Shore.

On the starboard bow will be seen Bean Rock light, flashing with various white and red sectors. The group consists of three flashes every eight seconds, is 14m high above high water ordinary spring tides, and is visible 15 miles.

The white sector indicates the channel down the harbour. The red sector indicates foul ground from the Sandspit off Devonport to Rough Rock which is indicated by a pillar buoy with black and yellow horizontal stripes. This type of buoy indicates a middle ground obstruction with navigable water on either side safer to the east.

The next arrow white sector indicates the channel out of the harbour for medium draught ships. Deep draught ships would cross the white sector into the green sector to pass between a green conical buoy showing a green light flashing every four seconds and a red can buoy showing a flashing red light every four seconds.

The next white sector indicates the channel to pass Browns Island to the Motukorea Channel. The next red sector indicates the foul ground between Browns Island and Achilles Point. Deep draught ships would continue on in the green sector until reaching the line of leading lights which indicate the deepest part of the channel.

The front leading light is on a red and white beacon with a white light flashing each second. The back one is a yellow beacon with a white light flashing every four seconds. The direction of this line is shown as l42^{o} 30’ True. This indicates that all bearings are given from seaward. The magnetic bearing would be l42½ - 19^{o} = 123½^{o}. The magnetic course out of the harbour on this line would be 123½^{o} + 180^{o} = 303½^{o} When crossing this line the lights should be brought right astern and a check on the compass should be obtained.

When proceeding from the flashing buoy off Devonport to the buoy showing a flashing green light on the edge of the white sector off Bean Rock light, the various contour lines of the bottom are well illustrated on this chart.

Depths

The 10 metre line is shown as a continuous line with light blue shading and it is interesting to note the deep hole between North Head and Bean Rock with the greatest depth 29.8 m at low water. The five metre line is a continuous line with dark blue shading. The shore line at low water when composed of sand is shown as a green area.

Off Cheltenham Beach figures such as 0.8 indicate that the bank dries to a height of 0.8 metres at low water.

Comparison of the shore line shown on the chart off Cheltenham and off Rangitoto illustrates the difference between a sandy shore and a rocky shore. Rocks with less than two metres of water over them are indicated by black crosses ⊠ Rocks awash at low water are indicated by a cross with a dot in each section ⊠

The coloured shading of charts now adopted shows up the various contour lines very clearly.

NOTE: All new charts are printed with the depths in metres instead of fathoms and feet. To get a good understanding of the symbols on charts you should refer to the booklet. Symbols and Abbreviations N.Z. Charts.

Voyage Continued

As most of the essential features of a chart have been explained, continuation of the projected voyage with such further explanations as is necessary can now be resumed.

After passing the flashing buoy off Devonport a course 055° True, 036° Magnetic is steered to pass the flashing green buoy leaving it on the port side. Rounding this buoy, a course is set to pass two cables off Rangitoto Beacon which exhibits a flashing red light every 12 seconds. This course is 352° True or 333° Magnetic. The distance on this leg of the course is 2.6 miles, so the speed can be checked after making allowance for the tide.

A short cut around North Head to Rangitoto could have been taken but the distance is .35 of a mile shorter and the saving of time would have been approximately three minutes at a speed of eight knots.

Transferring

Off Rangitoto Beacon on the port hand is a buoy showing a red light flashing 2 every 5 seconds.

The position of Rangitoto Beacon has been reached by making use of the facilities provided for safe navigation in entering and leaving the harbour as shown on the chart.

The position, two cables off Rangitoto Beacon, is now transferred to chart No. 532, Approaches to Auckland. The contour lines are as shown on the first chart used with the addition of the 20 metre line.

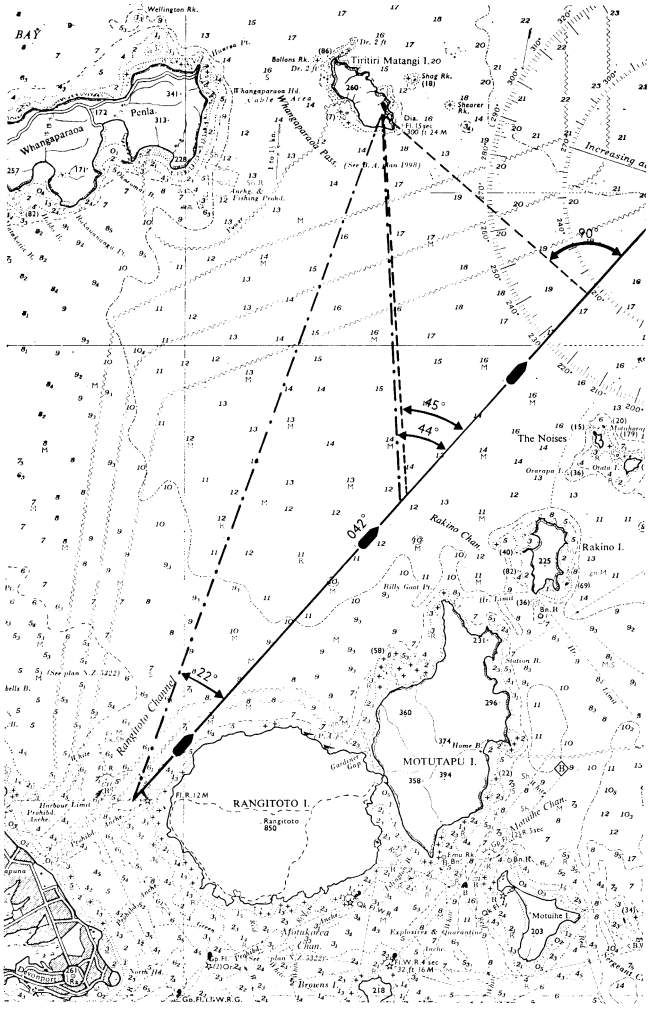
The only feature on this chart which has not already been explained is shown by the wavy lines off Cape Colville. These indicate tide rips or overfalls and the area should be avoided by small craft when there is any wind, particularly when the wind is against the tide.

In order to continue the voyage it is now necessary to indicate the position on the chart in terms of latitude and longitude. Use is now made of the parallel rules which are used for transferring lines of direction from one place to another on a chart. From the position off Rangitoto Beacon use the rules to indicate an East and West line to the left hand scale of the chart. This line will show the Latitude of this position to be 36°47 ‘S.

This portion of Chart No. 532 shows the course 042° laid off from a position two cables off Rangitoto Beacon, and the two bearings taken of Tin Light in doubling the angle on the bow (22° and 44°), and the two bearings (45° and 90°, or abeam) for a four point bearing. Both these show the distance off the light and are used to fix the ship’s position. A study of this portion of the chart will also reveal many of the features mentioned in the article.

Similarly a line so produced in a North and South direction to the bottom scale of the chart will show the Longitude to be 174°49’E.

Using chart No. 3565, Bream Tail to Kawau Is., find the Latitude and Longitude of a position at the entrance to Whangaparoa Harbour. This will be found to be Latitude 36°15.7’S, Longitude 175°23.7’E



To find the course and distance between the two positions the following simple calculation is necessary:

Lat. Rangitoto	**36.47S**
Lat. Whangaparoa	**36.15.7S**
Duff. Lat.	**31.3N**
Long. Rangitoto	**174.49E**
Long. Whangaparoa	**175.23.7E**
Duff. Long.	**34.7E**

Divide these two quantities by 10, gives D. Lat. 3.13 D. Long. 3.47. Using the edge of the chart, from one of the parallels of latitude measure 3.13 miles down and using the scale of longitude measure 3.47 minutes of longitude along the parallel. Join the two points so found to form a triangle. The angle is the true course and the length of the line measured between the two points multiplied by 10 will be the distance.

The true course is found to be 042^{o} and the distance 42 miles. Use of this simple calculation will impress on the navigator the difference between the latitude scale and the longitude scale of the chart.

It may be found that the use of parallel rulers in a small ship at sea and in cramped conditions will be somewhat awkward. It is useful to have a square protractor by which courses can be measured wherever they cross North and South or East and West lines on the chart.

Having found the course and distance of the intended trip, revert now to chart 532. From the position off Rangitoto Beacon draw the true course 042°. If the compass is correct the compass course will be 023° (042° – 19° variation).

Proceeding along this course two simple and useful problems in coastal navigation can be illustrated.

The first is known as "doubling the angle on the bow". It will be found that when on course at Rangitoto Beacon, Tin Light (group flashing in two groups every 30 seconds) will be 22° on the port bow or bearing 002° by compass. When it is 44° on the port bow or bearing 340° by compass, the distance run between these two bearings is the distance off at the second bearing, 6.2 miles.

The second problem is the "four point bearing" problem which is also doubling the angle on the bow. In this problem the light is observed when it is 450 on the bow, the distance run from this bearing until it is abeam or 90° on the port bow will be the distance off when abeam, 4.2 miles.

The same two problems could be used when approaching Channel Island which shows a two group flashing light every 12 seconds, visible 20 miles.

A further check on the position can be obtained when Channel Island light appears over the horizon. The distance off will be approximately 20 miles to starboard and the angle on the bow will be l2°. The distance run when the angle is 24° will be the distance off at the time. A further check can be had when it is 48°. It will be seen from the chart that on this part of the course the tide will have little effect. Its rate is 1 knot but it is substantially in the same direction as the course.

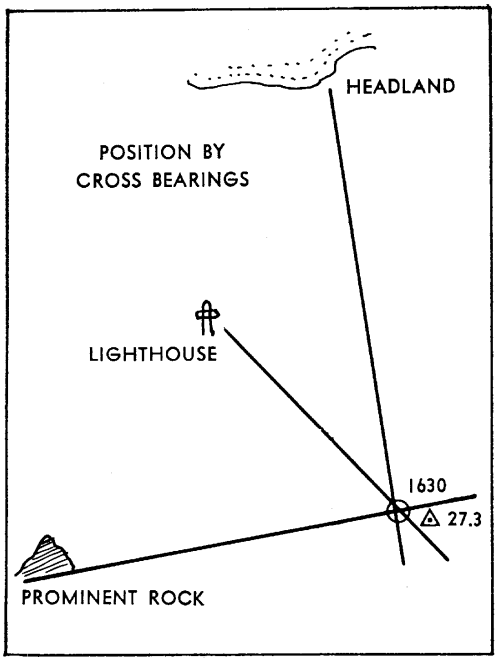
On the course, after passing Tiri Tiri Light the ship will pass in the range of Flat Rock Light, a white light flashing every 7 seconds on the port side. When the position is with Channel Island abeam to starboard the problem should be transferred to Chart No. 3565.

Channel Island light is passed four miles to port and on the last leg of the voyage allowance will have to be made for the tide which runs at a rate of 1 to 2 knots athwart the course.

If making the port on a dark night the course could be altered to bring Channel Island light and Mt. Hobson, the highest peak on the Gt. Barrier, in transit. A course steered on this line will bring the ship to the entrance of Whangaparoa Harbour.

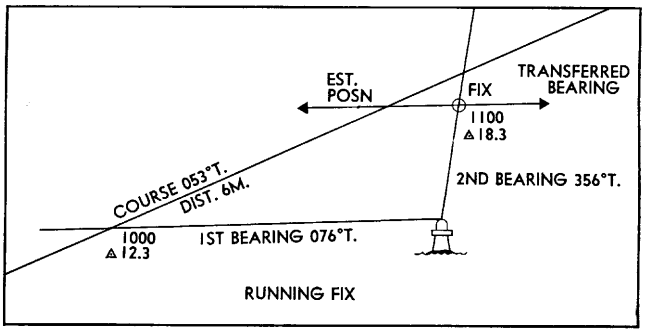
On the voyage out of Auckland we have looked at chart symbols and seen the use of doubling the angle on the bow and the four-point bearing to find the vessel's position and distance off an object. Let us look at some of the more usual ways of fixing our position.

The most common way to determine a vessel's position is by cross bearings (position lines) of two shore objects; our position is where these bearings cross. It is much better to use three bearings where possible, and this usually gives a triangle cross known as a cocked hat; the vessel's position is the centre of the cocked hat.



Remember that all compass bearings must be corrected for magnetic error (deviation and variation) and only true bearings are laid off on the chart.

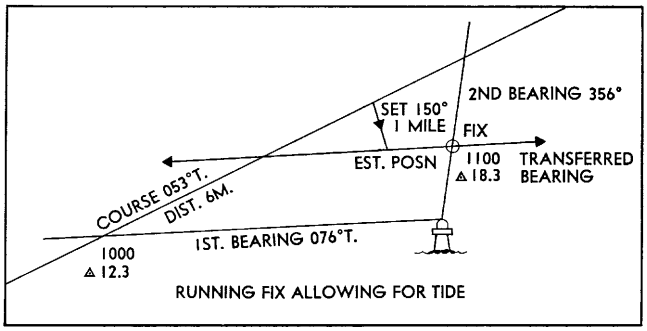
When proceeding along a coast where you can only see one landmark at a time you can still find your vessel's position using a running fix. First you obtain a single bearing of a known shore object; we know that we must be somewhere on this line. The next step is to obtain a second bearing of the same object or another object some time after the first bearing. Now we lay off the course and distance we have steamed from a point on the first bearing to give us an estimated position. The final step is to transfer the first bearing through the estimated position and where the transferred bearing cuts the second bearing we have the vessel's position.



