



Figure 1: Stalichieken der Regensberg: Munchen 1586

# Pavilions 101

Baronessa Giovanna Teresa di Battista da Firenze  
[Valkyr8@yahoo.com](mailto:Valkyr8@yahoo.com)

One thing I find interesting is the fact that we use pavilions in a way that is somewhat different than our medieval counterparts. One of the main reasons that a person from mainland Europe would find himself or herself living in a tent for an extended period of time is if they were serving in the army. Despite the fact that there were many nomadic peoples in Eastern Europe, Asia, the Middle East and Africa, for the most part a nomadic lifestyle was rare or non-existent for the majority of European people in the time period that we study. Tents did serve as decorative abodes for combatants during tournaments, shelters in markets, places for hunters to gather while resting and taking food, or outdoor structures used for entertaining by wealthy families.

Does this mean people did not travel? Of course they did. Chaucer's *Canterbury Tales* survives from the 1300's and tells of a group of diverse people on pilgrimage. While I believe that travelers may have sought shelter around a fire at night, I do not believe that this was the preferred method of finding lodging. The main fact that major pilgrimage roads are dotted with cities, abbeys, and inns (most of them within an easy days walk from each other) shows that there were options for finding shelter for the medieval traveler, even one that had little money. I also believe that most people would prefer the safety of a walled city during the night where they could be less likely to face thieves or wild beasts.

None of this is really a factor for those of us who choose to camp at SCA events. Whether we choose to use a period style tent or not is purely up to the individual. Many times the choice to camp in a period style tent depends on whether the individual can afford one as much as their ability to transport or set-up such an item. Many people have limited cargo space or have physical limitations that would make it difficult to lift a large amount of wood and cloth over their heads by themselves, while others don't want the hassle of the time spent in setting up a structure, especially for a weekend event. Others may not have seen all the pavilion options that were available to you so you have not been able to make an informed decision.

When many of us first attended SCA camping events, we camped in nylon tents of one variety or another. Modern tents do have advantages: they are easily portable, lightweight, simple to set up with one or two people, and are relatively inexpensive to purchase. Those of us who camped prior to joining the SCA had the advantage of already owning a tent, which freed us from this purchase. People who use nylon tents in any type of frequency are aware of their disadvantages: UV rays will eventually weaken nylon limiting the life of the product, nylon does not breath as well as canvas, it does not keep out a

heavy rain, and the poles can collapse or break in heavy winds. Pavilions have their own benefits and disadvantages. They can be spacious, protective in most weather, last for several years and add a great deal of ambiance to our SCA events. They also require more room to transport, more work and people to set up, and they cost a great deal more than a modern tent. It is the cost factor that has motivated many of us to make our own. To date, I have made several different types of pavilions and shade flies. I have learned a lot about what types of fabric, thread, wood, stakes, rope, and designs work, and I have made my fair share of mistakes as well as successes. I do not consider myself an expert, but I do have a fair amount of experience and I know where to look when I have questions.

In this booklet I will attempt to educate you on the process involved in making your own canvas tent, as well as the materials and resources you will need to complete your project.

## Part 1: Getting Started

Late Winter or Spring is the best time of year for making your own pavilion, but you will need to do some legwork first. At the next camping event you attend take time to talk to the people who own a pavilion keeping these questions in mind: What type/ size/ style pavilion do I want? Do you want a pavilion that my persona would have used? What amount of space do I need? Do I tend to camp alone or bring my family/ significant other/ spouse? How easy is it to set up/ take down? How does it handle varying weather conditions? Can I transport it in my vehicle? Do I have the skills to make it or should I start saving now so I can afford to purchase it for next year? Ask people what they like or don't like about their pavilion. Ask if they would recommend the company that they got it from. If they built it themselves, would they do it again? Where did they get the materials? Don't be shy.

- **Choosing a style of tent that works for you**

Personally, I do not believe that someone can only camp in a style of tent that is appropriate for his or her persona. If you love Round tents, then camp in a round tent. The three types of tents that are found in period are the wedge, the round and the marquee and each design has its benefits as well as disadvantages.

**The Wedge:** also referred to as your basic A-frame, Viking, Geteld or French Bell to name a few. Documented as being used during the Imperial Roman

period, this style has remained relatively unchanged up to the present day. It is a familiar site at civil war, revolutionary war and the average Boy Scout Jamboree. The wedge shape can be constructed efficiently, can be transported relatively easily, and set up quickly by one or two people.

### Pro's

- Simple construction
- Ease of transport and set-up
- Stable design
- Few, if any, ropes allowing for a compact footprint.

### Con's

- Limited variations to the style
- The slanted walls confine the usable space to the center of the tent.

