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***Thoroughly Modern Millinery:*
The Creation of a Video Guide to the Art of Millinery for Performance**

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Thoroughly Modern Millinery:
The Creation of a Video Guide to the Art of Millinery for Performance

by

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Thesis

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Dedication

This project is dedicated to my amazing parents. Their unwavering support is at the heart of all of my accomplishments, past and future.

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Abstract

***Thoroughly Modern Millinery:* The Creation of a Video Guide to the Art of Millinery for Performance**

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The University of Texas at Austin, 2012

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It is impossible to imagine Sherlock Holmes without his trademark deerstalker, Charlie Chaplin bowler-less, the Cat in the Hat missing his striped top hat. A hat is often a crucial aspect of creating a character, but creating the hat itself can pose a daunting task, and students of millinery have difficulty finding up-to-date resources to guide them in the process. The modern novice milliner needs a current resource to which she or he can turn in order to learn the basic principles of the craft. Through the production of the instructional video *Thoroughly Modern Millinery*, I am creating this much-needed resource for anyone exploring the world of millinery, but with a specific focus toward the micro-discipline of costume production for theatre.

Watching this video will allow the viewer to gain a clear understanding of contemporary practices used in modern theatrical millinery. Step-by-step instructions and demonstrations will lead the viewer through three very different hats from start to finish. Through the process of making these three projects, students will acquire the skills necessary for creating many other styles of hats. In other words, this video will provide the building blocks that every milliner needs in order to succeed. Through close-up camera shots of the processes plus accompanying verbal instruction, I will guide my audience through the process of interpreting a two-dimensional rendering and creating a

wearable accessory for the stage. My goal is for my video to become the new “go-to” resource for milliners. With the introduction to a wide variety of products and techniques, *Thoroughly Modern Millinery* will be an essential addition to costume shops, classrooms, and studios.

Table of Contents

List of Figures	ix
<i>Thoroughly Modern Millinery:</i>	1
The Creation of a Video Guide to the Art of Millinery for Performance	1
Why This Project? Why Now? : Filling the Gap in the Market	1
Making the Video	6
The Pre-Production Process	6
The Filming Process	8
The Post-Production Process	10
Reflection	11
Planning Ahead	12
Appendix A: The Renderings	13
The Felt Hat	13
The Garden Hat.....	14
The Bonnet.....	15
Appendix B: The Scripts.....	16
The Felt Hat	16
The Garden Hat.....	22
The Bonnet.....	31
Appendix C: The PDF Supplement to the DVD.....	39
Glossary	44
References.....	46

List of Figures

Figure 1: Felt Hat Rendering	13
Figure 2: Garden Hat Rendering.....	14
Figure 3: Bonnet Rendering.....	15

Thoroughly Modern Millinery:

The Creation of a Video Guide to the Art of Millinery for Performance

WHY THIS PROJECT? WHY NOW? : FILLING THE GAP IN THE MARKET

A novice theatrical milliner undertaking a search for instructional millinery resources will return with plenty of options: an abundance of reference materials exist in book, magazine, and even video form. However, these sources vary in quality of production, quality and quantity of information offered, accessibility, and practicality for a modern audience. Many of these sources are excellent and have built a very solid foundation in the development of millinery instruction. Books and magazines were plentiful in the late-nineteenth and early- to mid-twentieth centuries, no doubt because hats were an essential part of a lady's ensemble. However, as the wearing of hats has become less popular and the need for milliners and hat-making has declined, so has the production of instructional hat-making materials.

One of many of the available older books, originally published in 1926 and available in reprint, is *Millinery for Every Woman* by Georgina Kerr Kaye. This book, like many older books and magazines, includes useful basic information including millinery stitches, patternmaking, frame-covering, and trimming. However, the publication date of this and other older books immediately alerts the reader to some possible drawbacks. An experienced milliner will be able to sort through the information offered in these resources and determine what information is too outdated to be useful. For instance, some of the materials that Kaye describes, such as willow and flannelette, are no longer available, and many new materials have been developed since the book's publication. Someone just beginning to practice millinery might not be able to turn to *Millinery for Every Woman*, or any other older reference, with such a discerning eye. She or he might waste time searching for nonexistent materials, or may not know of a better material or technique that has evolved.

Though not nearly as plentiful, more recent books geared toward milliners exist as well. *From the Neck Up* by Denise Dreher, published in 1981, is a staple of every milliner's library: it is, in essence, the Millinery Bible. It serves as a useful reference book both for an experienced milliner and a beginner in conjunction with a millinery class. A milliner of any level can turn to *From the Neck Up* for answers to specific questions such as how to wire a buckram frame or insert a lining. Dreher provides detailed descriptions of materials, tools, and techniques; such vital information is not available anywhere else. She also includes a standard-sized headsize oval pattern with instructions for enlarging or reducing it. The headsize oval is a necessary part of every hat, as it determines whether the hat will fit on the head of the intended wearer. Through the mere inclusion of this one pattern, Dreher provides an invaluable reference for milliners of any experience level.

Though *From the Neck Up* has been and still remains an indispensable book pertaining to the subject of hat-making, it too has its shortcomings. While Dreher covers important topics from choosing the best-quality materials to creating a variety of brim facings, the reader is left alone to combine these techniques to make a hat from start to finish; *From the Neck Up* is more suited as a reference book than as an instruction manual. The black-and-white volume is a bit dated, and the chapter dealing with foundation materials spends a great deal of time discussing the no-longer-available product, willow. Also, while Dreher discusses the principles involved in designing a hat, she does not show the reader how to take a two-dimensional design and re-create it in three dimensions. This ability to translate a designer's rendering into a wearable hat is at the heart of theatrical millinery and is a necessary skill for any milliner. Though *From the Neck Up* is and will continue to be in every millinery library, it does not fulfill some of the most basic needs of the inexperienced milliner.