Sometimes we have to allow for the effect of tides or currents known as "set" on our vessel. We can get the information about the direction and the speed of the tide from the tidal information on the chart and the New Zealand nautical almanac and tide tables.

In the running fix problem we would lay off from our estimated position the set, and drift of the tide for. the period between the two bearings, and when we transfer the first bearing it is transferred through the new estimated position which takes into account the effect of the tide.

When sailing along the coast we often have to steer a course which counteracts the effect of the tide to keep the vessel on a good course. This course is calculated using the true course and true direction of the tide to find the true course, then it is converted to a magnetic compass course. To find the course to steer to counteract tide you lay off on the chart the true course and speed for one hour then from the position you arrive at lay off the tide for one hour BUT in the opposite direction to which it is heading. Then stop and make sure you have done it correctly.



Another force which pushes our vessel off course is wind causing leeway; we do not treat leeway the same as tide. The amount of leeway affecting the vessel is estimated and the correction applied directly to the compass course.

The navigation in this chapter is intended as an introduction to the subject and Scouts should consult recognised textbooks when studying navigation.

Tides

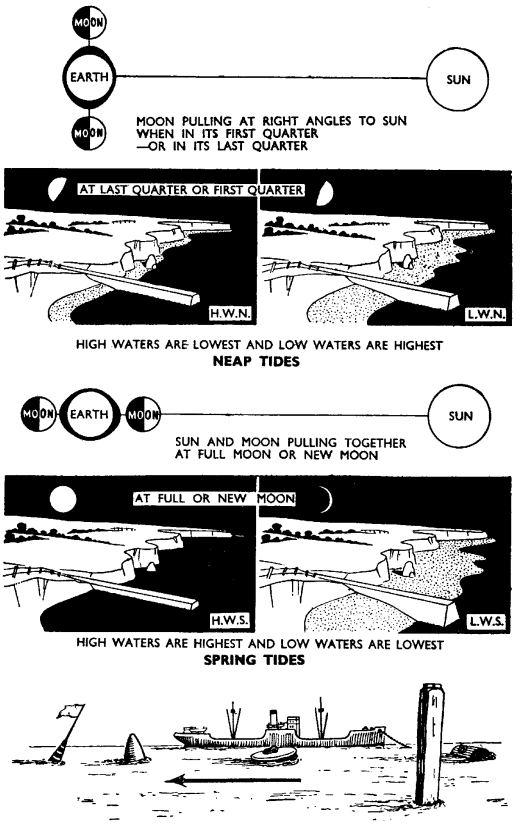
The tides are the daily rising and falling of the sea caused by the action of the sun and moon in attracting the water towards them. Generally speaking, around New Zealand it will be found that after the tide has reached its lowest level, at "low water", it then rises for about 6¼ hours until its highest level, at "high water", after which it falls during another 6¼ hours to the next low water, and so on. The amount in metres the tide rises from low water to the following high water is called the "range" of the tide.

There are two high waters and two low waters every 25 hours, high water occurring about 50 minutes later each day.

The heights and times of successive tides, which vary from day to day, are to be found in the tides tables included in the *N. Z. Nautical Almanac*. The time and height of the tides is predicted for every day of the year for a number of different ports.

It will be found that the rise and fall of tide is greatest about the time of new and full moon (spring tides) and least 7½ days later in each case (neap tides).

The depth of water, or "sounding" shown on a chart, in metres (old charts in fathoms) is the depth below what is known as "chart datum", and above which the height of the tide is measured. Chart datum is nearly always below low water springs so that we know the depth of the water will never be less than that shown on the chart.



Buoys and ships give indication of the set of the stream

As a rough guide to calculating the height of the tide at any particular time a six-hour tide may be expected to rise or fall approximately:

$^{1}/_{12}$ of its range in the first hour
$^{2}/_{12}$ of its range in the second hour
$^{3}/_{12}$ of its range in the third hour
$^{3}/_{12}$ of its range in the fourth hour
$^{2}/_{12}$ of its range in the fifth hour
$^{1}/_{12}$ of its range in the sixth hour

Tidal Streams

The rise and fall of the tide is accompanied by a horizontal movement of water called the “tidal stream”, which flows in and out of harbours and along the coast.

A rising tide is accompanied by the ingoing stream, called the “flood stream”, and its presence is indicated on the chart by a small feathered arrow. A falling tide is accompanied by the outgoing stream called the “ebb stream”, indicated by a plain arrow on the chart.

The tidal stream runs stronger where the water is deeper or the channel narrower. The stream runs fastest during the third and fourth hours of the tide, and this stream reaches its maximum rate at spring tides.

Soundings

Large vessels these days are equipped with Echo Sounders, an electronic device which measures the length of time it takes a sound to travel from the ship to the bottom and return. By knowing the speed at which sound travels through water, and measuring the time taken, the depth is obtained. Ask to see the Echo Sounder when next your Leaders arrange a ship visit.

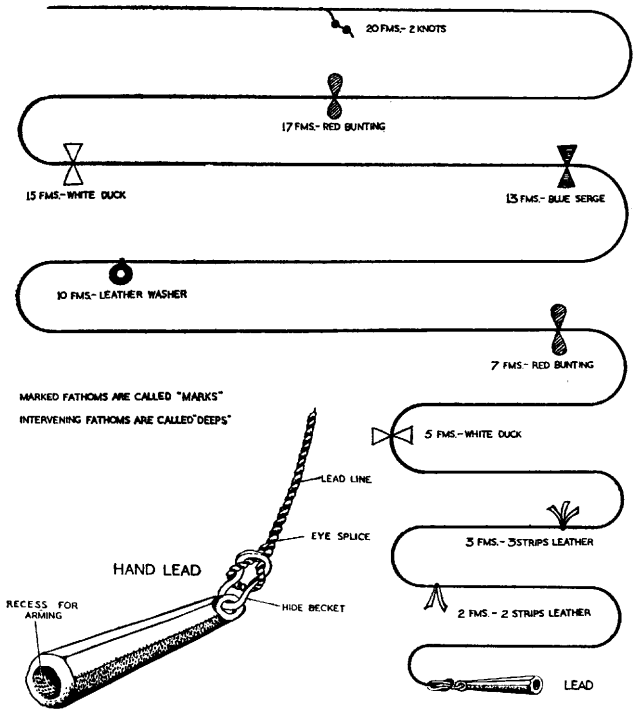
Smaller vessels may rely on a hand lead line to obtain soundings. To obtain soundings up to a speed of 10 knots a line of 50 metres in length is used, and the lead is a 3 kg to 7 kg tapered bar hollowed at the bottom for arming with tallow if it is desired to obtain a sample of the bottom.

The lead is marked at intervals throughout its length as shown in the illustration. The leadsman heaves the lead ahead of the ship, noting the depth when the line is straight up and down.

Some lead lines are still marked in fathoms. You can make a metric one by putting cords with knots in them at the metric marks, e.g. 6 knots at the 6 metre mark. At the 10 metre mark you have a leather tag with holes to mark the tens.

Buoyage

Buoys are used to mark channels, edges of shoals, etc. Their position is shown on the charts. A starboard hand buoy marks that side of the channel which



Old style hand lead and line marked in fathoms

Fathoms	*Marking*	*Metres*
1	1 Strip of leather	1, 11 and 21
2	2 Strips of leather	2, 12 and 22
3	3 Strips of leather	-
5 and 15	A piece of white duck	5, 15 and 25
7 and 17	A piece of red bunting	7, 17 and 27
10	A piece of leather with a hole in it	10
13	A piece of blue serge	3, 13 and 23
20	Two knots	20

the main flood stream or entering a harbour from seaward. A port hand buoy marks the left-hand side under the same conditions.

Buoys are distinguished from each other by their shape, colour and topmark.

Starboard hand buoys are conical, pillar or spar in shape and painted green.

Port hand buoys are can-shaped, pillar or spar and are painted red.

Other buoys are used to mark middle grounds, i.e., shoals in the middle of a channel, isolated dangers, safe water and special marks.

Any buoy may have a light on top, which is generally a flashing light. It is usually lit by gas and is alight day and night. Modern buoys may be fitted with an arrangement which automatically lights the light at sunset and puts it out at daybreak. Some buoys have a whistle or bell attached to them, but as these are worked by the motion of the waves you will not hear them on a calm day. This is often the case during a fog. The bow waves of ships and launches however, may start them off.

Small rivers have the channel marked by small spar buoys, and sometimes branches of a tree are stuck in the mud.

Beacons are posts erected on shore with different shaped top marks to guide a ship past dangers.

Very often two beacons in line, or an object ashore in line with a beacon, guide you up the middle of a channel. These are called leading marks.

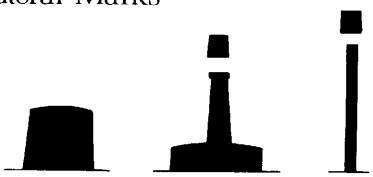
Lights or lighthouses are placed to mark salient features of the coast and hidden dangers such as rocks and shoals. They are lit from sunset to sunrise and are used for fixing the position of a ship at night.

Light Characteristics

CLASS OF LIGHT		Abbreviation	Illustration
Fixed *(steady light)*		F	
Occulting *(total duration of light more than dark)*			
Single-occulting		Oc	
Group-occulting	*e.g.*	Oc(2)	
Composite group-occulting	*e.g.*	Oc(2 +3)	
Isophase *(light and dark equal)*		Iso	
Flashing *(total duration of light less than dark*			
Single-flashing		Fl	
Long-flashing (flash 2s or longer)		LFl	
Group -flashing	*e.g.*	Fl(3)	
Composite group-flashing	*e.g.*	Fl(2 + 1)	
Quick *(50 to 79—usually either 50 or 60—fl./min.*			
Continuous quick		Q	
Group quick	*e.g.*	Q(3)	
Interrupted quick		IQ	
Very Quick *(80 to 159—usually either 100 or 120 fl./min*			
Continuous very quick		VQ	
Group very quick	*e.g.*	VQ(3)	
Interrupted very quick		IVQ	
Ultra Quick *(160 or more—usually 240 to 300 fl./min.*			
Continuous ultra quick		UQ	
Interrupted ultra quick		IUQ	
Morse Code	*e.g.*	Mo(K)	
Fixed and Flashing		FFl	
Alternating	*e.g.*	Al.WR	R W R W R W

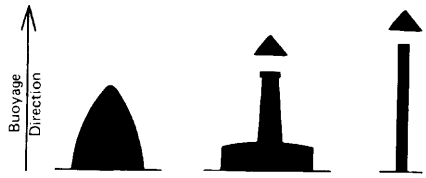
Buoys and Beacons

Lateral Marks



Shape: Can, pillar or spar.
Colour: Red.
Topmark: (if any) Red can
Light: (if any) Red; any rythm other than preferred channel.

Port Hand Marks

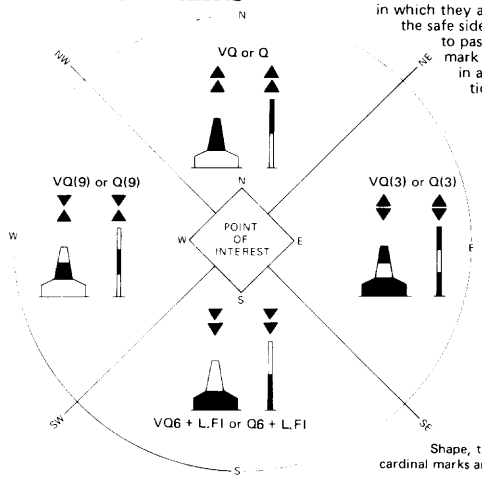


Shape: Conical, pillar or spar.
Colour: Green.
Topmark: (if any) Green cone.
Light: (if any) Green; any rythm other than preferred channel.

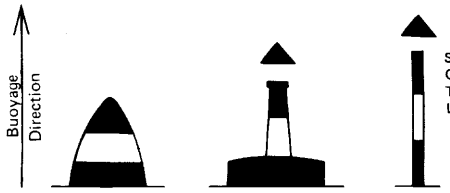
Starboard Hand Marks

Cardinal Marks –

These marks take their name from the quadrant in which they are placed and indicate the safe side of a danger on which to pass, eg—north of a north mark etc, the deepest water in an area, or draw attention to a bend, junction, bifurcation or the end of a shoal.