**The Round:** this shape tent can be erected using rope tension, hoops or spokes, and is one of the most common tent shapes found in period depictions of tents. Gers (also referred to as Yurts) are used by nomadic tribes in Mongolia and China. Turkish tents, similar in style to the European round, are found in paintings from Turkey, India and the Middles East. The round tent remains relatively unchanged from the 1200's to the 1600's. The development of the round tent shows a more sophisticated use of fabric, as well as a better understanding of engineering since it requires a more complex group of elements to hold it's shape.

### Pro's

- Larger interior space
- Small amount of wood to transport
- Highly stable design

### Con's

- Interior space interrupted because of center pole
- Complex shape to construct
- Uses a great deal of ropes (depending on internal support mechanism)
- Difficult to place angular belongings in a spherical shape

**The Marquee:** the simplest definition of a marquee is a structure that is longer than it is wide. There are references to a marquee like structure that was used by Generals in the Imperial Roman army during campaigns. Descriptions of Japanese shelters appear to be marquees as well. The marquee design that we are used to begins to appear in art during the 1300's. These marquees show a structure that seems devoid of side poles and suggests that

rope tension is used to hold out the shoulders of the tent. The majority of marquees that are seen in the SCA use numerous side poles and ropes to hold sides of the tent. This type of engineering should not be considered Medieval since this style is related to structures that were used in the 1600's or later. The choice to use a modern support method comes more from our limited land availability at some events than our ignorance of history.

#### Pro's

- Open interior space that allows for easy placement of belongings
- Can house a large group of people
- Impressive appearance
- Appropriate lodging for someone of the nobility

#### Con's

- Too large to justify for weekend events
- Complex shape to construct
- Uses a great deal of ropes, canvas and wood
- Lengthy set-up time

#### • Start making sketches

You decided what style of tent you want to make, now you need to draw it out and see what size you should make it. You don't have to be Leonardo. You are just drawing squares, circles, rectangles and triangles. For a guide, look at commercial pavilion catalogs or their websites, they have the rough dimensions for their tents written next to the diagram of each tent style. All you should need is some graph paper, pencil, ruler, compass (for the circles), and a calculator. Two equations that you will use the most are the Pythagorean theorem "the sum of the square of 2 sides of a right angled triangle is equal to the square of the hypotenuse" ( $a^2 + b^2 = c^2$ ) and  $2r\pi$  to calculate the circumference of a circle. [ $\pi = 3.1415$ ,  $r =$  radius of the circle]. Make a good clear drawing and label all of your dimensions and look at the amount of wood you are going to need, as well as fabric. Unless you are really good with fabric (and you should be if you are thinking about doing this), it might be a good idea to get someone to help you figure out how much yardage you are going to need. Once you have your design I suggest talking to someone who has made a pavilion before; they may have suggestions for you that you didn't think about. They may also be able to offer changes or improvements to your design that will make a huge difference in how your tent performs.

## Part 2: Supplies and Assembly

### • You have your design, now what?

You want to sit down and seriously assess your sewing/ building skills as well as your tools. I have an old 1953 Singer that handles most fabric that I put through it beautifully. I sewed my first pavilion, a 10' high, 10' wide x 12' long modified Viking A frame, on my portable Kenmore. My Singer is clearly a better choice, but my point is you don't need an industrial machine for sewing most canvas. You do want to use a strong thread (I've used quilting thread successfully) and size 16-18 (leather) sewing needles. The type of thread that commercial builders use is cotton wrapped thread with a polyester core. The cotton outer layer expands when wet, helping to make a good seal at the seams while the polyester strengthens the thread. You want to use a flat felled seam when you sew your pavilion together. This is the type of seam that you will find on the side of your jeans. It is a very durable seam and perfect for pavilions. It can be tricky to make the first time, but once you get the hang of it, it's a breeze to do. For an example on how to make this stitch, try looking in the manuals that come with your sewing machine. When sewing through multiple layers, it is always a good idea to hand crank your machine. This should reduce needle breakage as well as spare your machine some unneeded stress.

### • Fabric

**Do not skimp on your fabric!** This is the last place where you want to go with the cheap option. Most commercial pavilion makers use Sunforger for their tents. Sunforger is actually a treatment applied to a pre-shrunk (also called "boat-shrunk") heavy 100% cotton canvas and not a brand. This treatment makes the canvas water tight and mildew resistant. Sunforger also comes with flame retardant applied (CPAI-84 rating is standard), which will increase the price of your fabric up to a \$1 more a yard. Considering the amount of open flames that are present at your typical SCA event I believe it is worth the investment. Hamilton Dry Goods <http://www.hamiltondrygoods.com/> sells Sunforger canvas for reasonable prices and you do not need a tax id # to purchase from them. I personally have never bough canvas from this merchant but I have heard good things about his product from people who have. Many of the commercial pavilion makers also sell Sunforger canvas by the yard, [www.panther.com](http://www.panther.com), <http://midtown.net/dragonwing/default.htm>, [www.tentsmiths.com](http://www.tentsmiths.com). Most fabric merchants offer a price break for larger orders and will usually require a

minimum order of 50 yards. If you do not need that much for your project I suggest placing an order with a friend. Materials used in period for making pavilions were linen, silk, hemp, wool and leather.

