

# So you want a Rapier Helmet?

By Warder Kevin O'Shaughnessy

The rapier listfield in the Middle Kingdom: A romantic picture of flashing swords, the distinct clangor of steel, the combatants moving with grace and style, the modern collegiate fencing masks...wait, that's not right. Yeah, the masks. Kinda spoils the mood, don't it? Well, you decided you wanted something different, something more period looking. A shiny helmet would be nice to have. Yes, that's it! A helmet built for rapier combat. But now what?

Well, that's where I was a while back. It didn't help that my good friend had brought back from Pennsic literally the last fencing helmet being sold by Scottie Armory. I had accumulated some cash and had nowhere to direct it. There were some helmets being offered by some professional armorers, but the price was more than I really wanted to part with and the delivery time was LONG – six months to a year. Displaying all the patience and maturity of a two year old I jumped up and down, pouted and...okay, well I really didn't want to wait that long. And looking at the designs offered, I wasn't really impressed by their appearance. Lobster tailed helms with rounded perforated steel faceplates were the main offering. They looked functional but didn't have ZING, if you know what I mean.

I was trying to figure out the basics for making one from scratch when I happened across a web page from Lord Edward Mercer who was organizing mass orders of the normally overpriced dress helmets manufactured in India. He was passing on the wholesale prices plus shipping as long as he had big enough orders. I of course found his web page too late to join in on his order. However, I DID find his pictures of his finished morion and burgonet modified for SCA rapier. My mission was revealed to me: I was going to make one of those rapier helmets for myself.

Having informed you of my quest I will now tell you my favorite color – wait – wrong movie. Actually let's talk about the various options you have in buying/making a rapier helmet. It is a serious decision because, well, it's YOUR face you plan on protecting.

First and foremost: What the heck do I mean when I say "Rapier helmet"? Well, I consider a purpose-made or purpose-modified helmet of rigid material with a perforated steel faceplate per Society regs to be a Rapier Helmet. Just slapping a dress helm on over a fencing mask doesn't qualify, because the fencing mask is still the primary face protection. Fencing masks do the job, but they fail *differently* from perforated steel plate, because they are a composite of wires, instead of a single piece of material.

Next: What are the SCA rules governing a Rapier Helmet? Well, I give you the text from the Rapier Rules document for the SCA (the helmet specific stuff is in italics):

## A. HEAD AND NECK:

i. The front and top of the head must be covered by rigid material to below the jaw line and behind the ears. Standard 12 kg fencing masks are known to meet this standard. *If built to this standard, fencing helms are also acceptable.*

ii. The face must be covered by either 12 kilogram mesh (e.g., a standard fencing mask) *or perforated metal. Such metal must not have holes larger than 1/8" (3 mm) in diameter, with a minimum offset of 3/16" (5 mm) and shall also meet the definition of rigid material.*

iii. *Masks and helms must be secured to the fighter, so that they cannot be easily removed or dislodged during combat. The combination of snug fit and the spring-tongue in a conventional fencing mask is NOT sufficient, by itself, to secure the mask to the fighter.*

iv. Both modern fencing masks and *rapier helms, when inspected, shall comply with the rigid material standard, provisions on facial coverage, and shall show no evidence of impending failure (e.g., rust which weakens the metal involved, dents or other defects which spread open mesh, broken weld points, etc)*. If there is concern about the face mesh of a modern fencing mask, it should be tested using a standard commercial 12kg mask punch. Marshals doing the testing shall be trained in the use of the punch. The Kingdom Rapier Marshals may elect to designate certain deputies to administer such testing.

v. *The rest of the head and neck must be covered by at least puncture resistant material.* If heavier-type rapiers are being used, additional throat protection is required; it shall consist of rigid material, as noted above, covering the entire throat, and shall be backed by either puncture resistant material (as a hood), one quarter inch (1/4") (6 mm) of open-cell foam, or their equivalents. *The cervical vertebrae shall also be protected by rigid material, provided by some combination of gorget, helm, and/or hood insert.*

Rule A.i tells you *where* you need to be covered. The tricky part with a helmet faceplate is the area below/under the chin. It is usually necessary, at least in Rapier Helmets that have to pass Midrealm muster, to have something covering under the chin/jawline area, whether a bevor, a dish/shaped part of the faceplate, or really heavy leather. You don't want a sword tip coming up under the face plate and smacking you in the bottom of the chin.

Rule A.ii tells what the SCA considers to be the "maximum size hole/minimum amount of protection" allowed for a faceplate. Commercially made perforated steel is very consistent in hole size and pattern dimensions. I highly recommend using it instead of trying to (shudder) drill your own.