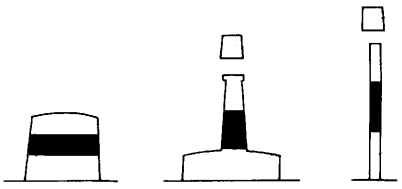


Shape, topmark and lights for cardinal marks are shown on the diagram.



Shape: Conical, pillar or spar.
Colour: Green with red band.
Topmark: (if any) Green cone.
Light: (if any) Green composite group flash Fl(2+1)G.

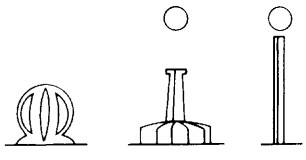
Preferred channel to Port :



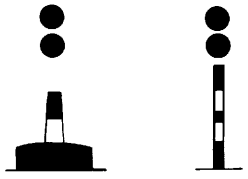
Shape: Can, pillar or spar.
Colour: Red with green band.
Topmark: (if any) Red can.
Light: (if any) Red composite group flash Fl(2+1)R.

Preferred channel to Starboard :

Safe Water Marks

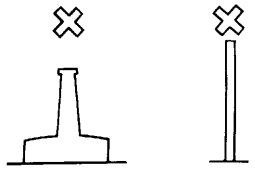


Isolated Danger Marks

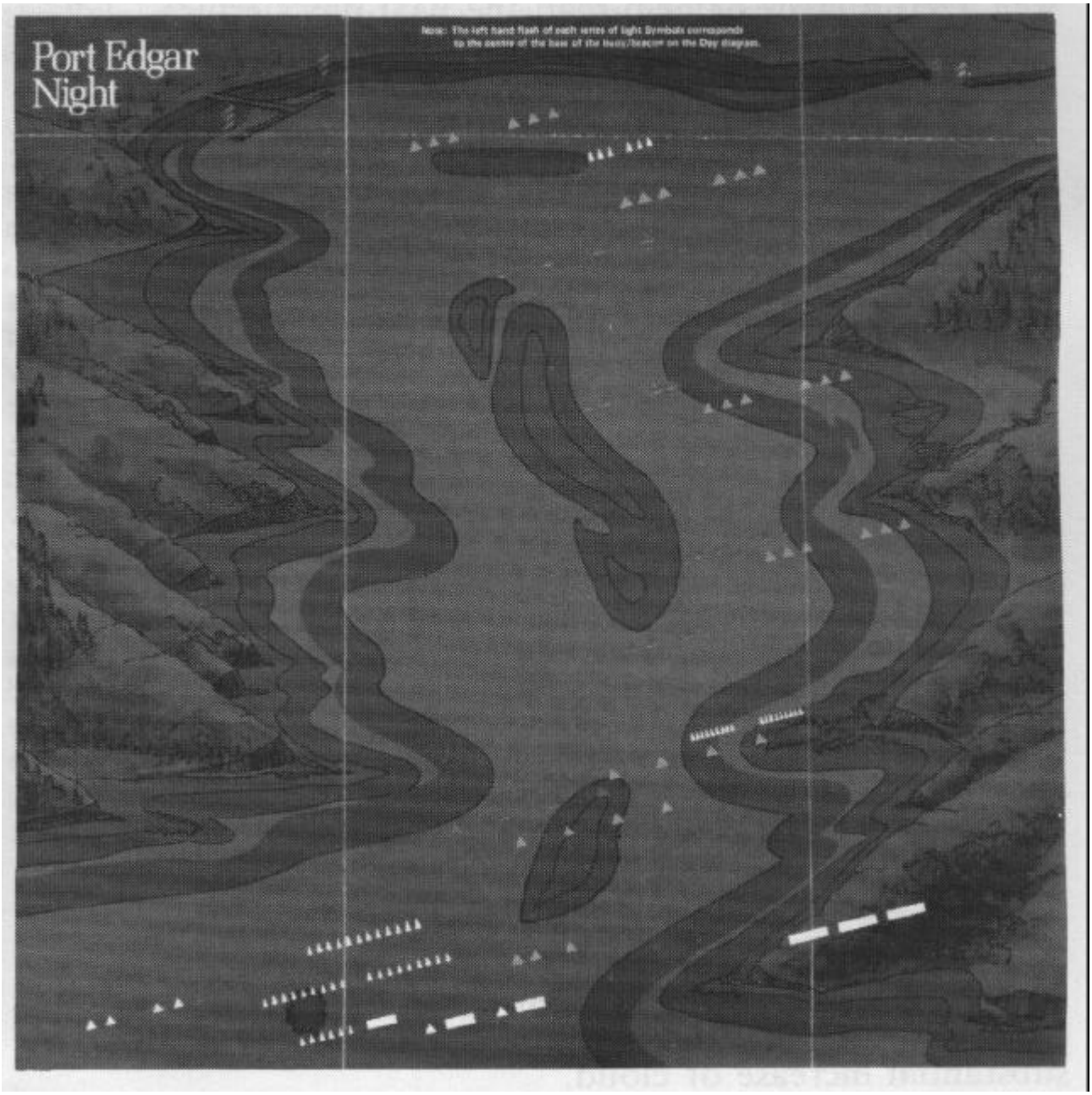


Special Marks

(Yellow)




Port Edgar
Day
PARK HAVEN
A


Port Edgar
Night
Note: The left hand flash of each series of light Symbols corresponds to the centre of the base of the tank/beacon on the Day diagram.

Meteorology

Forecasting the weather with reasonable accuracy is within the limits of anyone prepared to make intelligent use of available information which includes daily weather maps published in newspapers and the more frequent radio forecasts.

Adding individual expertise to forecasts makes good sense. Often, observers can detect significant local changes not covered in the more general forecasts. At times, this knowledge could well avert a crisis or help plan the next day's cruise.

Study Elements

Three elements for Sea Scouts to observe are the clouds; atmosphere pressure changes and wind direction and strength.

Seven of the ten basic cloud formations are derived from three major types.

They are stratus, Latin for layer, which are sheet clouds indicating stability; cumulus, pile or heap cloud, which are unstable; and cirrus, which are hair or streak-like in appearance.

Cirrus clouds which are streaky and sometimes resemble mares tails indicate continuing fine weather unless thickening into cirrostratus.

Cirrostratus clouds are layers covering the sky and the first hint of bad weather. Tell-tale sign is a halo around the sun or moon.

Altostratus clouds are layers through which the sun or moon can often be seen in hazy form. As a development of cirrostratus they once again give warning that bad weather is approaching.

Rain is imminent when nimbostratus clouds form. They are thick lower clouds which have evolved from cirrostratus and altostratus. As can be seen from the preceding paragraphs the various formations gradually develop into tangible shapes which clearly indicate what weather to expect.

Fine Weather

Cirrocumulus, which are normally associated with cirrus clouds, portend continuing fine weather unless there is any substantial increase of cloud.

Cumulus, heap clouds resembling cotton wool are most common of all and welcomed as good sailing weather. Such clouds indicate anti-cyclone conditions.

Stratocumulus are cloud formations which denote atmospheric stability. At this point of development, such clouds are not thick enough to produce rain.

Cumulonimbus are extreme formations which, if shaped in verticle forms herald thunderstorms, hail and squalls. Quite often cumulonimbus clouds are shaped like an anvil—a result of violent updrafts. Dispersal of the anvil is the death-knell of the storm.

Stratus are low lying clouds of no particular form very much like fog. Drizzling light rain often accompanies such clouds.

Altocumulus or billowy clouds, at medium level, mean fine weather unless they thicken.

Sea Scouts are wise to suspect conditions allowing for perfect visibility, often a sign of unstable elements. On the other hand, hazy weather usually indicates stable conditions.

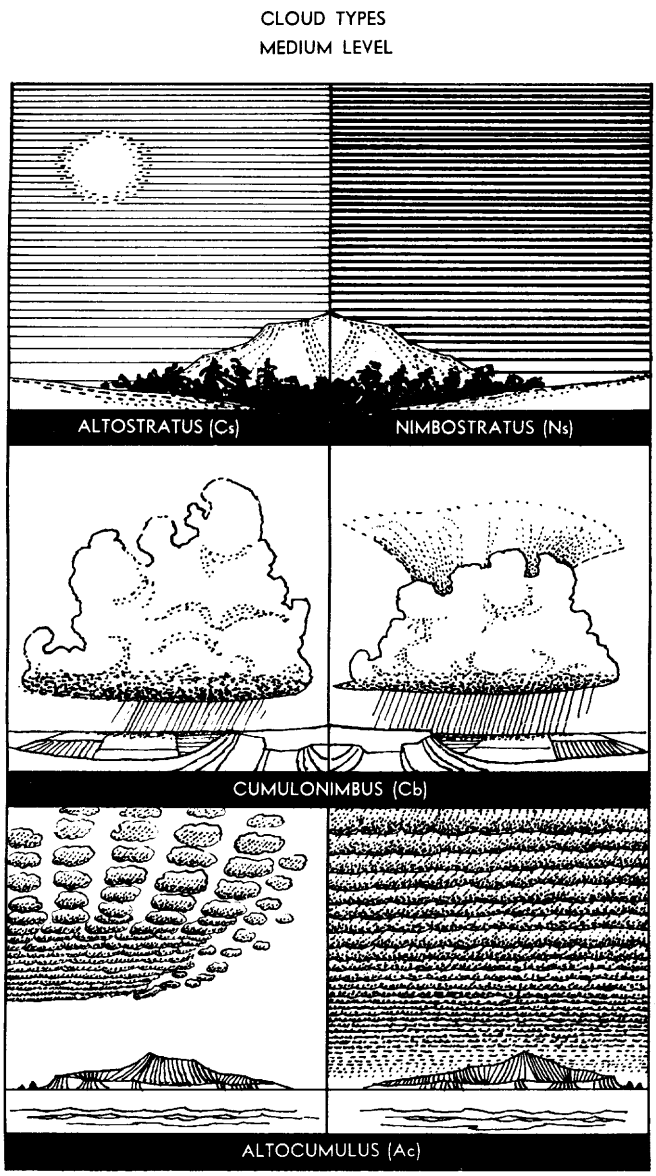
Pressure

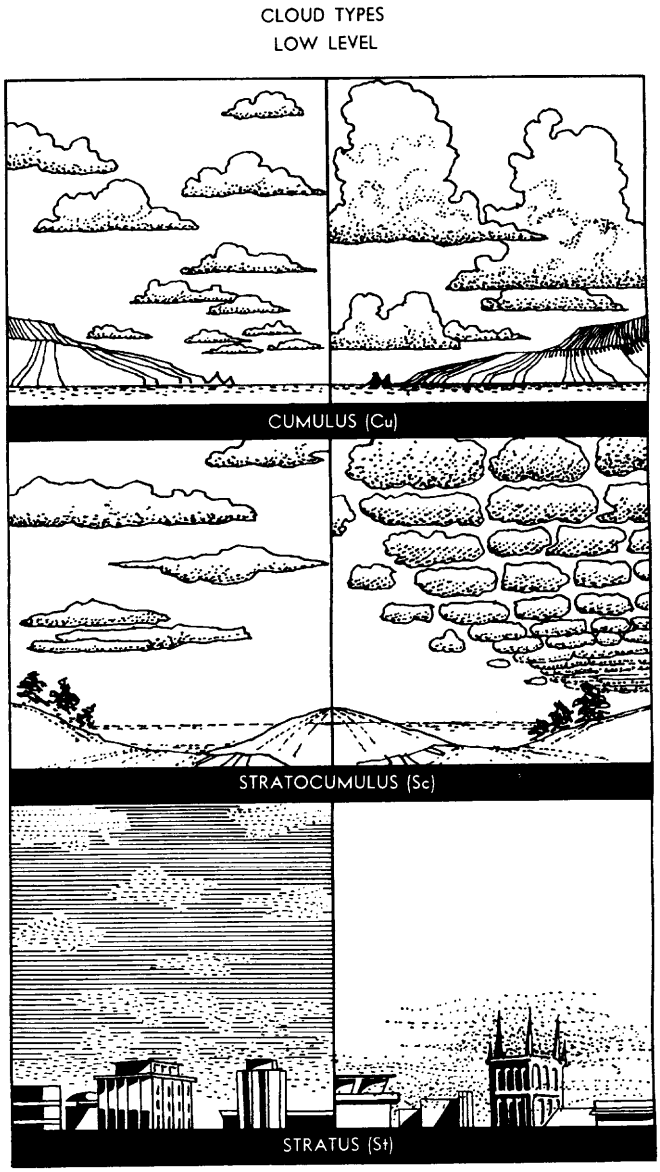
New Zealand and its surrounding waters are blessed in summer with regular high pressure systems or anti-cyclones, generally bringing fine weather. They are indicated by a rise in the "glass". Anti-cyclones usually move from west to east and are frequently accompanied by southerly winds which decline to light and variable and change to northerlies when the centre of the anti-cyclone has passed.