In the past I have used a variety of fabrics when constructing my pavilions and I have found that Sunforger canvas performed the best. If you do not have access to Sunforger then you want to look for is a 100% cotton fabric with good weight (minimum of 10 oz), little to no stretch and a tight weave! Make sure your fabric is 100% cotton, use the burn test if unsure. **If you purchase untreated canvas make sure you treat it BEFORE you camp in it!** There are products out there made especially to treat canvas that you can buy at tent suppliers. Cabelas carries a product called *Canvak*, which can be purchased through their website or catalog. <http://www.cabelas.com/>. I purchased watersealer sold at Wal Mart called *House Beautiful*. I applied it to my pavilion by using an inexpensive plastic garden sprayer. It went on really quickly and dried rapidly. The fabric did not feel tacky nor did it discolor. However, the water-repellent smells very strong and I estimate it took 2 days for it to dissipate. In other words don't expect to treat your pavilion and sleep in it the same night. Despite this side effect, I would recommend this product.<sup>1</sup>

When canvas becomes wet the fibers swell, and act as a barrier to keep the rain out. However before the fibers become saturated, the canvas will allow moisture to pass through in the form of a fine mist. This isn't a big deal, but it can be annoying. Essentially, what you are doing by treating your canvas is protecting it from being infested with mildew. Once mildew has taken hold in your tent it will be very difficult to get it out, and it will eventually destroy your fabric.

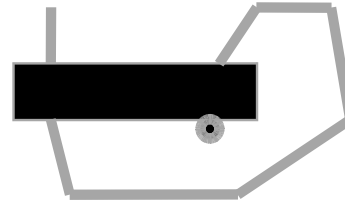
- **Stakes and ropes:**

I suggest using metal stakes and good quality rope made with natural fibers. The rope I use is the 3/8" jute, that I purchase at most lumber stores. I have purchased stakes from Panther, and I was very happy with them. Most of my stakes are purchased from Danr at Irontree works, [www.irontreeworks.com](http://www.irontreeworks.com). Since Danr is a local artisan I can save shipping costs and get whatever size stakes I require for my pavilions. . I tighten my ropes by using slides, also

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<sup>1</sup> Personally I have found it much more convenient and not that expensive to purchase fabric that is already treated.

referred to as "dog bones". I buy a one-inch diameter hard wood dowel; cut it into 6 inch sections and drill two holes, then I fish the rope through. It makes adjusting the tension on the tent a lot easier than pulling the stakes up and hammering them down over and over.



The diagram on the left shows a method for fishing the rope through the slide that I learned from Viscount Tristan. With the slide facing you and the drilled holes running north/ south you fish the rope up through the hole on the right, loop it around to the hole on the left and up through that hole. You tie a knot on one end of the rope and a loop at the other. The loop goes over the top of the spike on your vertical supports and the length of rope before the slide goes over your stake.

- **Wood Supports:**

It's a good idea to talk to someone who is good with wood/ engineering to suggest which dimensions of wood you should use to support your pavilion as well as suggest places where you can find it. You may want to take this person with you to help select the individual pieces. Most of the structures I make don't require lumber larger than a 2" x 4" to hold it up. My Tentmaster's Regent uses a 3 x 4 as the center pole with 2 x 4's for the corners and eaves. I used standard pine boards from the home supply store. If you have access to an inexpensive source for hard wood, such as oak, I would recommend using that instead of pine. Any wood that you intend to use outdoors should be sealed. I have used standard house paint and I have also stained my poles and both systems work very well. I always suggest putting a coat of exterior polyurethane on all poles.

### Part 3: Resources

If you are trying to find a local supplier for your tent fabric I suggest looking in your area yellow pages under Fabric or Tents. Do a lot of shopping around. I have found that businesses can be very accommodating. One supplier offered to send in any order I made with his regular order for the store so I wouldn't have to pay the fee for a special order and still get the colors I

wanted. If the supplier you find isn't this accommodating, I suggest going elsewhere.

If you don't feel up to making your own pavilion, there are many companies that sell finished pavilions. Take a look in the advertising sections in magazines for Civil War/ Revolutionary War/ Black Powder groups. A lot of them have ads for people who make tents/ pavilions or who sell canvas. The wall tent, wedge and bell wedge that are primarily used by the later period re-enactment groups can be documented to the Middle Ages and earlier; don't limit yourself.

