Parts of a sail

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Parts of a sail have terms relating to each corner and edge. In sailing, sails are classified as either *triangular*, which describes sails that either come to one point of suspension at the top (Bermuda rig) or where the sail comes to a point at the forward end (e.g. lateen rig), or *quadrilateral*, which includes sails that are attached to a spar at the top and have three other sides (square, lugger or gaff rigs).

USS *Chesapeake*, a 1799 United States frigate had *triangular* jibs and *quadrilateral* square sails and gaff-rigged sail.

Yawl with *triangular* jib and main and mizzen sails.

Dhow with *triangular* lateen sail.

Contents

Triangular sails

Triangular sails have names for each of three edges and three corners. Rigs with such sails include Bermuda, cutter, lateen and vessels with mixed sail plans that include jibs and other staysails.

Edges

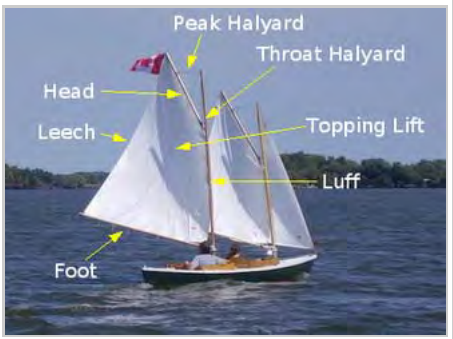
The *foot* of a sail is its bottom edge, which, on a mainsail, runs parallel to the boom.[1] The forward (leading) edge of the sail is called the *luff*, which, in a mainsail, is parallel to the mast.[1] The aft (back) edge of a sail is called the *leech* (also spelled *leach*), which is opposite the *luff*, and forms the hypotenuse of the triangle[1]

Corners

The corners of a *quadrilateral* fore-and-aft sail.

In a triangular sail, the corner where the luff and the leech connect is called the *head*.[2][1] The corner where the luff and foot connect is called the *tack*.,[1] and, on a mainsail, is located where the boom and mast connect.[1][3] The corner where the leech and the foot connect is called the *clew*.[1] In the case of a symmetrical spinnaker, each of the lower corners of the sail is a clew. However, when used the corner to which the spinnaker sheet is currently attached is called the *clew*, and the corner attached to the spinnaker pole is referred to as the *tack*.

Draft



The edges of a quadrilateral fore-and-aft sail.

Those triangular sails that are attached to both a mast along the luff and a boom along the foot have depth, known as *draft*, which results from the luff and foot being curved, rather than straight as they are attached to those spars. Draft creates a more efficient airfoil shape for the sail. Draft can also be induced in triangular staysails by adjustment of the sheets and the angle from which they reach the sails.[4]

Roach

The shape of a sail is seldom a perfect triangle. It is common for sailmakers to add an arc of extra material, often on the leech, outside of a direct line drawn from one corner of the sail to the other along that edge. This additional part of the sail is known as the *roach*; which is commonly found on most modern racing sails. The roach adds considerable additional sail area, giving the sail more "power" than it otherwise would have. Battens are often necessary to stabilize the leech of the sail, especially if there is any pronounced roach. Without battens, the roach would be damaged, possibly destroyed, by wind-induced flogging.

Quadrilateral fore-and-aft sails

Gaff, gunter, lug, junk and some sprit sails have four sides and are set fore-and-aft so that one edge is leading. Naming conventions are consistent with triangular sails, adapted for four sides and four corners.

Edges

The *foot*, as in a triangular sail, is the bottom edge of the sail, which runs roughly parallel to the deck. The foot is often attached, at the tack and clew, to a boom; if no boom is present, the sail is said to be "loose-footed." The *head* is the upper edge of the sail, and is attached at the throat and peak to a gaff, yard, or sprit. The *luff* is the forwardmost vertical edge of the sail, which runs along the mast.[5] The *leech* is the aft vertical edge of the sail.[6]

Corners

The *throat* is the upper forward corner of the sail. The *peak* is the upper aft corner. Gaff rigged sails, and certain similar rigs, employ two halyards to raise the sails: the throat halyard raises the forward, throat end of

the gaff, while the peak halyard raises the aft, peak end. The *tack* is the lower forward corner of the sail.[7] The *clew* is the lower aft corner.[8]

Square sails

Many of the same names are used for parts of a quadrilateral square rigged sail.