This is the case if the centre passes the observer, but if it is to the north or south there will be variations in these wind directions as it moves across, these can be deduced from a study of the weather map. It must be remembered that the wind goes anti-clockwise in an anti-cyclone following the lines of the isobars on the map. The exception being for local variations which only long experience in a locality can give the ability to foretell.

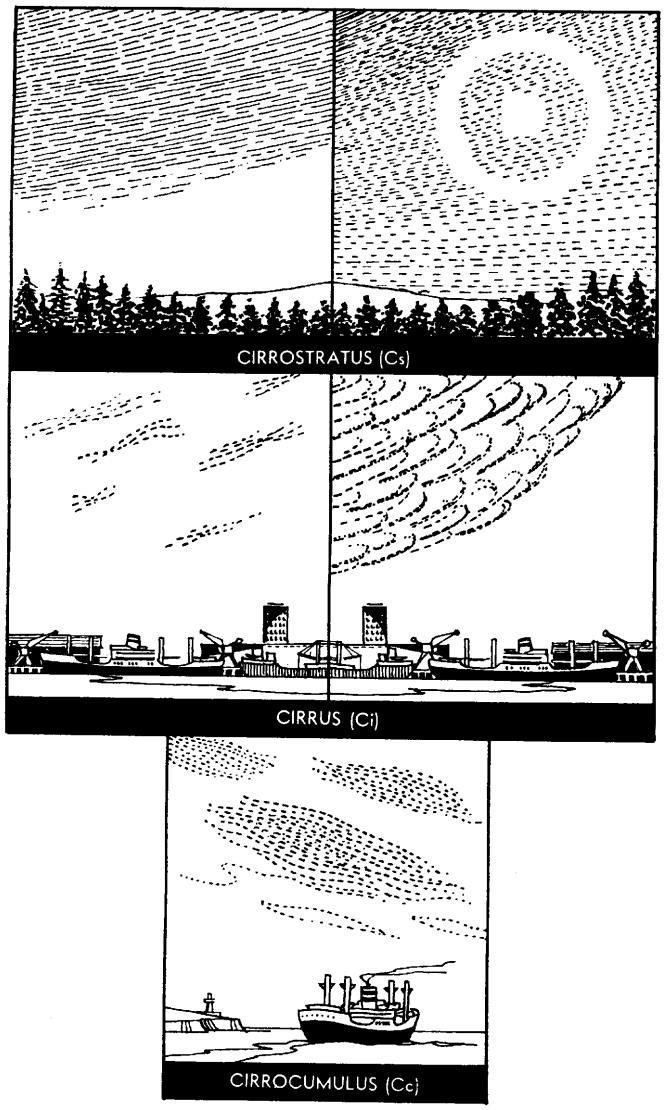
Low pressure systems or depressions often bring high winds and rainy unpleasant weather. They too usually pass eastwards over New Zealand and are termed cyclonic moving in a clockwise direction. From a study of the map the most likely wind direction can again be deduced.

Tropical cyclones originate north of 20 degrees south and usually travel south or south eastward near New Zealand bringing gale force winds and heavy rainfall. These low pressure systems are characterised by the widespread lifting of the air which gives rise to extensive thick layers of clouds. Only about two or three such cyclones a year hit New Zealand.





CLOUD TYPES
HIGH LEVEL



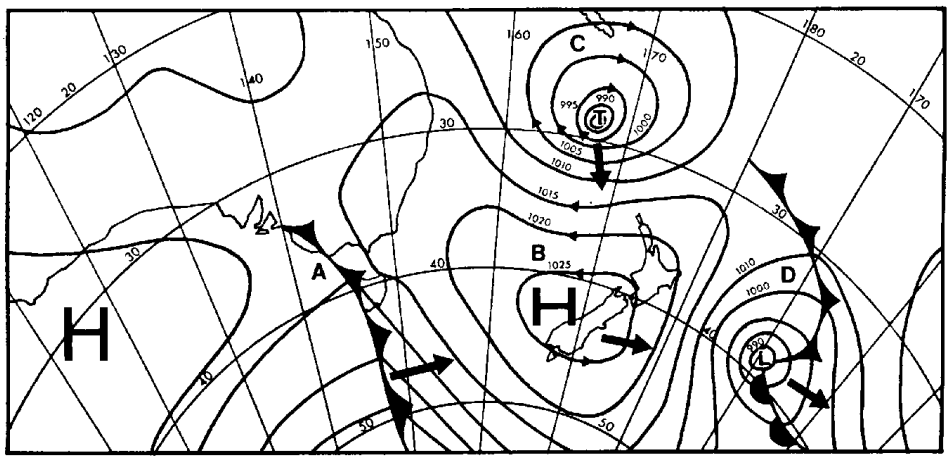
The following weather map shows several typical pressure systems and associated fronts passing through the area affecting New Zealand's weather. The general movement is always from West to east as the big arrows show.

A is a cold front crossing Tasmania and moving on to the south Tasman. It will probably be closely preceded by northerly winds and rain with a change to west or sou 'west winds as the front passes, with heavy showers gradually clearing to fine weather as the high behind it moves over.

B is an anti-cyclone moving across New Zealand with the centre of highest pressure over the South Island. This should bring fine weather to most of the country. The winds follow the direction of the arrows — in an anti-clockwise direction in an anti-cyclone. They are easterly in the far north and westerly in the far south and light and variable in the centre of the South Island. The big distance between the isobars—which show the barometric pressure — shows that the pressure gradient is not very steep, so winds generally will be light.

C is a tropical depression or cyclone moving down from the north but tending to join the general movement and swing away to the east. The isobars are closer together and show a steeper pressure gradient and stronger winds. As it approaches New Zealand it will give strong to gale force easterlies in the north but will probably move off the country or dissipate without affecting the weather very far south. The arrows indicate the direction of the wind — in a clockwise direction round a cyclone.

D is a frontal depression moving away from New Zealand, with a cold front extending northwards and a warm front to the south-east of the centre of lowest pressure. This is a fairly complex system and would give unsettled weather.



Chapter VIII

Rigging

Rope and its uses

Rope of any kind can be described as belonging to one of two main types:

Cordage (which is made of vegetable or synthetic fibres).
Steel wire rope, or stainless steel wire rope.

Fibre ropes are made up of fibres twisted into *yarns*, which are themselves twisted to form *strands*. Three strands laid up right handed, that is, the strands running from left to right, form a *hawser laid* rope, which is the type of cordage commonly used. In a normal right-handed rope:

Fibres are spun right handed to form yarns;
Yarns are twisted left handed to form strands;
Strands are laid up right handed into rope.

Because of this twist or *lay* of the rope, kinks and turns will form if the rope is coiled the wrong way. A right-handed rope must always be coiled down clockwise.

The length of a rope was measured in fathoms (1 fathom = 6 feet), now it is measured in metres. The size of rope is measured by its diameter in millimetres.

A rope is kept in a coil or on a reel when not in use.

Rope will stretch under load and tend to twist in the opposite direction to that of its lay, but it should regain its normal form when slack.

Rope when wet will shrink in length and swell in diameter, but it will recover most of its original length when dry.

The golden rule for the care of rope is not to stow it away when wet, or it will rot. Rot and damage are detected by opening a strand.

Types of ropes commonly used are made of:

Manila: a new manila rope is golden brown in colour and is used for boat's falls and important lifting gear.

Sisal: A hairy pale straw colour rope, used for general purposes. Sometimes treated with tar to protect it from the weather.

Hemp: Also a pale straw colour but is hard and smooth in texture. Often found in small lines such as cod-line.

Coir, or Grass Line: A very rough coconut brown colour. Lighter and weaker than the others but more resilient, and is useful because it will float.

Sometimes rope is made up with a coloured yarn called a rogue's yarn running through its length. This denotes its point of manufacture.

Synthetic Ropes

In small boating today synthetic ropes have almost completely replaced natural fibre ropes. The main advantages of synthetic ropes are:

Greater strength for lighter weight. More than twice as strong as manila.
Absorb very little water.
Pliable and easy to handle even when wet.
Higher resistance to exposure, to weather.
Will not rot, mildew or deteriorate even if put away wet.
Twisted or braided types available. Braided ropes though not as strong as twisted are softer on the hands and less likely to kink, they cannot however be spliced.

The three main types of synthetic rope are:

Nylon, which has the greatest strength and because of its elasticity can absorb shocks. It will stretch up to 4OWo before breaking.

Warning: Because of this, keep crew away from nylon under strain. A break or failure of a fitting will result in back lash. Suitable for use as anchor ropes, tow ropes, mooring lines.

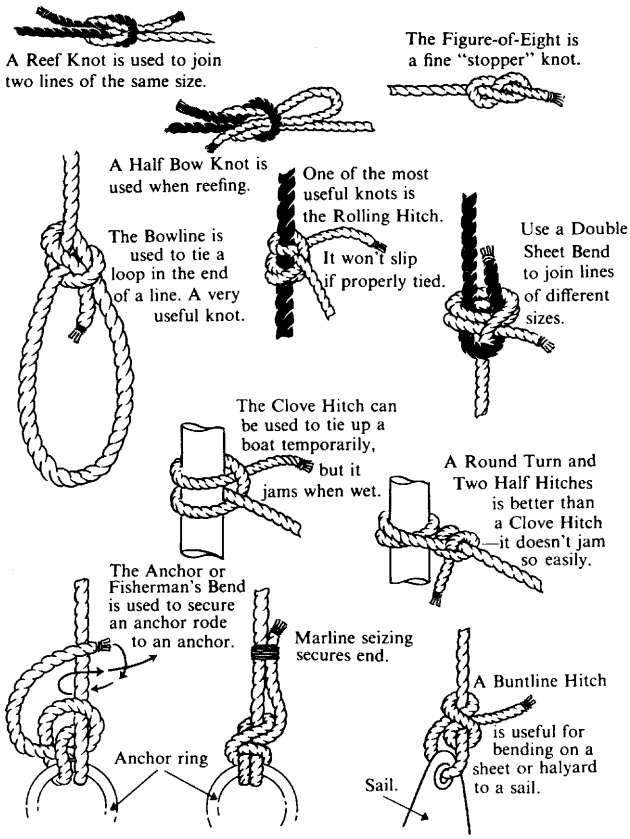
Terelene, a little heavier than nylon and not quite as strong. It has about one-half the stretch of nylon and is therefore used where this is important such as in halyards. Its high resistance to abrasion also makes it suitable for mooring lines.

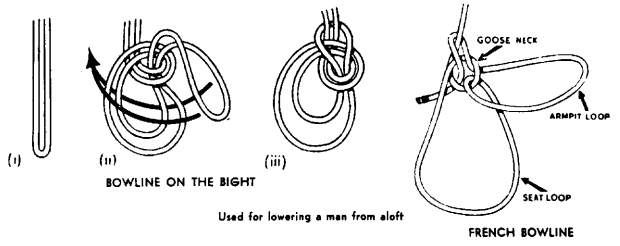
Polypropylene (Ulstrom) has most of the qualities of nylon and terylene, with slightly less strength and small stretch, and is cheaper. Its main characteristic is that it floats on water. This makes it unsuitable for anchor ropes, but very useful for painters and heaving lines. It is usually yellow in colour.

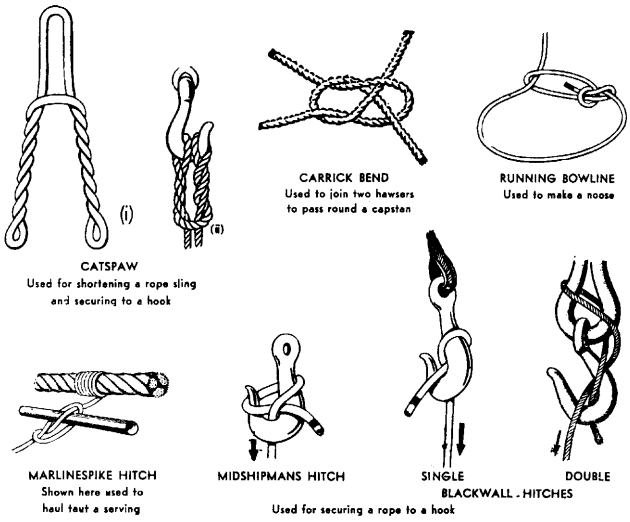
Spun polypropylene braided ropes are the best for sheets. They are soft on the hands and will not kink. The ends have to be tied or eyes seized into them as these ropes cannot be spliced.