Also, one of the defining features of perforated steel is the "percent of open area". The standard listed in the SCA regs, 1/8 inch holes spaced 3/16 inches apart center to center, usually in a staggered pattern, has an open area of 40%. If you choose to buy perforated steel with a smaller hole size (I personally recommend doing so) then be sure that the open area is not greater than 40%. That would mean that there is LESS steel in front of your FACE protecting YOU. Not good. I personally recommend using .094 inch holes with a 5/32 inch spacing and a 33% open area. You can see well through it and are better protected.

The thickness of the perforated metal is mandated by the SCA given definition of "rigid material". The SCA Rapier Rules define rigid material as:

C. Rigid Material: puncture-resistant material that will not significantly flex, spread apart, or deform under pressure of 12 Kg applied by a standard mask tester, repeatedly to any single point. Examples of rigid material are:

- 22 gauge stainless steel (0.8 mm)
- 20 gauge mild steel (1.0 mm)
- 16 gauge aluminum, copper, or brass (1.6 mm)
- one layer of heavy leather (8 ounce, 4 mm)

Trust me when I tell you that you DON'T want 22 gauge stainless or 20 gauge mild steel protecting your face. If you grabbed a piece and flexed it you would be appalled to consider it suitable for a faceplate. I am quite happy with the 18 gauge stainless steel perforated metal in front of my face. Oh, yeah, use STAINLESS steel. I have it on good authority that mild steel rusts when it gets wet, and also that when you breathe and sweat you will get the inside of your faceplate wet. Sanding the rust out of perforated steel is a real nasty, tedious job. And that is one place, for sure, that you don't want getting weakened.

Rule A.iii says that the helmet must be secured to your head so it cannot be "removed or dislodged". Now it's easy enough to keep it ON your head, but you need to keep in mind that you need to keep it from HITTING your head. Pad and strap the helmet sensibly. If you need advice, check with your local hard-suit combatants. They well know the need to protect yourself from your armor.

Rule A.iv says the helm has to cover you where it is supposed to and that it should be in good repair and not about to fail. See my comments above about how steel rusts. You will want to paint the inside of your helmet with good, rust-resistant paint. If you want to use the more period method of tarring the inside of the helmet then more power to you. Just stay away from open flames.

Rule A.v says that anything not covered by the helmet needs to be covered by puncture resistant material. Use common sense with that and remember that your life REALLY COULD depend on it. The converse of that is that you DON'T need puncture resistant material covering any area that is well covered with steel. I converted my old rapier hood into a sort of high-necked collar. That way I can take off my helmet and not have a hot hood on my head (too many h's).

Rule A.v also reminds you that your throat or cervical vertabrae need to be protected by rigid material. If your wonderful helm design won't protect those areas well then you must use a gorget. And a spiffy gorget can look great with a spiffy helmet.

And that concludes the reading of the rules. Phew! As I mentioned earlier, there are some professional armorers who do make rapier helmets. And if you are the kind of person who spells "hammer" with four "p"s and a silent "q" then that may be your best (and safest) bet. You can expect to pay in the range of \$200 but you should get good value for that. You will be measured (or send your measurements along) so that it can be made to fit you well. If you are the type of combatant who swings both ways (Rapier combat and Rattan combat) and you are flush with cash you could get a helmet that could be used for both Rapier and Rattan combat. I've seen photos of a burgonet that was made that way. It was a nice looking helmet, except for the huge crease down one side from an overly zealous greatsword shot.

#### **Making a Rapier Helmet from Scratch?**

Well, first mine the iron ore...wait, you may want to try a couple of shortcuts before going to that level. Well, if you have access to armouring tools and an armouring shop then a Rapier helmet should be a pretty straightforward project. You don't have to make it out of the same weight materials as a Rattan Combat helmet. Using 16 guage and 18 guage steel will provide good results.

Also, you aren't limited to helmets of the 1500's. I've seen an excellent rendition of a Crusader helmet with appropriate modifications to be a Rapier helmet. A modified Kabuto and Mempo would work well too.



A 13<sup>th</sup> Century Style Rapier Helmet by Jacob Selmer in Virginia

The thing to remember about dishing perforated steel is that as you dish it you will stretch it and enlarge the holes. So if you start off with holes that are already at the SCA max (1/8" diameter) then you will end up with holes that are too big. The answer to that is to start with smaller holes if you need to dish the perforated steel.

When building your Rapier Helmet from scratch be sure to use solid rivets, preferably steel or iron. If the rivets are close enough you could use copper or brass rivets, but my experience leads me to believe that iron or steel rivets are easier to work with. **DO NOT EVER USE POP-RIVETS OR RISK THE WRATH OF ARMORERS EVERYWHERE!** Actually, pop-rivets simply don't have the strength to be used for armoring purposes. Repeated shocks, from thrusts or percussive blows of Sidesword combat, can make the rivets fail without warning. If you plan on welding, be sure to only weld similar materials, like mild steel to mild steel. Welding dissimilar materials (like mild steel to stainless) is hard and prone to bad experiences. Makes for iffy welds too.

