[**silas thatcher**](http://pyracy.com/index.php?/profile/10423-silas-thatcher/)

* Notorious Pyrate
* http://pyracy.com/uploads/pip_notorious_pyrate.gif
* [](http://pyracy.com/index.php?/profile/10423-silas-thatcher/)
* Member
* 774 posts
* Location:st. louis, mo.
* Interests:probably too many interests :) old vw's, sailing, photography, home improvements, and lots more ;)

[Posted January 1, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376478) (edited) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376478)

i am currently trying to find some more detailed info on sail construction during the gaop... what i really need is the standard width of each panel ( 24 inches i believe), how they were sewn together ( probably flat felled ) , and what type of material was usually used...

found info that linen was most likely used, woven tight, hemp and even wool... i have searched the web to MY best, but so far, only some general info... i'm toying around with the idea of making a fairly accurate small sail for demo purposes...

some of the books i have, show some pretty good pics for a good idea of the overall look, but don't get into the minor details i'm looking for...

any ideas ???

**Edited January 1, 2010 by silas thatcher**

[**Dutchman**](http://pyracy.com/index.php?/profile/6150-dutchman/)

* Has anyone seen my cousin?
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
* [](http://pyracy.com/index.php?/profile/6150-dutchman/)
* Admin
* 1,773 posts
* Gender:Male
* Location:tidewater virginia

[Posted January 1, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376488) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376488)

here ya go. i've got a drawing somewhere that outlines all the bits and pieces described. i'll have to get home to find it.

GENERAL RULES AND DIRECTIONS FOR SAIL-MAKING.

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INSTRUCTIONS FOR CUTTING OUT SAILS.

SAILS are cut out cloth by cloth. The width is governed by the length of the yard, gaff, boom, or stay; the depth by the heighth of the mast. The width and depth being given, find the number of cloths the width requires, allowing for seams, tabling on the leeches, and slack cloth; and, in the depth, allow for tabling on the head and foot. For sails cut square on the head and foot, with gores only on the leeches, as some topsails, &c. the cloths on the head, between the leeches, are cut square to the depth; and the gores on the leeches are found by dividing the depth of the sail by the number of cloths gored, which gives the length of each gore. The gore is set down from a square with the opposite selvage, and, the canvas being cut diagonally, the longest gored side of one cloth makes the shortest side of the next; consequently, the first gore being known, the rest are cut by it.

For the length of gores corresponding to the depth on the selvage, see the Table of Gores annexed to these directions.

In the leeches of topsails cut hollow, the upper gores are longer than the lower ones; and, in sails cut with a roach leech, the lower gores are longer than the upper ones. This must be regulated by judgment, and care taken that the whole of the gores do not exceed the depth of the leech. Or, by drawing on paper the gored side of the sail, and delineating the breadth of every cloth by a convenient scale of equal parts of an inch to a foot, the length of every gore may be found with precision. In the subjoined plates of sails, the gore is marked on every cloth.

Sails, gored with a sweep on the head or the foot, or on both, have the depth of their gores marked on the selvage, from the square of the given depth on each cloth, and are cut as above; the longest selvage of one serving to measure the shortest selvage of the next, beginning with the first gored cloth next the middle, in some sails, and the first cloth next the mast leech, in others.

For those gores that are irregular no strict rule can be given; they can only be determined by the judgment of the sail-maker, or by a drawing.

In the royal navy, mizen topsails are cut with three quarters of a yard hollow in the foot; but, in the merchant-service, top and topgallant sails are cut with more or less hollow in the foot.

Flying jibs are cut with a roach-curve on the stay, and a three-inch gore in each cloth, shortening from the tack to the clue. Lower studding-sails are cut with square leeches, and topmast and topgallant-mast studdingsails with goring leeches.

For the cutting of all other sails, we refer to the particular description of each sail, and to the annexed Tables of Dimensions.

The length of reef and middle bands is governed by the width of the sail at their respective places; the leech-linings, buntline-cloths, top-linings, mast-cloths, and corner-pieces, are cut agreeably to the depth of the sail; each cloth and every article should be properly marked with charcoal, to prevent confusion or mistake.

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Sails that have bonnets are cut out the whole depth of the sail and bonnet included, allowing enough for the tablings on the foot of the sail and head and foot of the bonnet. The bonnet is cut off after the sail is sewed together. If a drabler is required, it is allowed for in the cutting out the same as the bonnet.

INSTRUCTIONS FOR SAIL-MAKING.

SEAMS. Sails have a double flat seam, and should be sewed with the best English-made twine of three threads, spun 360 fathoms to the pound, and have from one hundred and eight to one hundred and sixteen stitches in every yard in length.

The twine for large sails, in the royal navy, is waxed by hand, with genuine bees-wax, mixed with one sixth part of clear turpentine; and, for small sails, in a mixture made with bees wax, 4 1b; hogs lard, 5 lb; and clear turpentine, 1 lb. In the merchant-service, the twine is dipped in tar, softened with a proper proportion of oil.