A newer book written specifically for the theatrical milliner, *Basic Millinery for the Stage* by Tim Dial, is another reference available to a novice in the field. Dial communicates important information that is missing in *From the Neck Up*: how to speak with designers, how to make a paper mock-up, and special considerations when

constructing a hat for performance. This book also offers step-by-step projects, quite a useful way to learn the entire process of making a hat. Unfortunately, the projects consist of a buckram pillbox hat, a cloth pillbox hat, and a wire-framed hat with a brim. While learning how to make a pillbox hat can be a useful way to learn basic millinery techniques, it does not offer the beginner much room to expand upon this newfound knowledge. Dial spends little time discussing draping and shaping buckram, felt, or straw, some of the most common and important millinery materials. Dial presents techniques that he has personally developed, but omits many common, classic, widely-used methods. He does not discuss the process of wiring a hat by hand, and with his extensive use of Sculpt-or-Coat (a type of glue), his hats lack the ability to be altered, often an important benefit in hats made for the theatre. While *Basic Millinery for the Stage* fills some of the gaps found in *From the Neck Up*, it still leaves many of the beginner milliner's questions unanswered.

While *From the Neck Up* is the most commonly-used millinery reference and *Basic Millinery for the Stage* is written specifically for the theatre, there are other millinery books in existence to which beginners can turn. *Hats: Design and Construction* by Stella V. Remiasz, published in 1986 and geared toward fashion students, has some interesting information to offer. The first section of this book consists of a comprehensive glossary of the names for different types of hats and later includes actual fabric and foundation material samples that have been attached to the pages. Some quick projects are presented in felt and straw, followed by some information about trim and hat brims. There are chapters on bridal headwear and turbans, and then a series of very brief projects: a Cossack hat, a beret, and a fez. With the choice of these projects, the author implies that all an experienced stitcher needs to make a successful hat is a pattern. More importantly, though, she avoids projects that involve millinery-specific materials and techniques.

In short, every millinery book offers useful information; the problem is that each lacks something. Of course, no reference on any subject can be one hundred percent complete. All of the millinery books combined would cover most of the basic information

a milliner needs, but there would also still be a great deal of outdated information. It is time for a new reference that will fill in more of the gaps as well as provide a modern take on this classic craft. Such a resource would need to cover some of the important elements missing from every one of these books: interesting and challenging projects that cover a wide variety of millinery skills with detailed, step-by-step instructions accompanied by clear images and text.

The best way to learn a craft like millinery is directly from a milliner who can show each step of the process and give feedback and personalized instruction. In the absence of such individual attention, an instructional video presents the next best method by which one can learn. The learner can watch the instructor construct a hat, seeing not just a moment in the process, but the process itself and the choreography of her movements as she works. Video conveys the different levels of finesse involved in millinery in a way that images and text simply cannot.

Not surprisingly, there are a number of millinery-related videos currently in existence (see References). The range of information they provide and the quality with which they have been produced varies greatly. There are videos for sale as well as free videos on websites such as youtube.com. Some videos show one detailed step in the construction of a hat. Some show montages of how hat factories or millinery studios create hats. Some give instruction on the complete construction of a hat. Of these videos that focus on step-by-step millinery instruction, many are of very poor quality. As for the higher-quality instructional videos, while they can still be useful to the theatrical milliner, they are made for a very different audience. Meant for the world of fashion, these videos focus on materials and techniques that create hats that women might wear today: felt hats for winter, veils and headpieces for brides, and large, lightweight straw hats for Easter or the races.

Theatrical hats present a unique set of challenges not encountered in fashion millinery. Fashion millinery involves the production of multiple copies, perhaps hundreds or even thousands, of the same design. Theatrical millinery has constantly changing designs and far fewer instances of the necessity to create multiples. And while there are

an infinite number of special issues that may arise in the creation of a theatrical hat, there are a few topics that come up over and over again, such as how to make a one-of-a-kind hat from an original drawing, how to account for a wig, how to keep the hat securely on the actor's head, how to make the hat sturdy enough to withstand a show's long run.

Essentially, there is a gap in the market into which an instructional video aimed at the theatrical milliner will fit perfectly. Such a video needs to demonstrate and explain the construction of at least three very different hats that will encompass all of the basic knowledge that a theatrical milliner needs to possess. While considering the need to create just such a video, I began by creating a list of what I consider to be essential knowledge that all students of theatrical millinery should know. The list includes the following products, processes, and techniques:

- Determining the correct proportions of a hat from a rendering
- Developing a paper pattern and a mock-up
- Tools, machines, and materials
- Creating a new hat block or altering an existing block
- Planning for a wig
- Measuring and cutting millinery wire
- Springing and shaping millinery wire
- Joining millinery wire and securing intersections
- Wrapping millinery wire shapes with tulle
- Altering the color of millinery wire
- Types of millinery felt
- Steaming and shaping millinery felt
- Proper use of the various types of millinery sizings
- Pulling buckram over a block
- Pulling straw over a block
- Wiring the edges of felt, buckram, and straw
- Proper hand stitches for the milliner

- Binding a wired edge with bias tape and millinery grosgrain
- Mulling, or covering, buckram with fleecy domette and fabric
- Making and inserting a lining and/or a grosgrain sweatband
- Trimming: adding bows, flowers, feathers, veiling, etc.
- Adding horsehair anchor points

Most importantly, in addition to describing the process of making a *specific* hat, I recognized that the video needs to explain each technique in such a way as to allow the viewer to determine how to apply it in other situations and other hats. Theatrical hats are so unique that there can never be instructions for how to make each one; but the beginner must start somewhere. Even if she does not actually make the hats featured in the video, she will learn techniques that will without a doubt be useful in the next hat she does make.

MAKING THE VIDEO

The Pre-Production Process

Seeing this gap in the market, and being a milliner myself, I decided to jump at the chance to create just such an instructional video. While I knew how to make hats, I did not know how to make a video, so I recognized the challenge ahead of me. But I understood that if I made informed choices and found knowledgeable people to help me, I would end up with a successful product. Thus I began the process of creating *Thoroughly Modern Millinery*, a video guide to the art of millinery for performance.