### **Alright, I won't make it from scratch. Now what?**

The route that most people take in making a Rapier Helmet is to modify an existing helmet. It's what I did. You have the advantage of getting most of the work done for you and usually having a more period looking helmet to start with. The downsides can be things like getting a good fit, iffy materials and a helmet that wasn't designed to be modified in the way you want to do.

Now where are you going to get your existing helmet, and what kind of helmet should it be? Hmmmm, good question. Well, there are many Arms & Armor replica sellers and resellers available via the internet and various catalogs. The price you can pay for the *exact* same helmet from different places can vary as much as \$150, so needless to say it PAYS to shop around. Seriously, I have seen the same type of helmet that came from the same manufacturer in India cost \$120 at one place and \$280 at another.

Internet shopping can probably meet your needs, because there are very few local outlets of "Helmets 'R Us" at the local mall. And, of course, there's the old *caveat emptor* standby – E-Bay®. When shopping via the Net, be sure you contact the place you are buying from to get a guarantee that you can ship the helmet back for a refund if it doesn't fit. You'll be out the shipping cost, but won't be stuck with a too small helmet. Remember, these helms are "one size fits many", not "all". Above all be cautious of the phrase "miniature". There are replica helmets sold as decorations that would maybe fit a large chihuahua, and you can't tell by the picture on the web page, so don't get stuck with one.

Now that you have a concept as to *where* to get a helmet, *what* helmet should it be? Well, most of the helmets available that are replicas are made by only two or three family-owned businesses in India. The more-or-less suitable offerings are generally the following:

- Peaked Morions
- Combed Morions
- Plain or Fancy Burgonets
- "Classic" Close Helms
- Bellows-Faced Germanic Close Helms
- Lobster-tailed Helms
- Cabassets

Virtually all of them are 18 ga mild steel and often have various brass strips riveted into them somewhere as decorations. Workmanship will vary from helm to helm, even two of the same type. You may find bad welds, ill-fitting hinges or even holes in the metal. Remember, the manufacturers of these helmets intend them for *costume* use, not combat. It is merely a fortunate coincidence that they are more-or-less suitable for Rapier combat. I cannot stress enough the ability to return it if you find it unsuitable upon first examination.

The easiest ones to modify are the Burgonets and Bellows-Faced Germanic Close helms. Most of the work is already done for you and you don't have to form complex curves with the perforated steel faceplate. Here are a couple of examples of finished rapier helms of this type:



Kevin O'Shaughnessy's Burgonet



Marco Borromei's Germanic Bellows-Faced Close helmet  
<http://home.columbus.rr.com/tirnewyddfencing/>

These close helmet types provide the most complete protection to the head that you will find. They are technically superior to a fencing mask, though at a sacrifice of visibility/peripheral viewing area. They also look VERY impressive on the field, and can be intimidating to the people you face. Hee-hee!

The Morion also lends itself to be fairly easy to modify. If you attach the perforated steel to the underside of the brim in front you can make an excellent faceplate, maybe even removeable. Here are some pictures of Morions for rapier combat. The first one shown was scratch built by the armorer.



Morion by Ld. Edward Mercer (India-built Morion with removeable faceplate)

The Cabasset and the Regular Close Helmet can also be modified into rapier helmets. Lord Edward Mercer has made both of those. Here are the pictures:



Ld. Edward's Cabasset (India-made helm with removeable faceplate)



Ld. Edward's Close Helmet (India-made helmet)  
Notice the perforated steel is *inside* the visor. Great looks with a compromise of visibility.

You attach the faceplate to a Lobster-tailed helmet in a similar manner that you do to a Morion, though it may be harder to make it removeable. If you work with a Morion or Cabasset you will have to add “cheeks” or “ear flaps” in order to have coverage equivalent to a fencing mask.

Now what would be “most appropriate” for UN-armored combat like we are trying to recreate? Well, in period Morions, Burgonets, Lobster-tailed helmets and Cabassets were known to be worn by persons wearing little other body armor, though they often *were* wearing a breastplate with them. There are records of both Judicial and extra-Judicial duels fought with various agreed upon pieces of armor; helmets and gorgets being often mentioned. Get what you like, wear what you like. Don’t worry, be happy (whistles). Oops, sorry....

Anyway, the worst downside to wearing any of these rapier helmets is some restriction to your visibility compared to wearing a fencing mask. You WILL lose some peripheral or upper visibility, and maybe lower as well, depending on what helmet you choose. You just have to learn to adjust.

Your head movement may also become more restricted than you are used to. I lost much head-turning ability when I switched from a mask to a helmet. The combination of the bevor plate and my more compact gorget changed things more than I expected. Your mileage may vary.