It is the erroneous practice of some sail-makers not to sew the seams any farther than where the edge is creased down for the tabling; but all sails should be sewed quite home to the end, and, when finished, should be well rubbed down with a rubber.

In the merchant-service, seams are sometimes made broader at the foot than at the head, being stronger.

Broad seams are not allowed to be made on courses, in the royal navy, but goring leeches are adopted in lieu of them. Boom-mainsails and the sails of sloops generally have the seams broader at the foot than at the head.

The seams of courses and topsails are stuck or hitched up, in the middle of the seams, along the whole length, with double seaming-twine; and have from 68 to 72 stitches in a yard. In the merchant-service, it is common to stick the seams with two rows of stitches, when the sail is half worn, as they will then last till the sail is worn out.

The breadth of the seams of courses, topsails, and other sails, in the royal navy, to be as follow, viz. courses and topsails, for 50 gun ships and upwards, one inch and a half, and, for 44 gun ships and under, one inch and a quarter, at head and foot: all other sails, one inch at head and foot.

TABLINGS. The tablings of all sails are to be of a proportionable breadth to the size of the sail, and sewed at the edge, with 68 to 72 stitches in a yard. Those for the heads of main and fore courses to be four to six inches wide; for sprit courses and mizens, drivers, and other boom-sails, 3 to 4 inches wide; for topsails, 3 inches to 4 inches and a half; topgallant and sprit topsails, 3 inches; royal sails, 2 inches and a half; jib and other staysails, 3 inches to 4 inches and a half, on the stay or hoist; and, for studding-sails, 3 inches to 4 inches on the head.

Tablings on the foot and leeches of main and fore courses to be 3 inches to 5 inches broad; sprit course and topsails, 3 inches; topgallant and sprit topsails, 2 inches and a half; royals, 2 inches: fore leeches of mizen, driver, and other boomsails, 3 inches and a half to 4 inches; after leech, 3 inches; and on the foot 2 or 3 inches.

Tablings on the after leech of jibs and other staysails to be from 2 to 3 inches broad; and, on the foot, 2 to 2 inches and a half: on studding-sail leeches one inch and a half to two inches and a half; and, on the foot, from one to two inches.

LININGS. Main and fore courses are lined on the leeches, from clue to earing, with one cloth, seamed on, and stuck, or stitched, in the middle; and have a middle-band half-way between the lower reef-band and the foot; also four buntline-cloths, at equal distances between the leeches, the upper-end of which

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are carried under the middle-band, that the lower side of the band may be tabled upon, or sewed over, the end of the buntline-pieces. They have likewise two reef-bands; each, in breadth, one third of the breadth of the canvas; the upper one is one sixth of the depth of the sail from the head, and the lower band is at the same distance from the upper one; the ends go four inches under the leech linings, which are seamed over the reef-bands.

All linings are seamed on, and are stuck, with 68 to 72 stitches in a yard.

Main, fore, and mizen, topsails have leech linings, mast and top linings, buntline-cloths, middle bands and reef bands. The leech linings are made of one breadth of cloth, so cut and sewed as to be half a cloth broad at the head, and a cloth and a half broad at the foot; the piece cut our being half the breadth of the cloth at one end, and tapering to a point at the other.

The middle-bands are put on half-way between the lower reef and foot; the buntline-cloths join the top-linings; and the buntline-cloths and top-linings are carried up to the lower side of the middle band, which is tabled on them.

The mast-lining is of two cloths, and extends from the foot of the sail to the lower reef, to receive the beat or chafe of the mast.

The middle-band is made of one breadth of canvas, of the same number as the toplining. It is first folded and rubbed down, to make a crease at one third of the breadth; then tabled on the selvage, and stuck along the crease; then turned down, and tabled and stuck through both the double and single parts, with 68 to 72 stitches in a yard.

It is the opinion of many, that middle-bands should not be put on until the sail is half worn.

Main and fore topsails have three and sometimes four reef-bands from leech to leech, over the leech linings; the upper one is one eighth of the depth of the sail from the head, and they are the same distance asunder, in the royal navy, but more in the merchant-service. The reef-bands are each of half a breadth of canvas, put on double; the first side is stuck twice, and the fast turned over so that the reef-holes may be worked upon the double part of the band, which is also stuck with 68 to 72 stitches in a yard.

The toplining of topsails is of canvas, No. 6 or 7. The other linings of this, and all the linings of other sails, should be of the same quality as the sails to which they belong.

Top-linings and mast-cloths are put on the aftside, and all other linings on the fore-side, of sails.

Mizens are lined with one breadth of cloth from the clue five yards up the leech, and have a reef-band sewed on, in the same manner as on other sails, at one fifth the depth of the sail from the foot; they have also a nock-piece and a peek-piece, one cut out of the other so that each contains one yard.