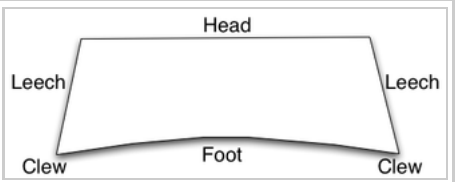
Main-mast of a square-rigged brig.

Edges

As for a triangular sail the *head* refers to the topmost part. On a square sail, however, this part is an edge rather than a corner. The *leech* is the "side" edge of the sail. Since square sails are symmetrical, they have two leeches. Occasionally, when the ship is close-hauled, the windward edge of the sail might be referred to as the luff.[5][6] The *foot* is the bottom edge of the sail.

Corners

Clew – Like a triangular sail, the "free" corners of a square sail are called clews; again there are two of them. Square sails have sheets attached to their clews like triangular sails, but the sheets are used to pull the sail down to the yard below rather than to adjust the angle it makes with the wind.[8]



The parts of a square sail.

Lines

Square sails also have *tacks* (leading forward) and sheets (leading aft), although they are not a part of the sail itself. Square Viking sails included a stiffening bar called a *beitass*. *Clew lines* are ropes attached to the clews, and *clewgarnets* or *cluegarnets* are the tackles attached to clew lines. These lines and tackles are used to 'clew up' the ''courses'' of a square sail (i.e. to pull the clews up onto the upper yard or the mast in preparation for furling the sail).[8] *Buntlines* are ropes attached along the foot of a square sail and led through 'lizards' up the front of the sail to assist with clewing up the sail. *Slablines* are the equivalent of buntlines but run up the back of the sail.

See also

- Glossary of nautical terms

References

Citations

1. SAIL Editors. "Know How: Sailing 101". *Sail Magazine*. Retrieved 4 October 2016.
2. Jobson 2008, p. 208.

3. "Sailing Quick Reference Guide" (PDF). *Wayzata Yacht Club*. Wayzata Yacht Club. Retrieved 4 October 2016.
4. Jinks, Simon. "Adjusting Sail Draft". *Royal Yachting Association*. Royal Yachting Association. Retrieved 4 October 2016.
5. King, Hattendorf & Estes 2000, p. 283.
6. King, Hattendorf & Estes 2000, p. 271.
7. King, Hattendorf & Estes 2000, p. 429.
8. King, Hattendorf & Estes 2000, p. 146.

Sources

- Jobson, Gary (2008). *Sailing Fundamentals* (Revised ed.). New York: Simon and Schuster. p. 224. ISBN 1439136785.
- King, Dean; Hattendorf, John B.; Estes, J W. (2000). *A sea of words: a lexicon and companion for Patrick O'Brian's seafaring tales* (3 ed.). New York: Henry Holt. p. 518. ISBN 978-0-8050-6615-9.

Further reading

- MacKenzie, Mike (2005–2012). "Home page". *Sea Talk Nautical Dictionary: The Dictionary of English Nautical Language*. Retrieved January 15, 2014.
- Rousmaniere, John (June 1998). *The Illustrated Dictionary of Boating Terms: 2000 Essential Terms for Sailors and Powerboaters* (Paperback). W. W. Norton & Company. p. 174. ISBN 0393339181. ISBN 978-0393339185
- Smyth, W. H.; Belcher, E. (1867). *The sailor's word-book: An alphabetical digest of nautical terms, including some more especially military and scientific ... as well as archaisms of early voyagers, etc.* London: Blackie and Son.
- *A naval encyclopædia: comprising a dictionary of nautical words and phrases; biographical notices, and records of naval officers; special articles of naval art and science*. Philadelphia: L.R. Hamesrsly & Co. 1881. Retrieved January 23, 2014. at Internet Archive