One of the first and most important steps in the planning of this video was the selection of the hat designs. I wanted to create three hats and utilize as many techniques and materials as I could without overloading the designs with too many details. I knew that each hat should involve a different millinery foundation material: buckram, felt, or

straw. Other than that, I found the more specific details difficult to nail down. After trying in vain to find existing designs that met with my specifications, I decided that my best option was to design my own hats for this project. As I attempted to finalize these designs, I made a list of basic skills that I believe every milliner should have, so that I could include as many as possible in the hats I chose. While designing, in addition to satisfying that list, I also had my budget to consider. Because of the nature of my anticipated production process, I needed to have many in-process hats at different stages of completion in order to facilitate filming. Instead of buying one felt hood, for example, I needed to purchase four. Thus, I made some of my choices according to the price and availability of materials. I also decided to do a great deal of dyeing of fabrics and trims to get the colors I wanted and to save money.

The first hat project was originally to be a green 1950s felt toque with a small veil; however, in the end I created the same hat, but in gray, and with the addition of black rouleau trim. The next project would be an Edwardian picture hat with a transparent, wire-framed brim and silk flowers. The final hat was a nineteenth-century straw and buckram bonnet with a pleated underbrim, ruched ribbon trim, fabric, ribbon, and horsehair bows, and ostrich feathers. The hat designs can be seen in Appendix A.

With my designs completed, I began writing the scripts that would be used during filming. Figuring out the process of constructing the hats before I actually made them presented a unique problem for me: though I am an experienced milliner and I had total confidence in my ability to make these hats, writing out the process step-by-step went against my instincts. But because of my limited time and budget, the script could not wait until the hats were completed. Writing the script first allowed me to thoroughly map out what I would need in terms of duplicate supplies. Then, once I began constructing the hats, I occasionally discovered better construction methods than I had originally planned, and edited the script as necessary.

As I was busy ordering and dyeing materials and writing scripts, I began to search in earnest for the rest of the creative team. I decided to hire a Director of Photography, or DP, rather than trying to work with students, and with both hope and a bit of skepticism, I

posted an ad on craigslist.com. After email exchanges, phone conversations, and one-on-one meetings, I chose to work with Cordelaine (Corey) Kline, a young film school graduate who was almost as enthusiastic about the project as I was. As a young professional just starting out in his field, Corey was eager to experiment, collaborate, and innovate along with me. I found a student to act as our production assistant, and I scheduled our filming for four days in December 2011 at The Stitching Studio, a sewing studio in Austin, Texas.

The Filming Process

From the moment I first conceived of this video, I had a very specific aesthetic in mind. Corey and I spent a few meetings discussing the script and planning our approach in order to achieve this goal. I knew that I wanted two cameras rolling simultaneously: one set up for a medium shot of me at the work table and one set up overhead to get a view of my work from my—and by extension my viewer's—perspective. Corey, who was certainly more experienced with planning visually appealing shots, brought his own style to the project. Once we began filming, he often took one of the cameras off of the tripod to shoot close-ups of my hands performing intricate stitching tasks. These shots added much-needed variety and turned out to be some of the most successful and instructive.

We began the filming process with very clear goals set for each day. In general, we planned to film one hat per day, with the addition of some other shots as needed to allow for certain products to dry overnight. On the first day, we spent quite a few hours setting up the space and rehearsing. Corey, Haley (the production assistant), and I had to develop a new working relationship once the camera started to roll. I, of course, had the difficult task of performing on camera and very little time in which to adjust to my new role as on-screen talent. After only two nine-hour days of shooting with a day off

between them, I was exhausted. We were staying on pace with our shooting schedule, but we had started with the relatively simple felt hat.

Our second and third shooting days were consecutive, so without a break we prepared for our third and longest day and the most grueling hat: the Garden Hat, as we had dubbed the Edwardian wire-brimmed hat. We worked for eighteen hours and managed to film the entire hat. After that filming marathon, I had three days to rest and prep for our last day; Corey and I were only slightly worried about finishing. By the time we had to strike the set at the end of that final day, we had filmed everything except for the lining for the bonnet. Though we did not quite get to everything we had planned to, we felt confident that we could make everything work: we agreed that some insert close-up shots done in a different location would suffice.

After those four intense filming days, I spent a month mentally rehashing the process, and I began to develop doubts about the quality of the Felt Hat video. When Corey and I met in January to review some of the raw footage, those doubts turned to full-fledged dissatisfaction. I realized that I had made some poor choices in both the design and construction steps, and I could not accept the resulting video. I decided that in order to have a successful product of which I could truly be proud, I needed to revisit the Felt Hat. We scheduled yet another filming day, in February 2012, for this reshoot. Luckily, this extra day also gave us a chance to get some better close-up insert shots, do some voice-over work, and also film the bonnet lining. Perhaps not surprisingly, this extra day of filming was the most successful of them all.

After watching the results of our previous work, Corey and I both altered our approaches to the filming process. I chose a different wardrobe, made sure to stay upbeat at every moment while on camera, and relied less on the teleprompter. Corey changed the second camera from a direct overhead view to a high side angle and added a new microphone overhead. Now we knew which shots would and would not be successful, so we worked much faster. All of these changes led to a new Felt Hat video that turned out to be the best of the three by far. But we were not quite finished with filming. I wanted to have a model in wardrobe, hair, and makeup, wearing the hat to end each video. This last

shoot with the models marked a fun and almost completely stress-free finale to our filming process.

The Post-Production Process

Though the most stressful aspect of the project—performing on-camera—was now behind me, I had by no means finished my work. The next and perhaps most difficult part of the process of making these videos was having to watch myself onscreen for hours during the editing process. The perfectionist in me wanted to reshoot the other two hats now as well, but because I had to rely on people and factors outside my control, I took on the challenge of creating the best product I could from the footage I had. It was quite difficult having to rely on Corey's expertise instead of just my own. Every decision I made affected not only his workload, but also his attitude toward me and the project. I had to communicate effectively and make decisions that would not place excessive demand on the other half of my team. We quickly developed a routine: Corey would do some editing and then send me rough cuts to review. I would take notes and we would meet to work together to make changes. We repeated this process until we were both happy with the resulting product.

Once we had edited the videos, I still had a bit of work to do in order to have a finished, sellable product. Corey and I put together a short trailer to be uploaded to the internet for marketing purposes and to generate interest in the video. The visual sequence for this trailer also serves as the background for the DVD menu. As an important addition to the information provided in the videos, I created a document to go on the DVD with a full supply list for each project, as well as a list of current millinery suppliers. Finally, I designed packaging: a DVD label and case artwork and notes. I made sure to keep things simple and continue the aesthetic of the video itself. Once all of these pieces were in place, I decided that to start, I would produce a short run of fifty DVDs.