Mizen topsails, of 50 gun ships and upwards, have three reefs, the upper one is one eighth of the depth of the sail from the head, and the reefs are at the same distance asunder. Mizen topsails, of ships of 44 guns and under, have two reefs one seventh part of the depth of the sail asunder, the upper one being at the same distance from the head.

Main and main top studding-sails have each one reef, at one eighth of the depth of the sail from the head.

Reef-bands should not be put on until the sail is sewed up, a contrary practice being very erroneous.

Lower staysails, fore top and main top staysails, and flying jibs, have clue-pieces two yards long.

Square tack-staysails have half a breadth of cloth at the fore part, with a clue-piece containing two yards, and a peek-piece, containing one yard.

HOLES are made by an instrument called a pegging awl, or a stabber, and are fenced round by stitching the edge to a small grommet, made with log or other line; when finished, they should be well stretched or rounded up by a pricker or a marline-spike.

[**lady constance**](http://pyracy.com/index.php?/profile/7005-lady-constance/)

* Plunderer
* http://pyracy.com/uploads/pip_plunderer.gif
* [](http://pyracy.com/index.php?/profile/7005-lady-constance/)
* Member
* 355 posts
* Location:mid usa
* Interests:sewing, sunbathing (o)(o), reading, spoiling my captain, laughing, cooking, praying,<br> screaming when i have a logical, rational reason<br> being crazy with my kids the big ones and small ones...<br>reading,

[Posted January 2, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376517) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376517)

bbcdutchman-----

there are so many differnt grades of linen---certainly sailors and sail makers did not use the same linen as the tailors? but what title does oe place into a search engine to read if this was truth or not?

do you know how old canvas is ? [ think of all the art hanging in musuems-- are they mostly composed of linen or cotton or combo--i think cotton is kind of out --not to widely available---but a combo could have been possible]

AND ARGUABLY,any light weight linen is out---

did they double the linen for sails? { as in place two layers together?}

methods did not change even from today { although they are always trying new designs for better wind entrapment}

but were there specifically sail cloth makers? it had to be better or differently loomed than clothing fabric---

was it combined linen and wool and silk? did it depend on the weaver ? and that location and geogrpahy dictated his choice of thread?--- they needed a close weave that captured air but also a bit air permeable......

i am pretty sure that silas knows the the technique for stitching the sails together-- it is the FABRIC CHOICE AND KIND THAT he does not know...what is GaOP correct? linen? canvas? duck? linen cotton combo?

any ideas about that?

[**Capt. Bo of the WTF co.**](http://pyracy.com/index.php?/profile/2748-capt-bo-of-the-wtf-co/)

* Scourge o' the 7 Seas
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
* [](http://pyracy.com/index.php?/profile/2748-capt-bo-of-the-wtf-co/)
* Member
* 2,339 posts
* Gender:Male
* Location:Spanish Louisiana - on the river Osage
* Interests:Many and varied.

[Posted January 2, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376525) (edited) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376525)

Egyptian cotton is much different than what we know now. Egyptian strains were dominant in textile trades for hundreds of years, and England banned import to protect it's own wool and linen trade for a time. Whether it was widely used for sailcloth I do not know. You might try that in a search though. Sailcloth is often mentioned in many accounts throughout history, so I would imagine that it is a seperate and distinct weave than standard clothing weaves. I tried to do some searches as it is too cold to work outside today, but this dial-up connection is not working right today, veeeery slow and keeps cutting off. must be too cold for that too.

**Edited January 2, 2010 by Capt. Bo of the WTF co.**

[**Capt. Bo of the WTF co.**](http://pyracy.com/index.php?/profile/2748-capt-bo-of-the-wtf-co/)

* Scourge o' the 7 Seas
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
* [](http://pyracy.com/index.php?/profile/2748-capt-bo-of-the-wtf-co/)
* Member
* 2,339 posts
* Gender:Male
* Location:Spanish Louisiana - on the river Osage
* Interests:Many and varied.

[Posted January 2, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376526) (edited) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376526)

Finally got some results, here's pretty good one:

<http://www.britarch.ac.uk/lahs/lancaster_sail_cloth.htm>

and this is pretty good too.

<http://www.orbitals.com/self/history/sail/index.html>

I used "17th century sailcloth" for my search.

I also got lots of hits for "egyptian cotton sailcloth" as well, including this one:

<http://www.maritime.org/conf/conf-brink.htm>

hope this helps some. I'm bored and am glad for something to do anyhow.

Bo

**Edited January 2, 2010 by Capt. Bo of the WTF co.**

[**Dutchman**](http://pyracy.com/index.php?/profile/6150-dutchman/)

* Has anyone seen my cousin?
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
* [](http://pyracy.com/index.php?/profile/6150-dutchman/)
* Admin
* 1,773 posts
* Gender:Male
* Location:tidewater virginia

[Posted January 2, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376528) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376528)

The wight of the canvas varies on the suit of sail, same as now. take a look at the two descriptions below. Below those is a description of Canvas dimensions and grade per the royal navy. I'm still trying to figure out what it's made of though. Hope it helps.