I'm sure that I didn't cover every question you had, but I hope I provided a reference point to guide your decisions on certain products. As you can see, there is a lot to think about when undertaking this project, and we have just scratched the surface. A pavilion is a very challenging item to make and can be frustrating and difficult. I don't want to discourage people, but I do want to be honest in letting you know that this is not easy. You should be very confident about your sewing skills as well as your sewing machine. I will tell you that when you do complete your pavilion, it is extremely satisfying, especially when you think of the money you have saved in doing it yourself. Do plan on spending anywhere from \$200-\$500, not cheap, but a lot less expensive than buying one ready made. Have fun and be creative! A roomy pavilion is worlds better than a nylon tent any day, and they add so much to the decor and character at our SCA events.

Good luck in your project!

Baronessa Giovanna Theresa Battista di Firenze, CE  
[valkyr8@yahoo.com](mailto:valkyr8@yahoo.com)

*Giovanna is a 15th c Italian woman living in Florence who fills her time by overseeing her father's house and fabric shipping business.  
Elizabeth Pearson has been active in the SCA since 1991. She is a resident of the Barony of Nordskogen in St. Paul, MN.*

#### **Books and Publications:**

Andrews, Peter Alford: [Nomad Tent Types in the Middle East](http://www.adelphi.edu/~sbloch/sca/tents/andrews_book.html), ([http://www.adelphi.edu/~sbloch/sca/tents/andrews\\_book.html](http://www.adelphi.edu/~sbloch/sca/tents/andrews_book.html)). An academic whose particular research interest is Middle Eastern tents.

Faegre, Torvald: [Tents: the Architecture of the Nomads](#): This book discusses a variety of tents built by nomadic cultures around the world: Bedouin and Berber tents in one chapter, Turkish black tents in another, Mongolian yurts in another, North American tipis in another, sub-Saharan felt huts in another, etc.

[Pavilions: History and Construction](#) by Baroness Barbary Elspeth Ham and Countess Susannah Griffon, Calons Scolls Volume IV number 6.  
([http://www.geocities.com/SoHo/3151/calons\\_scrolls.html](http://www.geocities.com/SoHo/3151/calons_scrolls.html))

[A Survey of Pavilions of the Known World](#), Alexandre le BonHomme, ed. *Compleat Anachronist* (<http://www.sca.org/ca/>) Number 26, July 1986. (Individual articles by Susannah Griffon, Rognvaldr Buask, Briony Blaaslagen, Seosaidh mac Seosaidh, Ceridwen Dafydd, Kathryn of Iveragh, Hans von Steinhaus, and Luciana della Ridolfi.) Excellent introduction to building pavilions and shade flies. Has numerous styles and building plans.

#### **Individual Web Sites:**

<http://www.adelphi.edu/~sbloch/sca/tents/> Deborah and Steve's (Ruffina and John's) [Plausibly Medieval Pavilions](#): SCA members located in the Kingdom of the East. Excellent source for commercial and novice pavilion builders. Lots of pictures and links. Steve teaches a pavilion class at Pennsic each year.

<http://www.greydragon.org/index.htm>, House Greydragon. Numerous designs for tents and camping furniture, including the design for the spoked round pavilion and pictures of a surviving 17<sup>th</sup> c. pavilion in Basil Switzerland.

<http://www.currentmiddleages.org/tents/> Tanya Guptil's (Baroness Mira Silverlock, OL) [Medieval Pavilion Resources](#) Another SCA member who builds pavilions. She has collected *lots* of on-line sources relevant to pavilion making, including a significant amount on Mongolian yurts/ gers.

<http://groups.yahoo.com/group/MedievalEncampments/>, Discussion list on yahoo groups for people who are interested in making their camps less modern.

<http://www.florilegium.org/> Stephan's Florilegium, Mark Harris (Stefan li Rous) searchable database of Rialto postings and articles on dwellings.

#### **Commercial Manufacturers/ Suppliers:**

**Panther Pavilions** [www.pantherprimitives.com](http://www.pantherprimitives.com)

**Four Seasons Tentmasters** <http://www.geocities.com/tentmasters/>

**Tentsmiths** <http://www.tentsmiths.com/>

**Past Tents** <http://www.past-tents.demon.co.uk/>

Pavilion builder located in the United Kingdom.

**Dragonwing Home Page** <http://midtown.net/dragonwing/>

West Kingdom Pavilion Company.

**Hamilton Dry Goods** <http://www.hamiltondrygoods.com/> Supplier of items for the Early American Re-enactor. Excellent source for Sunforger<sup>®</sup>. Numerous links to other re-enactment societies.

**Astrup Home Page** <http://www.astrup.com/>, Inexpensive source for Sunforger. Distributes out of numerous locations throughout the US. You can contact their 800 number and request a catalog, which is what I would recommend since there are no prices listed on their web page. You will need a tax id to set up an account.