REFLECTION

When I chose this particular project, I knew and feared the fact that I would have to rely heavily on the abilities of others. Knowing that this video would be my most important project while in graduate school, I had great difficulty dealing with the fact that I could not do it all myself. I needed to work with people who had skills and knowledge that I did not currently possess or have time to acquire. And because I did not have a large budget, I was not in a position to make excessive demands on my team. Therefore, not only did I have to come to the initial realization that I would need to make some compromises, but I also had to fight my somewhat neurotic perfectionism at every step of the process.

This process of determining the best choices for the project as a whole and not just the final product turned out to be the most enlightening aspect of this undertaking. There were times at which I realized that though I wanted to change something, the final video would not really suffer if it remained in its current iteration. However, in some cases, such as with the Felt Hat, I knew that I needed to hold my ground as producer, despite the fact that reshooting would cost more, and also against the protestations of my Director of Photography. I was constantly performing mental cost-benefit analyses, with both the costs and benefits including money, time, and working relationships, among countless other things. I could not afford to change everything that I wanted to, so I had to prioritize and consider alternatives that would be better, if not the best options.

When I chose my creative team, I had full knowledge of the difficulty of my future role. I did not have the money or expertise to exercise complete authority, but I also chose a team that I knew would collaborate with me and take criticism well. I could not have control over every single detail, but I could not be a casual bystander either and let a very experienced DP take control of my project. I had to reach past my usual tendencies to work alone, taking all credit and responsibility, and work as a team leader, maintaining that ultimate responsibility but sharing the credit. Despite the fact that I had

to make small compromises here and there, I never compromised the overall integrity of the final product. In fact, I can take even more pride in it because of what I learned.

PLANNING AHEAD

Now that the video has been transformed into professionally-produced and packaged DVDs, I have to fulfill my objective of adding it to millinery libraries. I created this product for a particular audience, and now I need to work to reach that audience. I know that this DVD will be successful if I market it properly to my intended market and an expanded one. I created this resource specifically for people interested in theatrical millinery, but in addition to these individuals, there are other groups that will be interested in the information it contains: schools and universities, student and professional costume shops, historical re-enactors, and crafters and sewers.

My plan as of now is to find at least one distributor. While I could, and still may, attempt to do direct marketing on my own, I am more interested in handing over those responsibilities at this moment. I have no problem with producing the DVDs on my own; working with a publishing company will probably lead to more changes, and I am not interested in that right now. However, that is not to say that I would not be interested in working with a publisher to create more millinery videos in the future. Who knows, this project of two to three years could turn into an ongoing project for the duration of my professional life.

Appendix A: The Renderings

THE FELT HAT



Figure 1: Felt Hat Rendering

THE GARDEN HAT



Figure 2: Garden Hat Rendering

THE BONNET



Figure 3: Bonnet Rendering

Appendix B: The Scripts

THE FELT HAT

Interior of The Stitching Studio, Day

[The host stands behind a work table. Behind her are shelves with hat blocks and assorted sewing and millinery tools. The rendering of the bonnet is on the table on the far left. Her tools are spread out before her.]

Introduction

STEPHANIE:

Hello and welcome to *Thoroughly Modern Millinery*! I'm Stephanie, your host, here at the Stitching Studio in Austin, Texas. Today's project will be this vintage-style felt toque. The basic structure of this hat is very simple, but it's still important to take a minute to analyze the rendering and determine all of the necessary materials and techniques.

The most important material used in this hat is the felt. Millinery felt is not like your average craft store acrylic felt squares! Almost all felt used in millinery comes in the form of a felt hood or cartwheel. Felt hoods are used for hats with little to no brim while cartwheels are used for hats with large brims. This hat is small and has no brim, so we will be using a felt hood. This one is made of rabbit fur felt velour.

This hat also has a grosgrain binding, rouleau trim stitched on in a swirl pattern, and a veil.

Materials

STEPHANIE:

Let's go over a quick list of all of the millinery materials required to make this hat: one fur felt hood, one yard of #19 millinery wire, two yards of 7/8 inch-wide millinery grosgrain, half a yard of French hat veiling, three-quarters of a yard of black velvet rouleau trim, six inches of 1 inch-wide horsehair to match the actor's wig or hair color, thread to match.

Also, if you are going to make your own hat block, you will need: one sheet of 2 inch foam insulation, spray- or brush-on contact glue, a rasp, and a razor blade. The foam insulation sheets are in the lumber department of the hardware store. They are usually

pink or blue and come in different thicknesses; what is available depends on the region in which you live.

The Math

STEPHANIE:

Now we have to pause a moment for some math. This is a necessary step in which we can determine the actual dimensions of the finished hat.

On this copy of the rendering I have gone ahead and figured out these dimensions. I used one simple equation: $A/x=B/y$. In this equation, A and B are measurements taken from the drawing. X and y are the corresponding measurements in actual human scale. We always know A, B, and x, and can then figure out y. Now, unfortunately, the only measurement of your actor that you will probably get will be her head circumference. For this equation, you will need another, and you can take this measurement off of yourself or someone with a face similar to the actor's. I am using my own face in this case and measuring the length of my face from hairline to chin. With this measurement and measurements taken from the drawing, I can determine all of the dimensions of the final felt hat. So, the length of the face on the rendering is $3\frac{3}{4}$ inches. The same distance on me is 8 inches. The height of the hat on the rendering is 2 inches. Y, the height of the final hat, is unknown. So $3.75/8=2/y$ and therefore $3.75y=16$ and $y = 4\frac{1}{4}$ inches. You can use this same formula on all the other unknown dimensions of the hat. Luckily, this is a simple hat without too many dimensions!

Making the Block

STEPHANIE:

Unfortunately, sometimes a designer will draw a beautiful hat, but you, the milliner, will not have a hat block that matches the shape in the rendering. In this case, you have a couple of options. You can build up a similarly-shaped block with hard oil-based clay. You can use an object that is the right shape but is not a hat block: a flower pot, a bowl, a glass vase. Or, you can make yourself a cheap but sturdy block out of foam insulation.