FORE-COURSE.

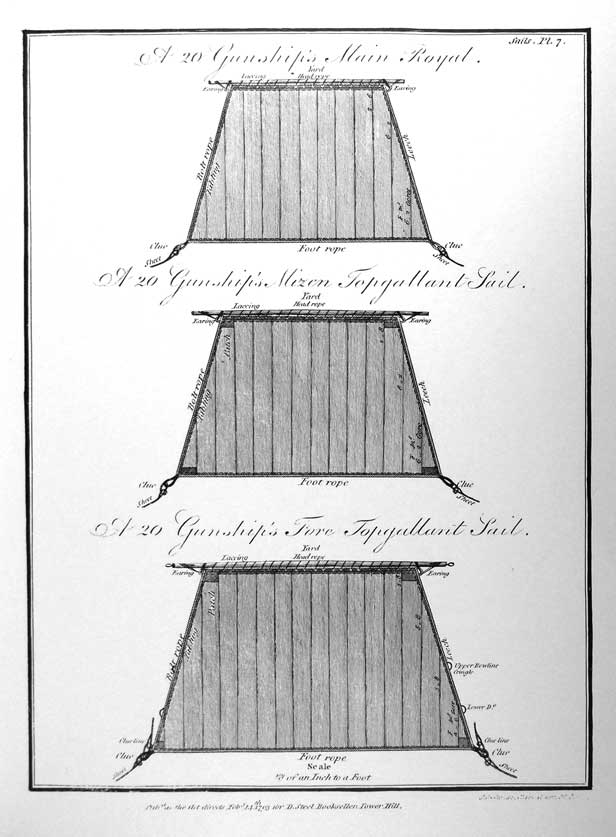
This sail is quadrilateral, square on the head, and made of canvas No. 1 or 2. It is bent, at the head, to the fore-yard, which hangs to the fore-mast at right angles with the ship's length, and parallel to the deck. This sail extends within 18 inches of the cleats on the yard-arms, and drops to the main-stay at the foot.

SLOOP'S JIB.

This sail is triangular, made of canvas No. 2 to 6, and is sometimes bent to hanks on the stay before the fore-sail. The depth of the leech is one yard for every cloth in the foot, and the foot is nude wide enough to spread the bowsprit.

CANVAS. For the royal navy, canvas or sail-cloth is 24 inches wide; and 38 Yards are called a bolt. To distinguish the different qualities, each bolt is numbered, and should weigh as follows; No. 1, 44 lb. No. 2, 41; No. 3, 38; No. 4, 35; No. 5, 32; No. 6, 29; No. 7, 24; and, No. 8, 21 pounds: from No. 1 to 6 is termed double, and above No. 6 single, canvas.

-- and a picture



[**Dutchman**](http://pyracy.com/index.php?/profile/6150-dutchman/)

* Has anyone seen my cousin?
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* [](http://pyracy.com/index.php?/profile/6150-dutchman/)
* Admin
* 1,773 posts
* Gender:Male
* Location:tidewater virginia

[Posted January 2, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376529) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376529)

post thought. I've got a length of canvas that was used by the sailmaker that just redid the rags for godspeed and one of the Eagles sails. Its about the closest match that's out there for period sail cloth material. its machine made instead of hand loomed though so the weave wont be the same. unfortunately I don't remember a darned thing about the manufacturer except it was a custom job from germany originally for the royal navy for one of their old girls. a merchant was able to jump in on the order and have more made after the navy contract was filled, but the machines were still set. It will take me a week or so to get to the farm and find it.

[**silas thatcher**](http://pyracy.com/index.php?/profile/10423-silas-thatcher/)

* Notorious Pyrate
* http://pyracy.com/uploads/pip_notorious_pyrate.gif
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* Member
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[Posted January 2, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376536) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376536)

bo-- thanks !! those were the kind of links to info i was not able to get... i tried all kinds of combos and came up with close to nothing [^_^](http://pyracy.com/uploads/emoticons/default_happy.png)

dutch-- thanks to you also !! this should give me a decent idea of what i had in mind...

as far as material goes, this is what i have uncovered... wool went out with the vikings, the term "canvas" seems to be a general term for any TIGHTLY woven material intended for uses such as sails, buckets etc., ( to hold air, water and the like ) ... the material could be linen, hemp, and cotton...more than likely, ships of english origin did not have cotton, but linen or hemp...

[**Patrick Hand**](http://pyracy.com/index.php?/profile/1049-patrick-hand/)

* The sailor's sailor
* http://pyracy.com/uploads/pip_immortal_pyrate.gif
* [](http://pyracy.com/index.php?/profile/1049-patrick-hand/)
* Moderator
* 6,100 posts
* Gender:Male
* Location:TH' Mountains of Central California
* Interests:I like wierdness... Klingon, Pyrate..... and even..... gasp.... Renn Faires...... (Baseball and tractor pulls I'd have to think about.... could be wierd or Not,,,,)

[Posted January 3, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376554) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376554)

OK... this is just rumor and speculation...