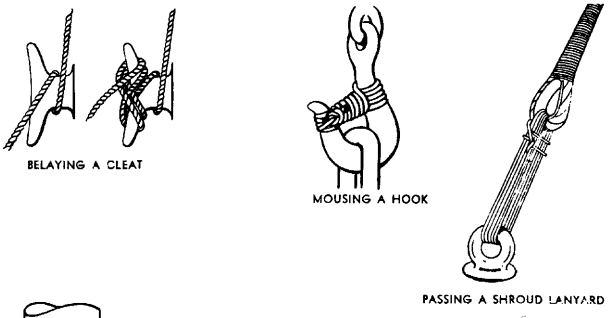
Bends and Hitches

The Sea Scout is already familiar with many knots described in N.Z. Scout Handbooks, and those covered here are additional useful bends and hitches used by seamen.

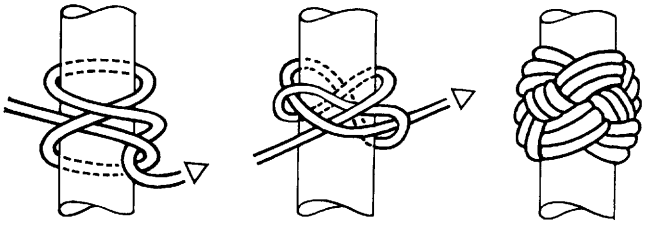








TURK'S HEAD



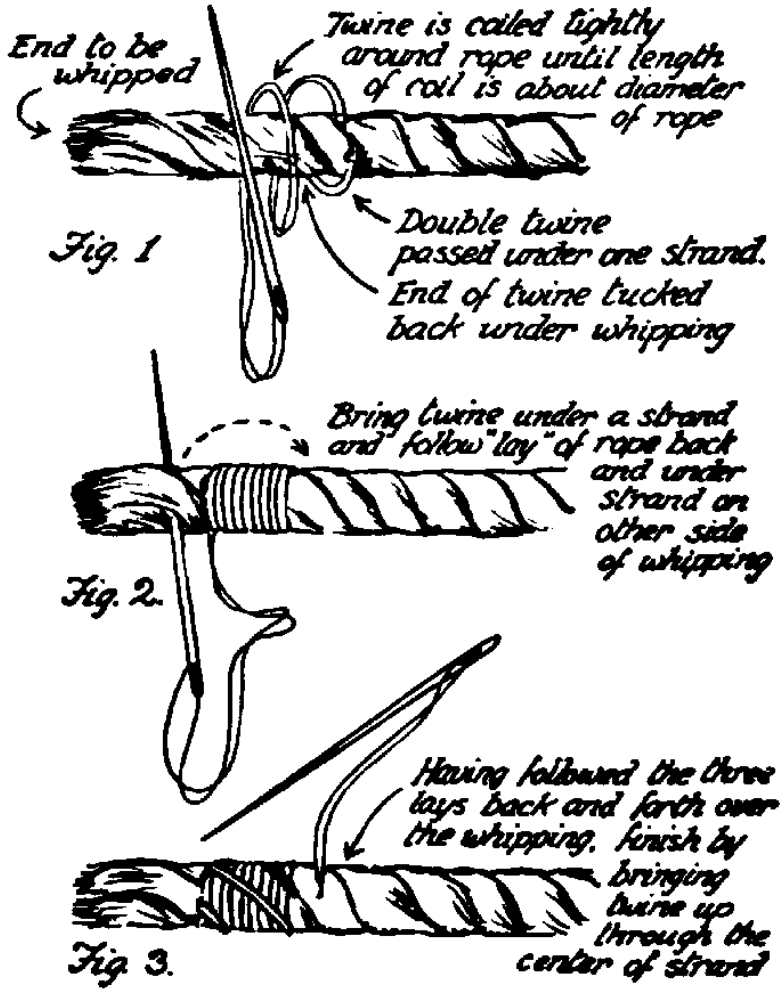
STAGE 1 — START

STAGE 2 — CROSS OVER AT BACK. THEN FOLLOW ROUND SO THE WORKING END GOES OVER ONE, UNDER ONE.

STAGE 3 — THREE PLAIT TURK'S HEAD

Whipping

Whenever a rope is cut the ends will tend to unlay, and to prevent this the ends must be whipped. Even the Recruit Sea Scout knows how to make a common whipping, but ropes for use in the boat should be whipped with the more permanent sailmaker's whipping. The back-splice can also be used for this purpose, but as this splice increases the circumference of the rope it will not pass through a block of the appropriate size and is therefore never used on sheets and halyards. An unwhipped rope end is a sure mark of the land-lubber.



SPLICING

Splicing is a method of joining the ends of two ropes together or of making an eye in the end of a rope, by interlocking the strands. The principal splices a Sea Scout should be able to make are:

Eye Splice

Unlay the rope for a sufficient distance from the end according to the size of eye required and the size of the rope.

1. Tuck the centre strand through the upper most strand of the rope at the size of the eye required.
2. Take the left-hand strand and tuck it to the left under the next strand.
3. Turn the splice over and tuck the third strand under the remaining strand from right to left. Then, starting with strand No. 3, haul each strand taut evenly.
4. Now tuck all three strands a second and third time.

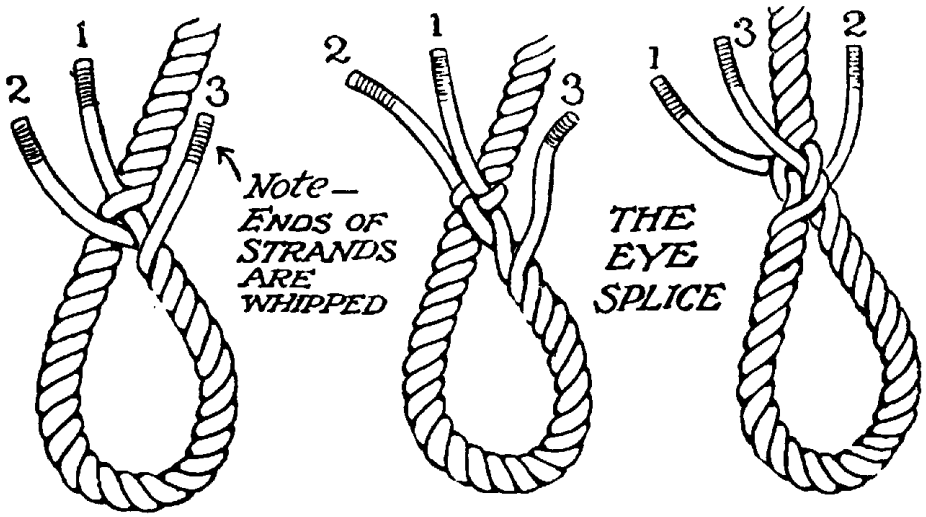
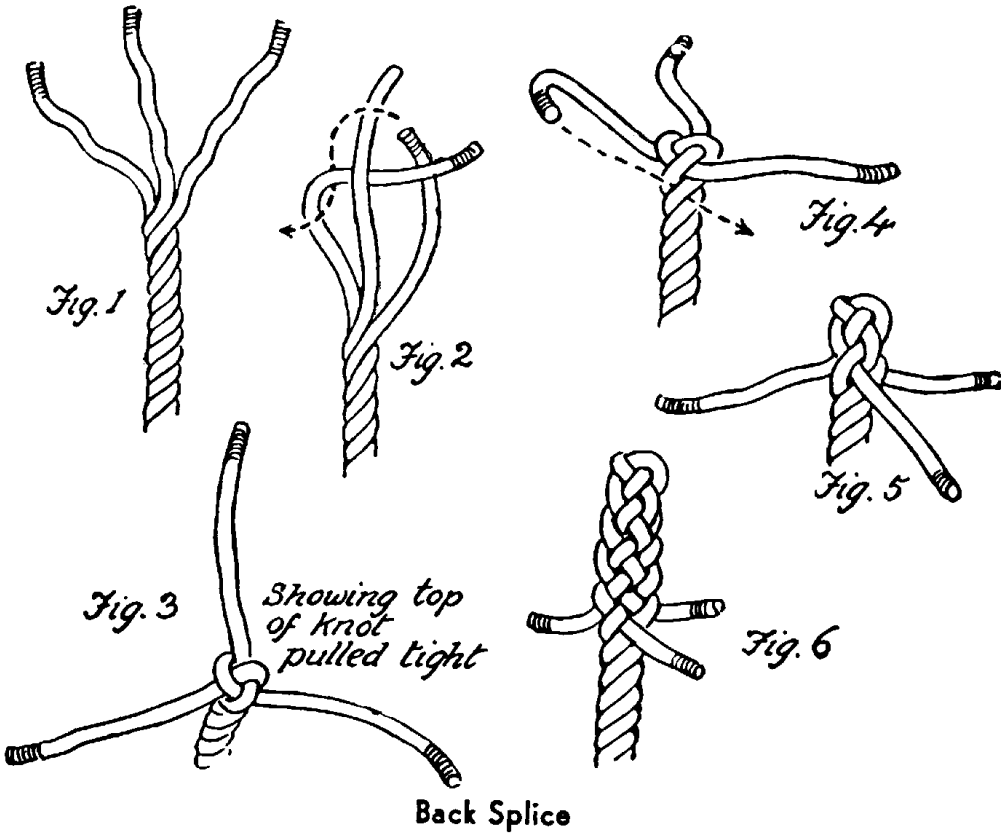


Fig. 1 Fig. 2 Fig. 3

Backsplice

Used to finish off the end of a rope not required to run through a block.

1. Unlaying the strands.
2. Making the crown knot, “crowning the rope”.
3. Crown pulled taut.
4. Making the first tuck. Note: Always across the lay.
5. First tuck completed.
6. The finished splice.

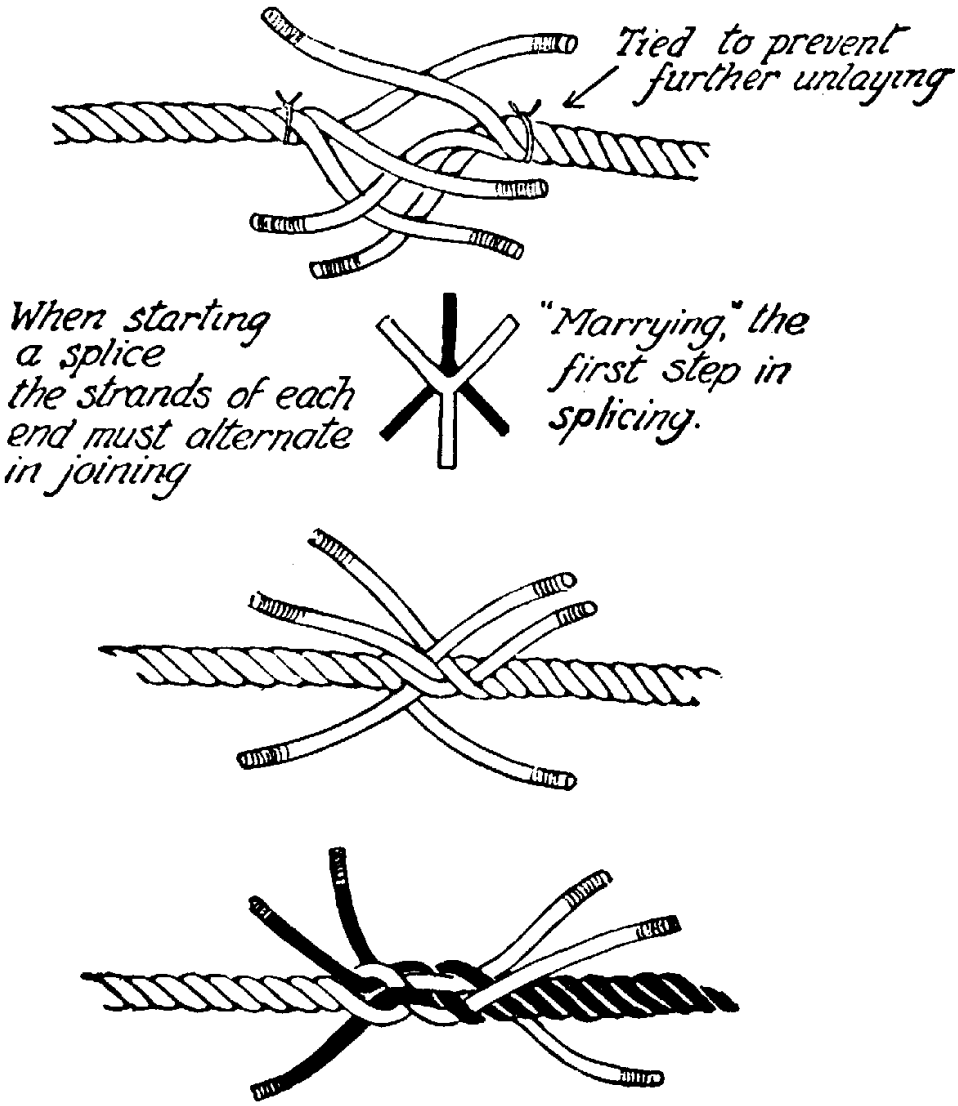


Back Splice

Short Splice

Used for joining two ropes which do not have to pass through a block because the finished splice will slightly increase the size of the rope.