I am using 2 inch-wide pink foam insulation and Super 78 spray glue. I did the gluing outside, on a protected surface with an apron, gloves, a respirator, and splash-proof goggles.

Once you have the block of foam, trace the appropriate headsize oval onto one side. The book *From the Neck Up* by Denise Dreher includes an oval pattern and instructions for altering it to fit the head measurement of your actor. If your actor is wearing a wig, discuss the shape of that wig with the wigmaster and together determine the amount of extra room that you will need to add to the actor's head measurement. If

you have to guess, remember that it's easier to add padding to the hat than it is to stretch it.

Because this hat comes to a point at the right side front, I will add a small point to the footprint, or general outline, of the hat. Now we need to cut out this shape. The easiest thing to do is to cut along this line on a bandsaw.

If you don't have access to or aren't familiar with a bandsaw, you can use a hacksaw or an electric knife, but it won't be as easy, and the cut won't be as clean. I have gone ahead and cut the shape out using the bandsaw. Once you have the basic shape of the hat, you need a rasp, a razor blade, and some artistry.

Slowly carve away the foam, using a rasp to smooth it. Wear a particle mask, and be aware that this will make a huge mess! Take off a little at a time, and refer to the rendering and your measurements often.

When you have the right shape, carve an indentation along the bottom edge of the block, then smooth the foam with some medium-grit sandpaper. Cover your new block with plastic wrap to protect it and the felt. Place the foam block on top of a slightly smaller block or piece of wood to raise it off the table. Now you have a brand new block for a fraction of the price of a wooden one!

Pulling the felt

STEPHANIE:

Before you can pull the felt over the block, you have to steam it to loosen the fibers so that the hood can be shaped more easily. I am using a hat steamer, but you can also use an upright wardrobe steamer. Place the hood on top of the steam valve until small water droplets condense on the outside and the felt looks kind of frosty. Make sure to steam all sides of the hood.

If you can't get to a steamer, you can just spritz the hood thoroughly with some water, place it in a plastic bag, and pop it in the microwave for a minute.

Pull the felt hood over the block, slowly shaping the felt. Grasp the edge of the hood and use the heel of your hand to push down. Continue to gently pull and stretch the felt. When it's close to the right shape, take a length of thin nylon cord and tie a slipknot, making a large loop. Slide this loop down over the felt, nestle it into the indentation in the foam and tighten the loop. You will need to use some pins to hold the cord in place. Because of the indentations in this hat, I am using a piece of nylon cord and pinning it down gently into this indentation. I have used quilter's pins so that the holes in the felt will be small and heal easily. Let the felt dry overnight.

Sizing the Felt

STEPHANIE:

Before you remove the felt from the block, you will need to size, or stiffen it. You can use a spray- or brush-on lacquer sizing or a gelatin sizing. The lacquer sizing is toxic if you don't take the precautions listed in the Material Safety Data Sheet, and the spray lacquer sizing tends to sit on top of the felt. The gelatin sizing is nontoxic, but can re-soften if exposed to humidity or rain. I am going to use the gelatin sizing.

Follow the instructions that come with the gelatin sizing to mix up a solution. I chose to put the liquid sizing in a spray bottle and mist the hat well. When the sizing dries, if it feels crispy, I steam the hat again to soften the sizing.

Once the hat is completely dry, carefully remove it from the block. Heat up your sizing if it has gelled, and give the inside of the hat a misting as well.

Wiring the Felt

STEPHANIE:

Once the sizing is dry, cut along the line made by the nylon blocking cord you used. Measure the block along the edge of the hat, because your felt may have stretched, and cut a piece of #19 millinery wire this same length plus an 1 ½ inches extra. Mark ¾ inch from each end of the wire. These marks will meet at the center back of the felt.

Before you can shape the wire, you need to spring it. Springing wire is a technique that removes the curve that it has from the roll it came on. To spring the wire, use your thumb and index finger and gently squeeze the wire along its length to straighten out the curve.

When you are done springing, the wire should still lie flat on the tabletop and be much straighter. Once the wire has been sprung, shape it into the exact shape of the cut felt edge. Before you sew the wire to the felt, you want them to fit against each other perfectly, so the wire doesn't force the felt out of shape. Alligator clips are perfect for holding the wire to the felt while you sew.

Use a wire stitch, basically a buttonhole stitch, to sew the wire to the felt edge. Cut a piece of nylon thread and thread the two cut ends through a needle. Bring the needle around the wire from the inside of the hat to the outside, and through the loop at the end of the thread. Move about a quarter of an inch down, and again bring the needle through the felt from the inside to the outside, leaving a small loop of thread at the top of the wire. Bring your needle through the loop from inside to outside. This forms a locking stitch. Continue this stitch pattern around the hat until you meet your first stitch and knot your thread.

Finishing and Trimming

STEPHANIE:

Now I am going to finish the wired edge of the hat with millinery grosgrain.

Millinery grosgrain, sometimes called petersham, has a sawtooth edge, as opposed to the smooth edge found on most grosgrain, and is easier to shape around curves.

Cut a piece of black 7/8 inch millinery grosgrain the length of the edge of the hat plus an inch. Sew the ends together on the sewing machine with 1/2-inch seam allowance.

Place this seam at the center back of the hat, and stretch the grosgrain binding around the edge of the hat, holding it in place with alligator clips as you go. Use a tiny whipstitch to secure the edges of the grosgrain on both the inside and the outside of the hat. Do this with one thread, alternating between the outside and inside. This stitch should be almost invisible!

The black trim on the crown of this hat is velvet rouleau. Rouleau is a thin tube of bias-cut fabric that has been stitched and turned so that the seam allowance fills in the tube and rounds it out. You can make rouleau, but I actually purchased this at my local fabric store. Secure the ends well to keep them from unraveling, and stitch the rouleau to the felt following the rendering.

Now it's time for the veil! There are different types of hat veiling available, many of them vintage, and you can get them through millinery suppliers. I am using modern 8 1/2 inch-wide French veiling, but I am cutting it down to a piece that is 4 1/2 inches wide and 9 inches long.

Pleat or gather the ends together, and play around with the veil and its placement to get it to drape nicely. When you are happy with its placement, whipstitch the veiling to the inner edge of the binding grosgrain and trim off any extra.