But I heard that canvas was derived from Cannibus...(boy did I miss spell that...)...hemp.

Don't know if it is true or not...but it does make a good story. [^_^](http://pyracy.com/uploads/emoticons/default_happy.png)

I always thought that hemp was just being "pushed" by a buncha dope smokers...until I finally got a few yards (for a pair of slops)... dang.. it is a fantastic fabric...From what I understand, the biggest problem "back then" was that it took awhile to get all the goopy residue outta the fabric....kinda makes since... why else would Sailors make their clothing outta old sails? ("hey... it's now per-softened".. or it was free [^_^](http://pyracy.com/uploads/emoticons/default_happy.png)) So it would work for sails, but not be so nice for clothing until it had "weathered" a bit.....and it has such a long fiber, so it is strong. (cotton has a kinda short fiber, linen is longer, but hemp has really long fibers, so it is stronger)

But like I typed.... this is all speculation and hear-say, and I don't have any good documentation to prove it... so take this all with a grain of salt.......

[**Red-Handed Jill**](http://pyracy.com/index.php?/profile/1541-red-handed-jill/)

* Smart-Ass Smarmalade Canuck
* http://pyracy.com/uploads/pip_pyrate_legend.gif
* [](http://pyracy.com/index.php?/profile/1541-red-handed-jill/)
* Moderator
* 3,319 posts
* Gender:Female
* Location:On the shores of the Bay of Saint Francis
* Interests:Fighting with pointy objects (sword, knife, boarding axe, tomahawk - for over thirty years), firing cannons and other black powder implementia, sailing, playing the bodhran and ukulele, sailing, building things, sewing pirate garb, sailing, figuring out new recipes that use RUM, tasting said recipes...

[Posted January 3, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376556) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376556)

The hemp used in fabric and ropes and such is a cousin to the hemp that is smoked recreationally (it has much longer fibers than its cousin.) The cotton industry, as well as other industries, muddied the waters because they didn't want the competition, since hemp had such a wide variety of uses, grew faster, was hardy, etc. In fact, if memory serves, the whole making marijuana illegal movement was started because of this - led by, I believe, William Randolph Hearst.

[**michaelsbagley**](http://pyracy.com/index.php?/profile/3724-michaelsbagley/)

* Smells Like Wet Sheep
* http://pyracy.com/uploads/pip_pyrate_legend.gif
* [](http://pyracy.com/index.php?/profile/3724-michaelsbagley/)
* Moderator
* 2,548 posts
* Gender:Male
* Location:Columbus, Ohio
* Interests:Mostly into GAoP, but starting to develop more Buccaneer era stuff for re-enacting as well. Generally I do re-enact both piratical/nautical and other impressions from the period. I am focusing on more "common" impressions from the period (i.e. average sailor/pirate, rank and file Red Coat, early Colonial huntsman, etc.)

[Posted January 3, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376569) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376569)

On 1/3/2010 at 1:35 AM, Red-Handed Jill said:

The hemp used in fabric and ropes and such is a cousin to the hemp that is smoked recreationally (it has much longer fibers than its cousin.) The cotton industry, as well as other industries, muddied the waters because they didn't want the competition, since hemp had such a wide variety of uses, grew faster, was hardy, etc. In fact, if memory serves, the whole making marijuana illegal movement was started because of this - led by, I believe, William Randolph Hearst.

On top of the many things Jill listed here, I have also heard that 1 acre of hemp plants will produce more oxygen and reduce Co2 more than an acre of trees. So if that is true, not only is hemp a better stronger fabric, but it is more environmentally friendly. Or so they say... [:P](http://pyracy.com/uploads/emoticons/default_tongue.png)

Yeah, the cotton industry lobbyists have hemp production by the figurative groin... Specially since they have the religious right and other misguided ethical oriented lobbyists on their side.

[**Capt. Bo of the WTF co.**](http://pyracy.com/index.php?/profile/2748-capt-bo-of-the-wtf-co/)

* Scourge o' the 7 Seas
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
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* Gender:Male
* Location:Spanish Louisiana - on the river Osage
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[Posted January 3, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376570) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376570)

Frederick DuPont was the chief instigator of the attack on hemp. He had just developed NYLON and wanted the market. (I was a charter member of NORML back in the day). [:P](http://pyracy.com/uploads/emoticons/default_tongue.png)

Bo

[**lady constance**](http://pyracy.com/index.php?/profile/7005-lady-constance/)

* Plunderer
* http://pyracy.com/uploads/pip_plunderer.gif
* [](http://pyracy.com/index.php?/profile/7005-lady-constance/)
* Member
* 355 posts
* Location:mid usa
* Interests:sewing, sunbathing (o)(o), reading, spoiling my captain, laughing, cooking, praying,<br> screaming when i have a logical, rational reason<br> being crazy with my kids the big ones and small ones...<br>reading,