### **Well, now I know which helm I want to get, and I got a piece of perforated steel. Now what?**

Short answer: Cut away everything from the piece of perforated steel that isn’t faceplate and stick it on the helmet. The rest is details...

Okay, seriously, I can’t detail how to make every kind of helmet. I’m not that good an armorer and you may have different ideas on what you want to do anyhow. But there are some basics you need to know. A few simple tips that I did learn.

1. Think Hard and Long before you cut any steel. Steel doesn’t heal easily.
2. Make and adjust your patterns for the perforated steel faceplate until you are REALLY, REALLY sure.
3. If you have to cut the HELMET, do it carefully. The quality of the steel may vary a lot, and what you remove is gone forever.
4. When cutting the perforated steel remember you are making the edges into a WHOLE BUNCH OF RAZOR-SHARP POINTS AND EDGES THAT WILL MAKE YOU **BLEED!** Sandpaper and files are your friends. So are leather gloves when handling the stuff.
5. Use small machine screws and nuts to hold your pieces together before riveting. It makes your life a LOT easier. But don’t poke yourself in the eye.
6. If you dish the perforated steel you WILL make the holes bigger. Be sure you don’t do that to steel that has the maximum sized holes to start with.
7. Use REAL SOLID rivets. Even if they are copper or brass, they are much better than hollow or split rivets. Steel is better. Pop rivets are truly untrustworthy.
8. If you weld, understand that you will have NO idea what kind of steel the helmet is made of, unless you bought the steel yourself. And as a rule of thumb, don’t try to weld stainless to mild. You won’t be happy with it unless you weld REALLY well. I mean REALLY.
9. Have multiple redundancy on how you keep your helmet on/closed/faceplate attached. That means using hooks AND straps, multiple straps, etc. It’s YOUR head and face. I’ve seen many strange things happen to armor in combat over the years. Assume the worst and plan for it.
10. Cover the edges of the perforated steel whenever possible (pretty much always). It looks nasty and IS nasty. Make sure there is NO way it can contact your bare flesh. You WILL bleed.
11. Paint the inside of your helmet with a rust-inhibiting paint. Sweat is very corrosive and the metal on these helms isn’t super thick. It doesn’t take a lot of rust to rust through.

Pad your helmet with whatever you find reasonable. If you want to go with a more period approach you can glue in felt padding. Carpet felt padding works quite well. I use foam padding because I want the airflow inside of the helm in the gaps between the strips of foam. You don’t have to pad it to the

extent of a helm for heavy combat, but you want it to stay in place and not contact your skin. Just be sure people can't see the smurf-blue foam padding inside when you wear it. It detracts from the suave, sophisticated look you are going for.

Here is a picture of the inside of my burgonet. I have the padding taped in place, because, hey, this is the SCA...you gotta use duct tape somewhere. You can also see details of how my faceplate is attached to the bevor.



Note the steel post riveted to the faceplate and the brass edging.

With the faceplate/bevor removed, my helmet functions as a reasonable dress helm, for those special occasions, like guard duty for the Royals and such. Yours can easily do the same.

Your Rapier Helmet will make you cut a truly dashing figure on the field. Just remember, it's primary purpose is *still* to keep your brains from getting dashed out all over the field. Be careful and conservative with how you design and wear yours.

Bibliography:

- 1) SCA Rapier Rules
- 2) McMaster-Carr Corp. Catalog – Online at [www.mcmaster.com](http://www.mcmaster.com)  
Personal Recommendations for Perforated steel-  
  
Mild Steel – 18 GA. .094” Hole Dia., 5/32” Spacing  
Staggered Hole Pattern, 33% Open area  
McMaster-Carr #9255T561  
  
Mild Steel – 18 GA. .125” Hole Dia., 3/16” Spacing  
Staggered Hole Pattern, 40% Open area  
McMaster-Carr #9255T641  
  
Stainless Steel – 18 GA. .094” Hole Dia., 5/32” Spacing  
Staggered Hole Pattern, 33% Open area  
McMaster-Carr #9358T311  
  
Stainless Steel – 18 GA. .125” Hole Dia., 3/16” Spacing  
Staggered Hole Pattern, 40% Open area  
McMaster-Carr #9358T321
- 3) Jacob Selmer Crusader Style Rapier Helm (in Virginia) – via [www.armorarchive.org](http://www.armorarchive.org)
- 4) E-Bay®
- 5) Kevin O’Shaughnessy Burgonet courtesy of the Beaver Armory
- 6) Marco Borromei’s Germanic Bellows-Faced Close helmet -  
<http://home.columbus.rr.com/tirnewyddfencing>
- 7) Helmets by Edward Mercer – Travis Walker - <http://www.geocities.com/cadetem/>
- 8) Kevin O’Shaughnessy et al