A small felt hat like this with a clean interior doesn't need a lining, unless it comes off onstage and the felt might catch on the wig. Then you can make a simple lining out of habotai, or china silk. But if it doesn't have a lining, and this one won't, it still needs something to finish the inside edge—a grosgrain sweatband.

But before you put in the grosgrain, it is time to add any horsehair pieces that might be necessary for pinning the hat to the actor's head. Use horsehair that matches the actor's hair or wig.

Cut two three-inch pieces of horsehair, and stitch the ends together in a little bundle. Outside, use a lighter to melt the cut ends of the horsehair. To do this, hold the

flame still and move the horsehair in until the very tips melt together. Try not to light your sewing threads, or anything else, on fire! Check with the wigmaster to determine the best location of the horsehair. Here I am going to place one piece on either side. Stitch the melted ends of the horsehair to the grosgrain binding so that the horsehair sticks out from beneath the hat in shallow crescents. Now you can add the grosgrain sweatband.

Press a slight curve into the grosgrain to make one edge longer than the other. The longer edge will be whipstitched to the binding grosgrain with tiny stitches. The sweatband should be overlapped at the center back, with the top end folded under. Tack the overlap to the other end of the ribbon.

That's it! This hat is ready for its starring role!

Final Shot of Hat on Model

THE GARDEN HAT

Interior of The Stitching Studio, Day

[The host stands behind a work table. Behind her are shelves with hat blocks and assorted sewing and millinery tools. The rendering of the wire-brimmed hat is on the table on the far left. Her tools are spread out before her.]

Introduction

STEPHANIE:

Hey! Welcome to *Thoroughly Modern Millinery*. I'm Stephanie here at the Stitching Studio in Austin, TX. Today's project is this wire-brimmed Edwardian picture hat with a simple, domed crown. But before we can get started with some actual millinery, we need to take a minute to determine the techniques and materials we will use.

The crown of this hat is silk charmeuse, but the charmeuse needs a hard base under it to give it shape. Buckram is the best choice for making this base because it's easy to work with and relatively inexpensive. Buckram is a woven fabric that has been infused with glue. When you get it wet it becomes very pliable, and you can mold it into complex shapes.

There are different types of buckram available. For this hat, I am going to use theatrical, also known as double (pull apart layers to show that there are two), buckram.

In the rendering, the brim of this hat has a wire frame with a transparent layer of *something* over it. For this layer, I am going to use horsehair braid.

Horsehair braid is available in many colors and widths. It's flexible but has body and very easy to work with. It will give the brim some substance while maintaining a great deal of transparency.

The hatband will be silk chiffon and the flowers will be made from silk ribbon and supported by small buckram pieces.

Materials

STEPHANIE:

Before we start, let's go through a list of the materials you will need to make this hat: ½ yard of double, or theatrical buckram, 9 yards of #19 white millinery wire, white glue and a small brush, 1 yard of tulle, ½ yard of 1-inch white bias tape, ½ yard of fleecy domette, 1 yard of silk charmeuse, 4 yards of 6-inch horsehair, 1 yard of silk chiffon,

assorted lengths and widths of silk satin ribbon, 1 yard of habotai silk, white nylon thread, all-purpose thread in colors that match all fabrics and ribbons, and 1 yard of horsehair, one inch wide, to match the wig or hair color of the actor.

The Math

STEPHANIE:

Unfortunately, we're still not quite ready to begin—we need to take a minute for some math.

On a copy of the rendering I have figured out all of the dimensions of the finished hat using one simple equation: $A/x=B/y$. A and B are measurements taken directly from the drawing and x and y are the corresponding measurements in human scale. When using this equation, we know A, B, and x, and can then figure out y. When you receive measurements of your actor, chances are that the only measurement you will have is the head circumference, but for this equation, you will need a different measurement. You can take this off of yourself or someone with a face similar to the actor's. I have measured the length of my face from hairline to chin. With this measurement and measurements taken from the drawing, I can determine all of the dimensions of the finished hat. The length of the face on the rendering is 3 ½ inches. The same distance on me is 8 inches. The height of the crown of the hat in the rendering is 1 ¾ inches. Y, the same distance on the finished hat, is unknown. So $3.5/8=1.75/y$, and therefore $3.5y=14$ and $y=4$ inches. You can use this formula on all the other unknown dimensions of the hat.

Pulling the buckram crown

STEPHANIE:

Ok, we are finally ready to make this hat! The first step is pulling the buckram base for the crown.

I have chosen a wooden block in a basic head shape and covered it with plastic wrap. In this case, because the hat will sit up on the wig and not directly on the actor's head, you don't need to worry too much about the measurement of the block matching the actor's head circumference. If you do need the hat to sit further down, you will need to account for the wig, and you will have to guess how much to add, depending on the size of the wig in the rendering.

On my block, I have used a permanent marker to draw a line where the bottom of the crown will be, using the proportions of the rendering to determine the placement of this line. On this line, I have also marked the center front, the side points, and the center back. This line is called the headsize opening or the headsize oval.

Cut a square of double buckram measuring fifteen inches on each side. Place the buckram into a bucket of warm water and let it soak for a minute. Gently scrunch it with your hands and get the water in there to loosen up the glue.

This is what the buckram will look like when it is ready to pull. See how it's gotten a little bit translucent?

In millinery, the bias is your best friend. So use the bias to your advantage, and place the buckram onto the block with opposite corners of the square at the center front and center back. Take a piece of elastic pinned into a loop and slide it down over the block, past the headsize opening line.

The elastic should be very tight, Pull and smooth the buckram above the elastic, getting out as many wrinkles as you can. If you have too many wrinkles, you can cut into your buckram and make some overlapped darts. Cut along the straight- or cross-grain, up to the apex of your curve, and overlap the cut edges smoothly. The glue in the buckram will hold the edges together. Put your elastic back on, and give everything one final smoothing. Secure the elastic with some pushpins and let it dry overnight.

Once the buckram has dried, remove the elastic and any pushpins. A steel corset bone will help you loosen the buckram. Slide the bone between the buckram and the plastic wrap, gently separating the hat from the block.

The line that you drew on the plastic wrap will have transferred to your buckram. True this line then cut off the excess buckram.