[Posted January 3, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376573) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376573)

after reading all articles captain bo sent links too and my understandingn of fabric production, i was led to conclude that it was a mixture of hemp and linen and even a slight blend of cotton......perhaps mix of all three depending on the grade ordered....

i bet it was a mix to find the perfect blend of strength and dryability and the right drag, et al......

quite simply , they could NOT have been 100% hemp-when wet it decays rapidly --hemp must dry out after getting wet

now i only have to research canvas no 1,2,3,4,5,6 grades and weaves......

and why do i now suspect tht my husband will be then remaking sails for his little day sail boat..{ dont ask how many sets of sails we are already storing...............LOL....

[**Capt. Bo of the WTF co.**](http://pyracy.com/index.php?/profile/2748-capt-bo-of-the-wtf-co/)

* Scourge o' the 7 Seas
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
* [](http://pyracy.com/index.php?/profile/2748-capt-bo-of-the-wtf-co/)
* Member
* 2,339 posts
* Gender:Male
* Location:Spanish Louisiana - on the river Osage
* Interests:Many and varied.

[Posted January 3, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376575) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376575)

Actually, hemp is the most rot-resistant of all natural fibers. Any fiber that is put away wet will rot though. This is a good piece on the benefits of hemp:

Hemp as textile fiber

Hemp is the longest and strongest plant fiber. It is extremely abrasion and rot resistant and was the primary source of canvas, sail, rope, twine, and webbing fiber for hundreds of years before nylon was patented by DuPont in 1937. Hemp was used for clothing, military uniforms, ship's rigging, shoes, parachute webbing, baggage, and much more. Christopher Columbus' ships were fully rigged in hemp. The U.S.S. Constitution, "Old Ironsides," was outfitted with over 40 tons of hemp rigging.

Because of the multitude of uses for hemp, the early Colonial American governments mandated its cultivation. Early American settlers even used hemp fiber as money and to pay taxes. Because of its length and strength, hemp fiber can be woven into natural advanced composites, which can then be fashioned into anything from fast food containers to skateboard decks to the body of a stealth fighter.

<http://www.ecomall.com/greenshopping/sdethemp7.htm>

(No smoking please!) [:P](http://pyracy.com/uploads/emoticons/default_tongue.png)

Bo

[**Jack Roberts**](http://pyracy.com/index.php?/profile/2837-jack-roberts/)

* Dread Pyrate
* http://pyracy.com/uploads/pip_dread_pyrate.gif
* [](http://pyracy.com/index.php?/profile/2837-jack-roberts/)
* Member
* 1,063 posts
* Gender:Male
* Location:Orlando, FL

[Posted January 4, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=376607) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=376607)

It's also why hemp fabric is so expensive to buy in the US. We cannot grow it locally in the US. It would be such a useful fiber too. There are those that fear if the "fabric" variety of hemp would be legalized that there might be a loophole opened for the "smoking" variety. Oh well. I guess I'll still have to pay thru the nose for hemp fabric..... [:P](http://pyracy.com/uploads/emoticons/default_tongue.png)

[**Dutchman**](http://pyracy.com/index.php?/profile/6150-dutchman/)

* Has anyone seen my cousin?
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
* [](http://pyracy.com/index.php?/profile/6150-dutchman/)
* Admin
* 1,773 posts
* Gender:Male
* Location:tidewater virginia

[Posted January 27, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=378310) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=378310)

found the info below as it related to early 1800's material. not period, but gives some ideas.

Showing the Length, Breadth, and Strength of Flax and Cotton Canvas, as used" in, the U. S. Navy. Together with the Number. Length, and Breadth of Strips cut crosswise and lengthwise, used in the Test of Strength, and the Average Weight required of them, before received for use.

FLAX CANVAS.

Flax canvas to be 20 inches wide, and each bolt to contain 80 running yards. The blue thread in Nos. 1, 2, 3, and 4 to be 1 5/8 inches from the selvage; and in Nos. 5, 6, and 7 to be 1 inches; and in Nos. 8 and 9 to be 1 inch. The warp and filling to be spun exclusively of long, well-dressed, water-rotted flax of the best quality, without any mixture of shorts or tow. The yarns to be evenly spun and of proper fineness; the warp to be rather more twisted than the filling. The warp and filling, from Nos. 1 to 4, inclusive, to be double thread; Nos. 5 and 6 double warp and single filling: and Nos. 7, 8, and 9 single warp and filling.

No description of weaver's dressing, or any pressing or beating to be used in the manufacture.

Three strips to be cut lengthwise and three crosswise will be used to test the strength, each to be 1 inch wide and 20 inches long, except Nos. 8 and 9, which will be 1 1/4 inches wide.