1. Unlay the rope, as for an eye splice, and put a stop on to prevent further unlaying.
2. “Marry” the ropes together.
3. Hold down the ends on one side of the splice against the rope, while tucking the other ends, as in an eye splice, over and under from right to left.
4. Having tucked one side, tuck the remaining ends the other side. Then tuck all strands a second and third time.

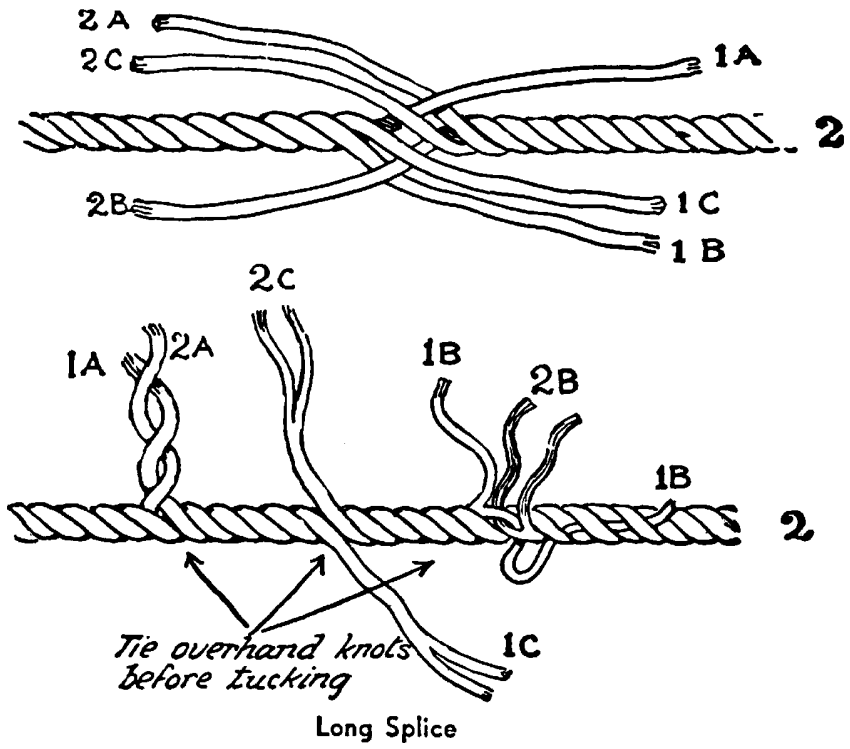


Short Splice

Long Splice

This splice is used to join two ropes together when they are required to pass through a block, and if well made it does not increase the circumference of the rope.

1. Unlay the strands for at least six times the circumference of the rope.
2. Marry the strands as for the short splice.
3. Unlay strand 1A and lay up strand 2A in its place.
4. Unlay strand 2B and lay up strand lB in its place.
5. Halve each strand and tie together with an overhand knot.
6. Tuck all ends at least once, as shown for strand 1 B in the diagram, and then cut off.



Long Splice

Wire Rope (not stainless steel)

Wire rope is constructed of a number of small wires which extend throughout its length. These wires are twisted left-handed round a jute or wire *core* and the six strands forming the rope are laid up right-handed around a hemp or jute *heart*. This heart has two functions:

It acts as a cushion into which the strands bed, allowing them to take up a natural position as the rope is bent or subjected to strain.

It absorbs the boiled linseed oil or other lubricant with which the rope should periodically be dressed, so that as the rope is stretched or flexed the oil is squeezed between the wires, thus lubricating them and minimising any friction between them.

Steel wire rope used for standing rigging is not required to be flexible and its strands are made of a small number of large gauge wires round a steel wire core (six strands each of seven wires).

Flexible steel wire rope as used in running rigging and hawsers consists of a number of medium gauge wires wound round a large jute core (six strands of 12 to 30 wires).

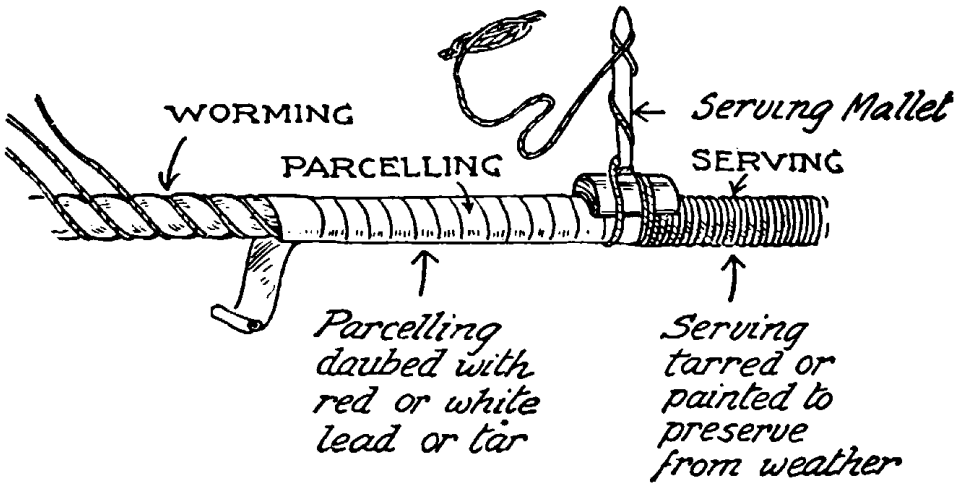
The length of wire rope is measured in metres. Its size is measured in the Navy by its circumference and in the Merchant Service by its diameter across its largest diameter.

Wire rope should be kept on a reel when not in use.

If wire rope is to be cut the ends must first be whipped on both sides of where the cut is to be, then placed on a vice or similar hard surface and cut with a hammer and cold-chisel or wirecutters.

Stainless steel wire is more often used for the rigging of small craft being much stronger. It cannot be spliced and is fastened round thimbles with bull dog grips or talurit splices which are machine made and won't draw as the metal splice is forced right into the parts of wire.

Shrouds made from ordinary wire rope have hard eyes spliced in either end, and these are "served" to protect them from the weather and also, in the case of small craft, to prevent the crew from being "snagged" by the wire ends in the splice. Worm and parcel with the lay, Turn and serve the other way, used to be the old rhyme about the covering of ropes.



Worming was the laying of a small line in the score between the lay of the ropes and *parcelling* the wrapping of the rope with strips of canvas. The whole lot was then "served" against the lay of the rope with tarred twine wrapped taut round using a serving mallet.

For small wires, such as Standard boat shrouds, it is not necessary to worm and parcel first. However, before making the eye-splice in the wire, serve that part of the wire which is to be the crown of the splice first, then insert the thimble and stop the wire temporarily to the thimble before commencing the splice. When the splice is completed serve over it toward the neck of the thimble.

There are two or three ways of making an eye splice in wire and full descriptions of how to proceed are given in Vol. II of the *Seamanship Manual* and in the *Boatswain's Manual* by Capt. W.A. McLeod. If the Skipper can arrange for a seamanship instructor to demonstrate, so much the better. Wire splicing is becoming a dying art due to the use of stainless steel wire.

Blocks and Tackles

A *block* is so named because it was originally a block of wood with a hole in it for a rope to reeve through. To reduce friction the hole was enlarged to take a pulley-wheel or *sheave*. Then the surplus wood was cut away from the outside of the block, leaving a wooden shell. This was grooved, called the *score*, to take a rope spliced round the block to secure it in place as required. -If the wooden shell split the block was useless, so the next step was the "iron-bound block" in which

the strop or hook was riveted to an iron case carrying the sheeve and its pin, the wooden shell acting as a fairing piece. Today the larger modern blocks are made of metal, and friction is further reduced by roller bearings between the sheave and its pin.

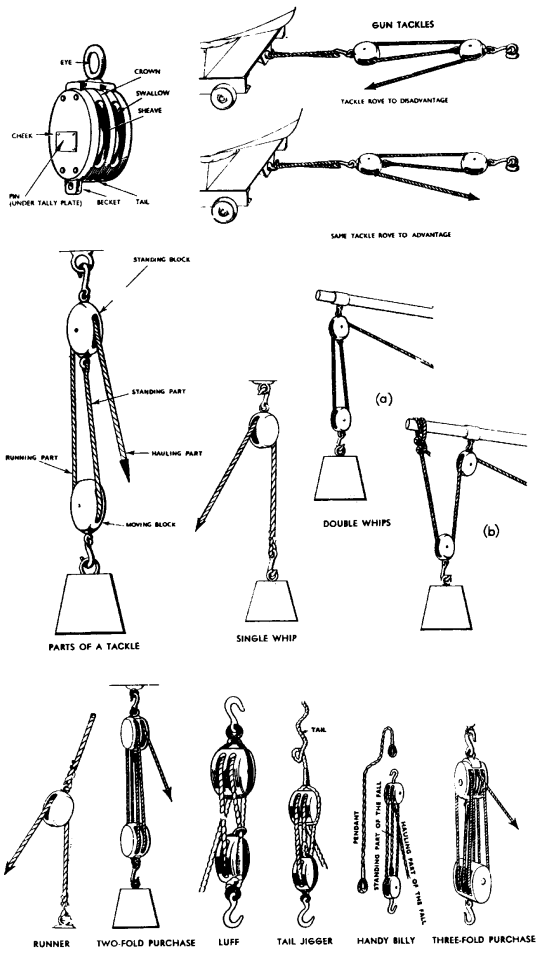
Wooden blocks are classified by their size, which is the length from crown to tail measured round the shell; an ordinary wooden block will take a rope one-third its size, so that a 225 mm block, for example, will take a 75 mm rope. Metal blocks are classified by the size of rope for which they are designed, and this is usually marked on a plate affixed to one cheek. The small galvanised iron blocks or stainless steel with nylon bush used in the running rigging of the Standard boat are sold by the chandlers as “awning pulleys”. Blocks are described as single, double or treble, depending on the number of sheaves they have.

A *tackle* (pronounced tayckle) is a portable purchase consisting of a rope rove through two or more blocks in such a way that any pull applied to its hauling part is multiplied by an amount depending upon the number of sheaves in the blocks and the manner in which the rope is rove through them.

The blocks of a tackle are termed the *standing block* and the *moving block* and the rope rove through them called the *fall*.

The amount by which the pull on the hauling part is multiplied by the tackle is called the *mechanical advantage*, and, if friction is disregarded, is equal to *the number of parts of the fall at the moving block.*

The number of parts at the *moving block*, and therefore the mechanical advantage, is always greater when the hauling part comes away from the moving block, and such a tackle is said to be *rove to advantage*. Conversely, a tackle in which the hauling part comes away from the standing block is said to be *rove to disadvantage*.



Examples of Tackles

A *single whip* is a fall rove through a single standing block. No mechanical advantage is gained. Used for hoisting light loads.

A *runner* consists of a rope rove through single moving block. As there are two parts of the fall in the moving block, the mechanical advantage is 2.

A *double whip* is the simplest form of purchase where a fall is rove through two single blocks, the standing part being secured to the upper block. Mechanical advantage is 2. Used for hoisting. The mainsheet of a Standard boat is a double whip. The *gun tackle* is also a term applied to purchase of two single blocks, but which is not used for hoisting. The name originates from the small tackle which was used to run out the old muzzle-loading guns after they had recoiled. Mechanical advantage is 3 if rove to advantage or 2 if rove to disadvantage.

A *luff* is a purchase of 75 mm in size or greater. It consists of a double and single block with the standing part of the fall made fast to the single block. Mechanical advantage is 3 or 4.

A *jigger* is similar to a luff but about 50 mm in size, fitted either with hook blocks or with a tail on the double block instead of a hook (tail jigger). The standing part of the fall is spliced to the strop of the single block.

A *handy billy* is a small tackle of less than 50 mm for general purposes. It is usually rove as a jigger, but the name can also apply to a small gun tackle.

Two-fold purchase consists of two double blocks and commonly used for hoisting boats. Mechanical advantage 4 or 5.

Three-fold purchase consists of two treble blocks. Mechanical advantage 6 or 7.

To *overhaul* a tackle is to separate the two blocks further apart by easing out the fall.

To *round up* a tackle is to move the two blocks closer together by hauling on the fall. Opposite to overhaul.

A tackle is said to be *two blocks* when both blocks are hauled up together and touching.

Chapter IX

Signalling

The ability to send and receive a simple message by signal is important to any boat's crew away from the ship, and for this reason signalling is included in this book.

Sea Scouts are concerned with three methods of signalling — Semaphore and Morse Codes, and the International Code of Signals.