Wiring the Crown

STEPHANIE:

Now we're ready to wire the crown. Buckram needs to be wired to help it keep its shape and give it strength. Cut a piece of white 19-gauge millinery wire that is the exact measurement of the crown opening plus two inches.

Before you can shape the wire, you need to spring it, or remove the curve that is in it from the coil it came on. To do this, place the wire between your thumb and bent forefinger, and gently pinch the wire to straighten it, working from the center out toward each end. When you are done springing it, the wire should be straighter, and it should and lie perfectly flat on the tabletop. Now you're ready to shape the wire.

Using a pencil, place a mark one inch from each end of the wire. These two marks are the center back point of the hat, and will meet with 2 inches of overlap. Mark the center front and quarter points on the wire to match up with the center front and the side points on the buckram. Slowly shape the wire to the exact curve of the headsize oval.

Your marks may not quite match up, and that's okay—they were just guidelines. Don't force the wire to match the marks on the buckram. The wire should lie right up against the cut edge of the buckram. If you make sure the wire is the perfect shape before you attach it, you won't run the risk of having the wire force the buckram out of shape later.

Once the wire is the right shape, it's time to sew it to the buckram. Using painter's masking tape is a really great way to hold the wire to the buckram while you sew it.

So now we are going to use a wire stitch to sew the wire to the very edge of the buckram. The wire stitch is really just a glorified blanket stitch.

Cut a piece of nylon thread, fold it in half, and thread both of the cut ends through the eye of your needle. Bring the needle through the buckram from the inside to the outside, and then back through the loop, from the inside to the outside again. About a quarter of an inch away from that stitch, bring your needle, again, from inside to outside; pull, leaving a little loop of thread at the top, and go through that loop...inside to outside. This makes a locking stitch that will hold your wire in place. Repeat this stitch around the crown and knot your thread when you're done.

Covering the Crown

STEPHANIE:

Press the folds out of a length of one-inch piece of bias tape. Fold it in half over the wire, and stretch it tightly to keep it flat against the buckram. Alligator clips will hold it in place as you stretch. Use a single all-purpose thread to baste the bias tape to the buckram. Use a diagonal basting stitch.

Because this hat is covered in silk charmeuse, which will show every ripple and stitch in the buckram, we need to mull, or cover, the crown with fleecy domette first to smooth everything out.

Fleecy domette, also known as ice wool or Eskimo cloth, is a lofty, open knit that stretches beautifully over a curved crown.

Cut a piece slightly larger than you'll need, and stretch it over the buckram, pinning it to the inside—just to the bias tape. Use pins with glass or plastic heads so they don't get lost in the fabric!

Use a diagonal basting stitch to hold the fleecy domette just to the bias tape on the inside of the crown. Don't stitch all the way through the buckram. Once you're done basting, trim away all the excess fleecy domette.

Repeat the same process with the silk charmeuse to create a beautiful, smooth, covered crown. Place the true bias of the charmeuse running from center front to center back. The charmeuse won't get quite as smooth as the domette, but that's okay, because these little ripples will be hidden under the hatband.

Assembling the Wire Brim

STEPHANIE:

Now let's turn our attention to the brim. In order to get the brim wires just right, you will need to make a paper pattern. On a large piece of craft paper, I have traced an oval that is the same measurement as the headsize opening. Denise Dreher's book, *From the Neck Up*, has a great headsize oval pattern. Referring to the rendering with all the proportions, I have drawn six "spoke" wires coming out of this oval at equal intervals. I chose to avoid having a spoke wire exactly at the center front. From the rendering, I know that the spokes at the sides should be seven and a quarter inches. I can tell that the front and back spokes should be shorter, so I have made them four inches. Connecting the ends of these spokes gives me an outer oval that is oriented perpendicularly to my headsize oval. This oval is the outer wire of the brim. I marked the halfway points of the spokes and connected them, making the middle support wire that will keep the brim stable.

Ok, now, measure the ovals on the pattern and cut pieces of wire the same length, plus an inch and a half for overlap. Spring them then shape them to match the ovals on the pattern. To make the spokes, cut wires that are the exact length of your lines plus two and a half inches.

With your pencil, mark a spoke wire an inch from one end and an inch and a half from the other. Bend the wire at the marks to form a stretched-out "Z". Lay the spoke on the pattern, and mark the intersection points. Give the wire arm a slight bend to match the curve of the oval. Wire-stitch the arm of the spoke to the oval. Repeat to attach the rest of the spokes.

Place the wire shape onto the headblock used for the crown, and hold it in place with pushpins. Referring often to your rendering, shape the wire spokes gently to create the correct silhouette.

When this is complete, you are almost ready to attach the other brim wires. First you have to tweak the shape of these wire ovals so they will fit perfectly on the brim. These ovals will get slightly smaller and change shape a bit because the spokes curve up and in. Just cut off the excess wire, leaving an inch and a half for the overlap. Once all of the wires are shaped, wire stitch the outer oval to the spoke arms. Stitch the inner oval to the spokes at your marks, using an "X" pattern.

Covering the Wire Brim

STEPHANIE:

To make sure that the wires stay put, use a small paint brush and some white glue to lightly coat the stitching and the wires at the intersections.

An option at this point in the process is to paint the wire structure to cover your markings and to make it match the rest of the hat. Use a floral spray paint, like Design Master. Make sure that you always use spray paint in a spray booth or outside on a protected surface.

Now I am going to wrap all the wires with half-inch strips of tulle. The tulle gives the wire a nice finish and makes it easier to sew things to later. Secure the end of each strip with a few stitches so it doesn't unravel. There, the wire is frame is complete; now it's time to add the horsehair braid.

Cut a yard and a half of horsehair. Stitch one end of the horsehair into a bundle. Trim the fringe-y ends and melt them together using a lighter.

I have done this outside—don't do it in a spray booth! Bring the horsehair to the flame slowly until it starts to melt. Try not to light your sewing threads—or anything else—on fire!

Place this end of the horsehair at the outside side back of the headsize oval wire and secure it with an alligator clip.