Number

of

Canvas Weight per

bolt Weight borne by Strips.

Crosswise Lengthwise.

Pounds

Avoirdupois. Pounds. Pounds.

1 84 470 316

2 76 420 280

3 70 370 250

4 64 340 230

5 58 320 216

6 52 300 200

7 46 280 193

8 40 300 200

9 34 280 193

611

COTTON CANVAS.

Cotton canvas to be 22 inches wide and to contain 80 running yards to the bolt. In Nos. 1, 2, and 3, the blue thread must be 1 1/2 inches from the selvage; in Nos. 4, 5, and 6, 1 1/2 inches; in Nos. 7 and 8, 1 inch; in Nos. 9 and 10, inch; and in the cotton ravens, 7/8 inch, from the selvage. The filling should be stronger than the warp in all numbers. In testing, three strips crosswise and three strips lengthwise will be cut; the strips to be each 1 inch wide and 22 inches long, except in Nos. 8, 9, and 10, which will be cut 1 1/2 inches wide and 22 inches long.

Number

of

Canvas Weight per

bolt Weight borne by Strips.

Crosswise Lengthwise.

Pounds

Avoirdupois. Pounds. Pounds.

1 90 280 250

2 85 260 230

3 80 240 210

4 75 230 200

5 70 220 190

6 65 210 180

7 60 200 170

8 55 220 190

9 50 210 180

10 45 200 170

Light ravens 30 92 86

Heavy ravens 38 150 128

[**Fox**](http://pyracy.com/index.php?/profile/1019-fox/)

* Old Twillian
* http://pyracy.com/uploads/pip_pyrate_legend.gif
* [Fox](http://pyracy.com/index.php?/profile/1019-fox/)
* Moderator
* 2,564 posts
* Gender:Male
* Location:Beautiful lush Devon, England
* Interests:Nautical history of the 16-18th centuries and living history based thereon.  
    
  Shooting pirates.

[Posted January 28, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=378350) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=378350)

A letter written by the Navy Board to the Admiralty in July 1703 (reprinted *Sergison Papers*, pp. 157-8) suggests that at that time the Admiralty contracts for sails specified that courses and topsails should contain 100 stitches per yard, and other sails 90 stitches per yard. It was recommended that this number should not be increased, as it was the maximum number of stitches that the fabric could hold without being weakened. It was further recommended that courses and topsails of 60 gun ships and larger should be made with 2" seams, while those of 50 gun ships and smaller should be 1 1/2" broad, 'especially if it should be thought fit to stitch or worm them with a double thread between the seams, after the rate of 60 stitches in a yard'. Waxing twine had proved ineffective, and tarred twine tended to 'burn and weaken', so 'it is proposed to mix the tar with tallow, half a cwt. of tallow to a barrel of stockholm tar, and to run the twine through it'.

On canvas, the Officers of the Portsmouth Yard wrote in 1702 'that the English [flax] canvas of the thick sort, fit for courses and topsails, is inferior to that of Hollands duck, but the thin, fit for small sails etc. is, in our opinion, very good and fitting for the Service, being better than the general part of german duck or small Noyals [canvas from Noyal in France]'.

[**Dutchman**](http://pyracy.com/index.php?/profile/6150-dutchman/)

* Has anyone seen my cousin?
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
* [](http://pyracy.com/index.php?/profile/6150-dutchman/)
* Admin
* 1,773 posts
* Gender:Male
* Location:tidewater virginia

[Posted February 6, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=379218) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=379218)

hey silas, hows the project going?

[**silas thatcher**](http://pyracy.com/index.php?/profile/10423-silas-thatcher/)

* Notorious Pyrate
* http://pyracy.com/uploads/pip_notorious_pyrate.gif
* [](http://pyracy.com/index.php?/profile/10423-silas-thatcher/)
* Member
* 774 posts
* Location:st. louis, mo.
* Interests:probably too many interests :) old vw's, sailing, photography, home improvements, and lots more ;)

[Posted February 6, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=379225) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=379225)

this is pretty much for future reference ... you know, once i get a few other things done :) i have a handful of patterns the i wanna try out, plus i wanna make sea bags, some ditty bags ( got some hemp fabric for those ), build a table or two, make a few chests, some chairs, etc...

so for right now, it is at the bottom of the list.... just getting my ducks in a row for when i start it !! with the info from you and foxe, i think i can make something fairly close to what was original... just another project in mind !!

[**capn'rob**](http://pyracy.com/index.php?/profile/10470-capnrob/)

* Pyrate Captain
* http://pyracy.com/uploads/pip_pyrate_captain.gif
* [](http://pyracy.com/index.php?/profile/10470-capnrob/)
* Member
* 535 posts
* Gender:Male
* Location:Morehead City, NC
* Interests:Cruising, power or sail. Music and Maritime History. Pilaging, Plundering and General Mayhem!