New International Code of Signals

The International Code flags used for flag signalling consist of 26 letter flags, 10 numeral pennants, three substitutes or repeaters, and a code and answering pennant, as shown in the accompanying illustration.

The revised Code which has been adopted by the Inter Governmental Maritime Consultative Organisation came into force on 1 April 1969.

The International Code of Signals caters primarily for situations relating to safety of navigation and persons, and overcomes language difficulties. It is suitable for transmission by all means of communication, including radiotelephony and radiotelegraphy, thus obviating the need for a separate radio- telephone code and dispensing with the present Volume II for radiotelegraphy.

The Code embodies the principle that each signal has a complete meaning.

The Code Book is divided into the following sections:

(a) Table of contents.
(b) General section.
    (i) Distress — Emergency
    (ii) Casualties — Damages.
    (iii) Aid to Navigation — Navigation — Hydrography.
    (iv) Manoeuvres.
    (v) Miscellaneous, i.e., cargo, crew, fishery, pilot, and port.
    (vi) Meteorology.
    (vii) Communications.
    (viii) Pratique messages.
(c) Table of complements.
(d) Medical section.

Answering Pennant: The answering pennant is hoisted at the "dip" by the ship addressed and hauled close-up when the message has been understood.

Substitutes: Substitutes are used to repeat any flag in a hoist, the first substitute repeats the top or first flag of a hoist, the second substitute repeats the second flag, and so on. For example, a plain language hoist reading SLOOP would appear as S L O 3rd sub P.

Single Flags: Each flag has a meaning when flown singly, and many will have noticed tankers discharging flying Flag B, meaning "I am taking on or discharging or carrying dangerous goods.

Two Flag Hoists cover a great many messages of importance at sea dealing with rendering assistance, communicating with aircraft, danger messages, fire at sea, weather, etc. They are fully listed in the Code Book.

Four Flag Hoists indicate the ship's call sign or signal letters. The first letter or top flag of the hoist indicates the nationality. For instance, British ships will have flags G or M uppermost and New Zealand ships will have flag Z uppermost. A list of New Zealand call signs is given in the *N.Z. Nautical Almanac*.

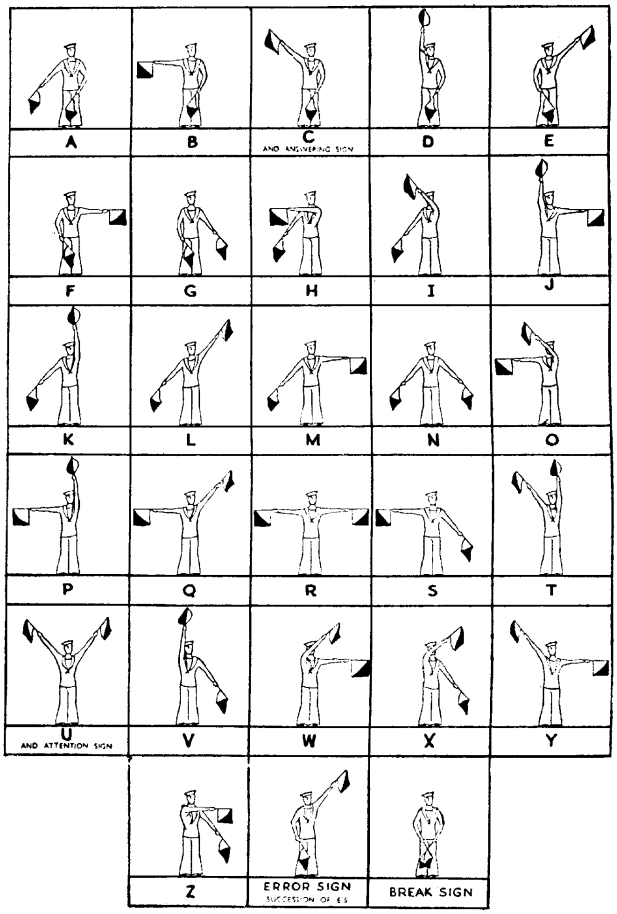
A full set of code flags is expensive to buy and in most cases Troops will have to seek parent assistance to make a set; however, even a small Troop of twenty Scouts means only two flags from each parent, and the Scouts can do the necessary rope work.

Many Troops use individual flags as boat recalls and another flag as a general of "All boats" recall. To make sure the coxswain is in no doubt about his recall flag it is as well to paint these on a small plaque and fasten it on the inside of the transom.

Dressing Ship is an ornamental display of Code flags in addition to the ship's colours flown on special occasions, such as the Queen's Birthday or Anniversary Day. Signal flags are the only flags used for this purpose, and colours are not included among the code flag hoists. Although flags can be used in any order for this purpose, it is as well to ensure that they do not spell anything you may regret later. It is usual to evenly place the pennants among the flags.

Semaphore

This is probably the most useful form of signalling for Sea Scouts and the code is generally taught to Scouts. The procedure for sending a signal is very simple. The **sender** makes the attention signal "U", and to attract attention the flags can be waved up and down if not acknowledge immediately. The receiver replies with "C". The sender then transmits the message in plain language, all numbers are spelled out in full, any mistakes are erased with a succession of "E's". The receiver replies with "C" to each Word received, if no "C" is sent the sender repeats the word. "AR" is used to end the message.



Here is an example:

Sender	Receiver
ATTENTION	C
INVESTIGATE	C
SMALL	C
BOAT	C
ADRIFT	C
ONE	C
MILE	C
EAST	C
KAU	C
POINT	C
AR	C

Morse Code

The Morse Code may be transmitted by wireless telegraphy, flag, and by lamp. In most instances the cost of an Aldis lamp required for daylight signalling will be found too great for the average Sea Scout Troop and Morse will be confined to the buzzer in H.Q. and perhaps by light at night. It is necessary to have a working knowledge of the code because it was the most widely used method of visual signalling.

Procedure and Special Signals

Sender: AA AA AA. General Call.
Receiver: TTT. Answer.
Sender: DE then identity signal or name.
Receiver: Reply with own identity signal or name.
Sender: Repeats back receiver s name.
Sender: Text of message in plain language or code groups.
Receiver: T on the receipt of each word or group.
Sender: AR at end of message.
Receiver: R at the end of message.
Sender: EEEEEE. Erase sign if a mistake is made.
Sender: RPT after message to show he will repeat the message, or he wants the receiver to repeat back the message.

Signs used with the repeat sign:

AA Repeat all after ——
AB Repeat all before ——
WB Repeat word before ——
WA Repeat word after ——
BM Repeat all between ——

Additional signs:

CS	What is your identity ?
AS	Wait
RQ	Question?
C	Yes
N	No

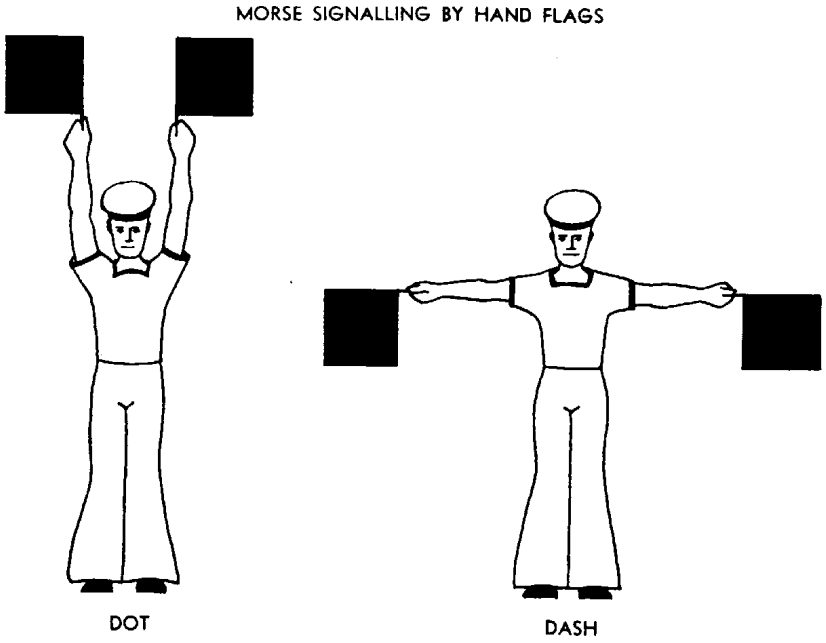
Morse Code and phonetic alphabet

A	• –	Alfa	J	• – – –	Juliet	S	• • •	Sierra (SEE-ERRA)
B	– • • •	Bravo	K	– • –	Kilo (KEE-LO)	T	–	Tango
C	– • – •	Charlie	L	• – • •	Lima (LEE-MA)	U	• • –	Uniform
D	– • •	Delta	M	– –	Mike	V	• • • –	Victor
E	•	Echo	N	– •	November	W	• – –	Whisky
F	• • – •	Foxtrot	O	– – –	Oscar	X	– • • –	X-Ray
G	– – •	Golf	P	• – – •	Papa (PAR-PAR)	Y	– • – –	Yankee
H	• • • •	Hotel	Q	– – • –	Quebec (KIBBECK)	Z	– – • •	Zulu
I	• •	India	R	• – •	Romeo†			

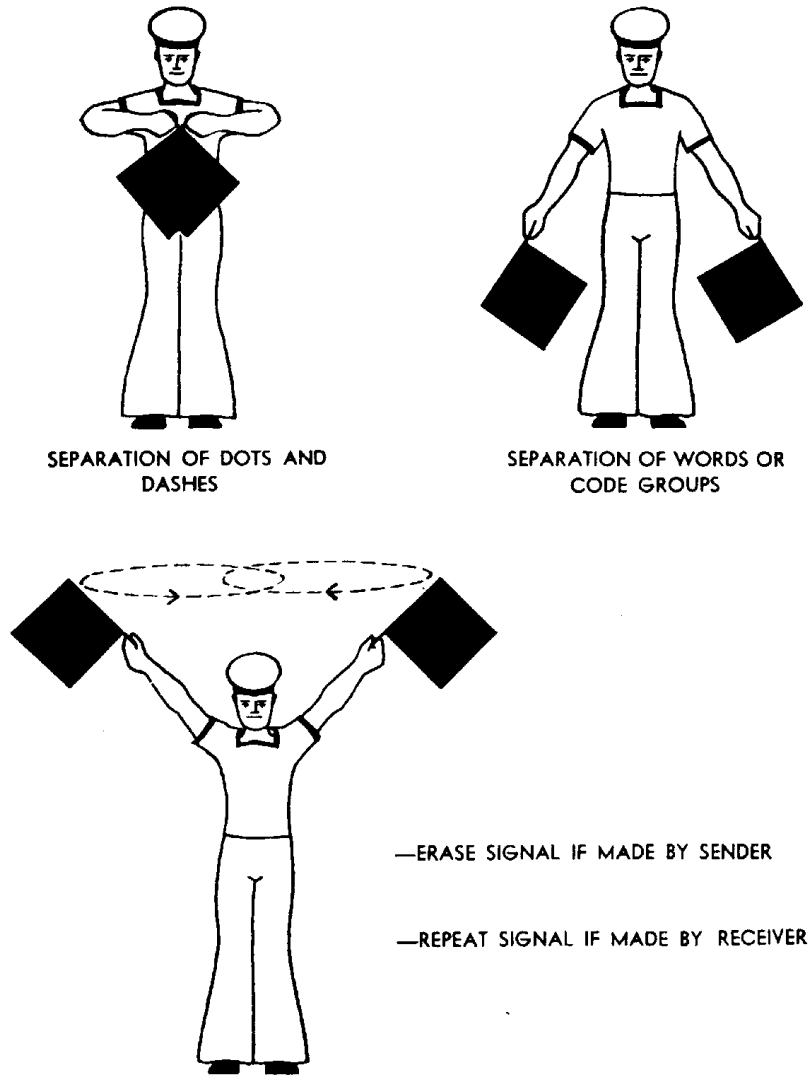
MORSE CODE AND PHONETIC ALPHABET

1	• – – – –	5	• • • • •	9	– – – – •
2	• • – – –	6	– • • • •	0	– – – – –
3	• • • – –	7	– – • • •		
4	• • • • –	8	– – – • •		

THE NUMERALS



MORSE SIGNALLING BY HAND FLAGS



Radio Telephones

An R/T or V.H.F. set is only as good as the operator. He should know what to do in an emergency, what local station to contact and how to make full use of the available services. All operators should have an R/T licence.

In this age of electronics, no seafarer at sea need feel alone.

New Zealand's radio stations scattered around the coastline are constantly receiving and sending out information which ranges from distress calls and medical advice, to navigational warnings and timely weather broadcasts.

Every year accidents happen at sea which, in some cases could have been avoided had signals been sent out according to the Marine Department formula. Should you ever be faced with the need to send a distress signal or call for assistance, here is what to do:

- Switch to 2,182 kc/s.
- Say "MAYDAY, MAYDAY, MAYDAY."
- Give your ship's name and call sign three times.
- Give your position.
- State the nature of your distress.
- Explain the type of help you need.

- Listen on same frequency for acknowledgment.
- If other ships interrupt say “SEELONCE MAYDAY” (once).

A vital point to note when sending distress call is to use the International frequency of 2,182 kc/s for R/T or channel 16 for V.H.F. which are the distress and calling frequencies. As a secondary alternative a distress call can be sent out on 2,045 kc/s but only if the nearest coast radio station or ship is known to be keeping watch on that frequency.

If you hear a distress message, listen carefully and write down the message and time, then listen for an acknowledgment. If there is not one, acknowledge, repeat “MAYDAY RELAY” three times, and pass the message to the nearest coastal radio station.

If assisting a distressed ship or yacht, advise the coast station of what you are doing. Continue to listen in. If interrupted by other radio traffic say “SEELONCE DISTRESS” (once).

Sickness at Sea

Another form of emergency which occasionally happens at sea is sickness. Fortunately, medical advice can be given from New Zealand coast radio stations to vessels of all nationalities.

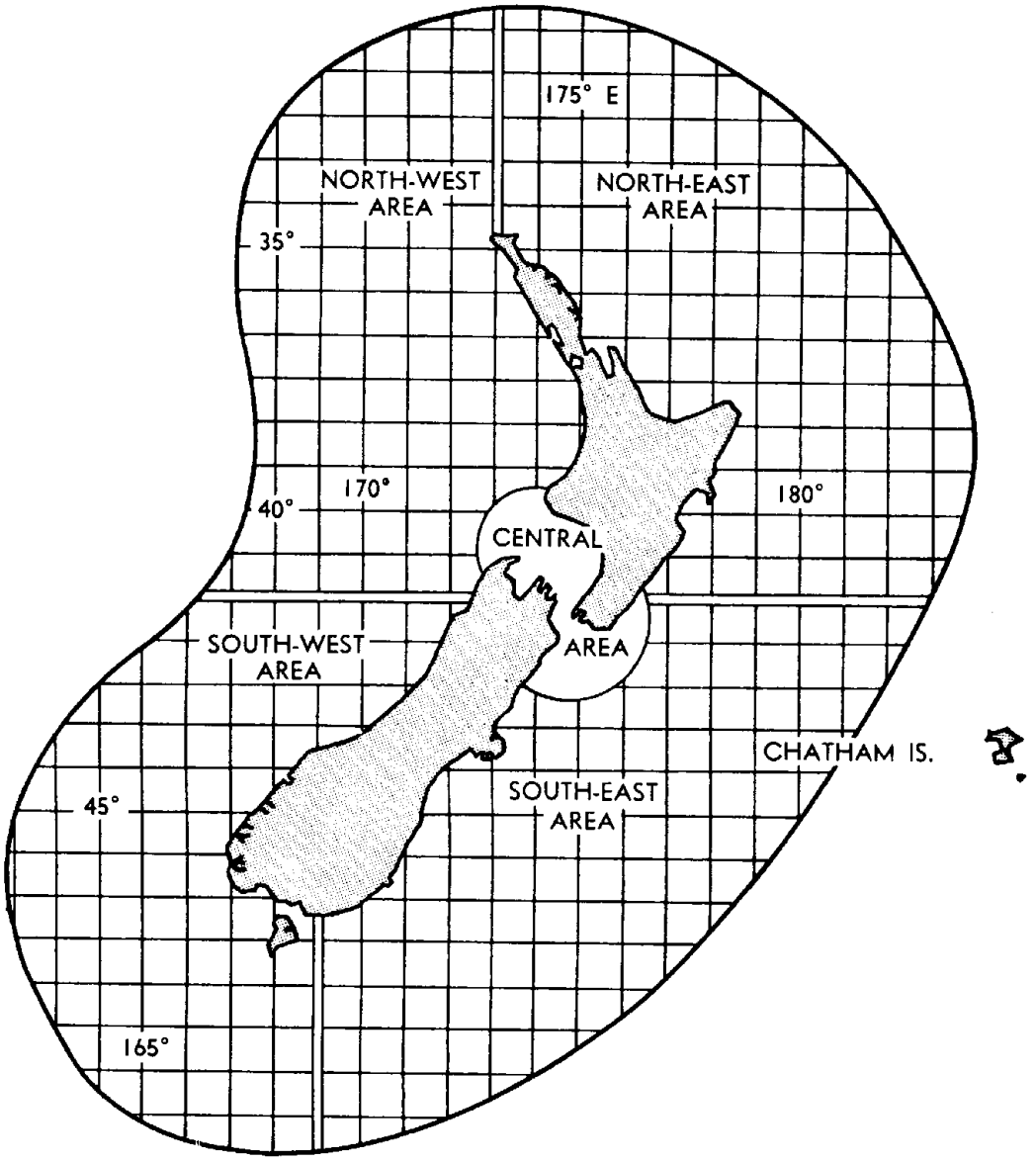
Requirements are simple, send a radio telegram to the shore station, state clearly the symptoms of the illness and reveal what medical supplies are aboard. Such telegrams must be in English and signed by the master of the vessel and addressed Radiomedical followed by the name of the coast radio station.

In urgent cases, the urgency signal (XXX) may be used. There is no charge for medical advice radio telegrams.

Navigation Hazards

Radio also plays a key part in warning ships of navigational dangers such as newly discovered submerged objects, wreckage, newly established lights and cable, salvage and survey buoys. R/T broadcasts on short range, up to 300 miles, are initially made on 2,182 kc/s and then warning broadcast on the coast station working frequencies.

R/T operators at sea are covered by the New Zealand-wide radio network in many ways. For everyday usefulness, the regular weather broadcasts are a boon to all yachtsmen.



Marine Weather Forecast Areas

The above areas extend up to 300 miles off the coast.
All information on radio telephone services can be obtained
from the Marine Department Nautical Almanac

INTERNATIONAL CODE OF SIGNALS (IMCO 1965)

ALPHABETICAL FLAGS WITH SINGLE LET TER MEANINGS, AND NUMERAL PENDANTS

A ALFA	I HAVE A DIVER DOWN. KEEP WELL CLEAR AT SLOW SPEED.	X XILO	I WISH TO COMMUNICATE WITH YOU.	U UNIFORM	YOU ARE RUNNING INTO DANGER.	ONE
B BRAVO	I AM TAKING IN, OR DISCHARGING, OR CARRYING DANGEROUS GOODS.	L LIMA	YOU SHOULD STOP YOUR VESSEL INSTANTLY.	V VICTOR	I REQUIRE ASSISTANCE.	TWO
C CHARLIE	YES (AFFIRMATIVE OR "THE SIGNIFICANCE OF THE PREVIOUS GROUP SHOULD BE READ IN THE AFFIRMATIVE").	M MIKE	MY VESSEL IS STOPPED AND MAKING NO WAY THROUGH THE WATER.	W WHISKEY	I REQUIRE MEDICAL ASSISTANCE.	THREE
D DELTA	KEEP CLEAR OF ME; I AM MANOEUVRING WITH DIFFICULTY.	N NOVEMBER	NO (NEGATIVE OR "THE SIGNIFICANCE OF THE PREVIOUS GROUP SHOULD BE READ THE NEGATIVE").	X X-RAY	STOP CARRYING OUT YOUR INTENTIONS AND WATCH FOR MY SIGNALS.	FOUR
E ECHO	I AM ALTERING MY COURSE TO STARBOARD.	O OSCAR	MAN OVERBOARD.	Y YANKEE	I AM DRAGGING MY ANCHOR.	FIVE
F FOXTROT	I AM DISABLED; COMMUNICATE WITH ME.	P PAPA	IN HARBOUR: ALL PERSONS SHOULD REPORT ON BOARD AS THE VESSEL IS ABOUT TO PROCEED TO SEA. AT SEA: IT MAY BE USED BY FISHING VESSELS TO MEAN "MY NETS HAVE COME FAST UPON AN OBSTRUCTION".	Z ZULU	I REQUIRE A TUG. WHEN MADE BY FISHING VESSELS OPERATING IN CLOSE PROXIMITY ON THE FISHING GROUNDS IT MEANS "I AM SHOOTING NETS".	SIX
G GOLF	I REQUIRE A PILOT. WHEN MADE BY FISHING VESSELS OPERATING IN CLOSE PROXIMITY ON THE FISHING GROUNDS IT MEANS "I AM HAULING NETS".	Q QUEBEC	MY VESSEL IS HEALTHY AND I REQUEST FREE PRATIQUE.	1ST SUBSTITUTE	USED TO REPEAT THE FIRST FLAG OR PENDANT IN THE SAME HOIST.	SEVEN
H HOTEL	I HAVE A PILOT ON BOARD.	R ROMEO	———	2ND SUBSTITUTE	USED TO REPEAT THE SECOND FLAG OR PENDANT IN THE SAME HOIST.	EIGHT
I INDIA	I AM ALTERING MY COURSE TO PORT.	S SIERRA	MY ENGINES ARE GOING ASTERN.	3RD SUBSTITUTE	USED TO REPEAT THE THIRD FLAG OR PENDANT IN THE SAME HOIST.	NINE
J JULIETT	I AM ON FIRE AND HAVE DANGEROUS CARGO ON BOARD; KEEP WELL CLEAR OF ME.	T TANGO	KEEP CLEAR OF ME; I AM ENGAGED IN PAIR TRAWLING.	CODE AND ANSWER	USED TO ACKNOWLEDGE A SIGNAL.	ZERO

USED ON ALL OCCASIONS WHEN IT IS REQUIRED TO REPRESENT NUMBERS IN FLAG SIGNALLING.

***THE NEW INTERNATIONAL CODE OF SIGNALS (IMCO 1965) CAME INTO FORCE IN APRIL 1969.**

NOTE. SINGLE LETTER SIGNALS MAY BE MADE BY ANY ME THOD OF SIGNALLING. THE LETTERS B, D, E, H, I, S, T WHEN MADE BY SOUND MAY ONLY BE MADE IN COMPLIANCE WI TH THE REQUIREMENTS OF THE INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIO NS AT SEA, RULES 15 AND 28.

Chapter 10

Nautical or Sea Terms

Every Sea Scout must be familiar with the language of the sea, which may sometimes seem a little quaint to land-lubbers, but which has grown up through the long years.

The Parts of a Ship

After part: The rear half of the ship.

Admidship: Where the fore and the after part meets. Fore and Aft Midship Line: The line dividing the ship from stem to stern.

Fore Part: The front half of the ship.

Hull: The main body of the ship.

Port Side: The left hand side of the ship when facing towards the stem.

Starboard Side: The right hand side of the ship when facing towards the stem.

Stem: The extreme end of the fore part.

Stern: The extreme end of the after part.

Surfaces

Aft: From any point in the ship towards the stern.

Athwartship: Across the ship from side to side.

Bottom: The sides round the hull below the water line.

Bows: the hull surfaces in the fore part which are rounded to meet the stem. (Starboard and Port.)

Decks: Horizontal surfaces of ships.

Draught: The height of the waterline above the lowest part of the keel.

Forecastle: The fore end of the upper deck between the bows.

Forward: From any point in the ship towards the bows.

Freeboard: The height of a ship's deck above the water line.

Quarterdeck: The after part of the upper deck.

Ship's Side: The sides around the hull above the water line.

Superstructure: Any part of the hull which is built above the upper deck. The decks below are called the main deck, middle deck, lower deck, platform deck, etc., according to the size of the ship.

Upper Deck: A deck exposed to the weather.

Waist: The remaining deck between the quarterdeck and the forecastle.

Describing Position

Below: Inside the ship between the decks.
Hatch: A square opening in the deck.
In: A seafarer serves "in" a ship.
Ladder: That which gives access to the deck above.
On Board: When a seafarer joins a ship.

General Terms

Beam: The width of a ship measure athwartship at the widest point of the hull.
Bulkheads: Walls in a ship.
Deadlights: Port hole doors for darkening a ship and keeping it watertight.
Deck: Underfoot (floors).
Deck Head: Overhead (ceiling).
Ports: Ship's windows.
Scuttles: Thick glass of ports.

Position of Outside Objects Relative to the Ship

Abeam: Directly at right angles to the fore-and-aft line.

Abreast: Level with, in line with.

Ahead: Directly in advance.

Alongside: Side by side, and touching.

Astern: Directly in rear.

Movement of Objects on Board

A seafarer speaks of going "forward", "below", "on deck", and "aloft", i.e., anywhere in the rigging of a mast. They use the same expressions for shifting an object, always reckoning in terms of the ship: thus they may shift an object "aft", or "further forward", or "inboard" or "nearer the ship's side".