[Posted February 6, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=379227) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=379227)

On 1/3/2010 at 1:35 AM, Red-Handed Jill said:

The hemp used in fabric and ropes and such is a cousin to the hemp that is smoked recreationally (it has much longer fibers than its cousin.) The cotton industry, as well as other industries, muddied the waters because they didn't want the competition, since hemp had such a wide variety of uses, grew faster, was hardy, etc. In fact, if memory serves, the whole making marijuana illegal movement was started because of this - led by, I believe, William Randolph Hearst.

At the time Cotton-Hemp cloth was made practical, DuPont was just perfecting Petrolium based Polyester fibre. They pumped an awful lot of money into "Reffer Madness". Which, of course brought reffer smoking from Bohemians and Jazz Musicians to College Campus' and other young people's groups. Although it did serve the purpose of Polyester knocking Cotton-Hemp out of the Ring with a fixed fight.

[**capn'rob**](http://pyracy.com/index.php?/profile/10470-capnrob/)

* Pyrate Captain
* http://pyracy.com/uploads/pip_pyrate_captain.gif
* [](http://pyracy.com/index.php?/profile/10470-capnrob/)
* Member
* 535 posts
* Gender:Male
* Location:Morehead City, NC
* Interests:Cruising, power or sail. Music and Maritime History. Pilaging, Plundering and General Mayhem!

[Posted February 6, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=379228) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=379228)

On 1/3/2010 at 11:07 AM, Capt. Bo of the WTF co. said:

Frederick DuPont was the chief instigator of the attack on hemp. He had just developed NYLON and wanted the market. (I was a charter member of NORML back in the day). rolleyes.gif

Bo

This is funny! I just went on the DuPont v. Cotton-Hemp tyrade having not seen your post. The figures that impressed me the most were the amounts of polution left from the synthetics production v. the natural. With paper, it was even more! At least the Supreme Court has now just given free rieghn to corporations to buy government as they see fit!

[**silas thatcher**](http://pyracy.com/index.php?/profile/10423-silas-thatcher/)

* Notorious Pyrate
* http://pyracy.com/uploads/pip_notorious_pyrate.gif
* [](http://pyracy.com/index.php?/profile/10423-silas-thatcher/)
* Member
* 774 posts
* Location:st. louis, mo.
* Interests:probably too many interests :) old vw's, sailing, photography, home improvements, and lots more ;)

[Posted February 6, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=379229) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=379229)

quite the shame that hemp suffered so badly in a war of personal profits !!

[**callenish gunner**](http://pyracy.com/index.php?/profile/1944-callenish-gunner/)

* Scourge o' the 7 Seas
* http://pyracy.com/uploads/pip_scourge_o_the_7_seas.gif
* [](http://pyracy.com/index.php?/profile/1944-callenish-gunner/)
* Member
* 2,138 posts
* Gender:Male
* Location:Pennsylvania mountains north of Clarion
* Interests:The Callenish gunner has just hoved into view looking for safe anchorage in these waters... purveyor of bladed and flintlock weaponry also leather accessories ..........painter of portraits and period scenes by avocation I'm getting my armoury business underway and will be doing as many festivals as I can ...right now along the east coast or great lakes

[Posted February 6, 2010](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=379234) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=379234)

**Yes unforunately hemp suffered from a corporate/pollitical campaign of misinformation that made cotton king. With the onset of the synthetic age even cotton has been surplanted with nylon and dacron and mylar sails. yes the synthetics have some advantages in performannce but environmentally we suffer from the effects of that product production.**

[**Mission**](http://pyracy.com/index.php?/profile/1929-mission/)

* Goat Specialist
* http://pyracy.com/uploads/pip_immortal_pyrate.gif
* [](http://pyracy.com/index.php?/profile/1929-mission/)
* Admin
* 5,082 posts
* Gender:Male
* Location:Monroe, MI
* Interests:Scholarly piracy, designing and creating haunted house rooms and props, movies, abstract thinking, abstruse thinking, obstructive thinking, ideating, random thinking, movies, cartoons, movies, movies scores, cycling, world peace and small furry dogs, movies, writing, drawing, personal skills training, gremlins and, of course, lest I forget, movies.

[Posted September 21, 2011](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=findComment&comment=403065) · [Report post](http://pyracy.com/index.php?/topic/16337-sail-construction/&do=reportComment&comment=403065)

Here's an interesting bit from the 1927 reprint of *The Voyages and Travels of Captain Nathaniel Uring* (first published in 1726). At this time, Uring is in Honduras, boarding an English ship bound for Jamaica after having been shipwrecked for several months or more.

"But before we left *Plantane* River, we had provided some Ozinbrigs [pieces of unbleached fabric - related to brown linen] and a sufficient Quantity of Silk Grass, which grows in that Country, which we made Twine of; and when it proved little Winds or Calm, we lower'd the Sails and mended them, they being old, and torn in several Places; which was our constant Custom, as often as we had Opportunity, being so fortunate to have fair Weather." (p. 164)