Continue to clip and pin the horsehair to the outer and wires. There's a bit of trial and error involved here. You may need to draw up the braid with the thread that is woven into it or stretch it out in some places. The key is to make the braid follow the curve of the brim without horrible stretching or bubbling. You want to finish this piece of horsehair on the side back of the outer oval and minimize the amount of overlap.

Stitch, trim, and melt this end of the horsehair like you did with the other end. Now, with matching thread, carefully stitch the horsehair to the tulle on the outer oval and the headsize oval with a wire stitch. Repeat the same process on the top of the brim so that you will have two layers of horsehair with your wire frame sandwiched between. If necessary, stitch this "sandwich" together at any wire intersections that look slightly bubbly.

Binding the Edge of the Brim

STEPHANIE:

The last step in the construction of the brim is to bind the edge in charmeuse. For half-inch binding, cut enough 2 inch- wide bias charmeuse to fit around the outside of the brim plus a few inches extra.

Gently stretch the bias charmeuse, around the outer brim and pin it where it meets. This will be where we place the seam. You can make your seam a vertical line—which is on the bias of the fabric—or a diagonal line—which is on the straight-of-grain. I have decided to place my seam on the diagonal because it will flow with the curve of the brim.

Stitch the ends of the charmeuse together on the sewing machine. Trim the seam allowance to ¼ inch and press the seam allowances open. At your iron, make this charmeuse into bias tape by folding the raw edges to the center of the strip. Don't stretch the bias—make sure the finished tape measures one inch everywhere.

Place the binding on the edge of the brim with the seam in the back. Use matching thread to slipstitch the binding to itself through the horsehair.

Use small stitches and don't pull too tight. You shouldn't be able to tell that there is stitching there at all!

Assembling the Hat & Making the Bandeau and Stick-Up

STEPHANIE:

The crown is ready, the brim is ready; we're almost there! It's almost time to start assembling and trimming, but all those silk flowers will need some support structures. The flowers beneath the brim will need a support called a bandeau. Because it is small and relatively flat, the bandeau can be cut from buckram without blocking.

I have made a paper pattern piece for the bandeau that will fit onto the crown like this, with the flat side up against the brim. I have gone ahead and cut this pattern out of buckram, on the bias, and wired the edge. Now I just need to bend the bandeau into the appropriate curve to match the curve of the head.

Bind the wired edge with bias tape, then mull the right side of the bandeau with fleecy domette and cut the edges of the domette flush with the edges of the bandeau. Cover the bandeau with charmeuse and bring the edges around and baste them to the bias tape on the wrong side. We will line this bandeau after sewing the flowers on.

Now that the crown, brim, and bandeau are all complete, we can assemble the hat!

First, stitch the bandeau to the brim in the proper place. Use a wire stitch over the brim and bandeau wires to hold the bandeau securely to the brim. Put the crown and brim

together, matching the center front and center back. Wire-stitch the headsize wire of the brim just inside the edge of the crown.

The very last structural element to be made is the support for the flowers on the crown of the hat. A piece like this that sticks up is called, well, a stick-up.

For this, create a small wired buckram frame based on the dimensions of the rendering. Cover the frame with charmeuse, hiding raw edges as well as you can. The entire frame will be covered with flowers, so there is no need for absolute perfection.

The Flowers and Leaves and the Hatband

STEPHANIE:

Now let's make the ribbon flowers for the bandeau and the stick-up. There are two different types of flowers and one type of leaf on this hat. I am going to use a few widths and colors of silk satin ribbon.

For the buds, wrap a piece of ribbon around a purchased stamen, and stitch the ends of the ribbon securely. I purchased these stamens at my local craft store. Fold the stamen in half, and make sure to catch it in your stitching.

For the roses, start by folding one end of a piece of ribbon into a point, and secure with a knotted thread. Use a running stitch down the middle of the ribbon, with stitches about the same length as the width of the ribbon. Pull the thread to gather the ribbon loosely, arrange the folds, then pull tight and secure the thread.

To make the leaves, make a prairie point with some green ribbon by folding it into a triangle, leaving a bit of extra length on the ends. Gather up the bottom and secure well with green thread.

Voila! I have used some dye paint to add some color and depth to my flowers, but you can leave them as-is, or use watered-down fabric paint. Stitch most of the flowers and leaves to the bandeau and the rest to the stick-up.

The Lining and Horsehair Anchors

STEPHANIE:

For the hatband, cut a piece of chiffon on the bias about 26 inches long and 8 inches wide. Fold the raw edges toward to center but don't press them. Wrap the chiffon around the base of the crown, overlapping the edges where the stick-up will be placed. Pull it just tight enough, scrunch it down so that it angles down toward the stick-up, and then stab-stitch the ends to the crown

If you need to, carefully and invisibly stitch the chiffon to the crown and to itself wherever it needs it. You don't *want* it to move, but you want it to look as though it *could*.

Stabstitch the stick-up of flowers to the crown on top of the hatband overlap.

Time for the lining. First I'll line the bandeau. Cut a piece of habotai, or china silk, on the bias, using the bandeau pattern and add a quarter inch seam allowance. Press the curved edge back and slipstitch it to the charmeuse on the inside of the bandeau. Leave the straight side free.

For the main lining for this hat, I have chosen a simple technique that can be applied to almost any hat. I have two pattern pieces for this lining: one is a 4-inch circle and one is a rectangle the length of the headsize opening measurement and four inches wide.

I have marked the quarter points on the circle's diameter and the rectangle's length. Cut both pieces out of the habotai silk with ½ inch seam allowances on all sides. The rectangle is cut on the bias. When in doubt, cut on the bias!

Stitch up the short ends of the rectangle on the machine and press this center back seam open. Sew two rows of gathering stitches in the seam allowance along one of the edges.

Pin the seam to one of the marks on the circle, then match up the other marks on the circle and the rectangle, and pin. Pull the gathering stitches to fit, pin the stitching lines together, and stitch this line on the machine. Press the seam. This is the lining. Again, you can put a simple lining like this in almost any hat.

Place the lining in the crown of the hat, wrong side against the buckram. Fold under the raw edge of the habotai and slipstitch it to the horsehair along the headsize opening. Now, there is only one thing left: how to attach the hat to the wig? For this purpose, I will stitch some horsehair inside the crown of the hat for bobby pins to go through to grab the hat and the wig.

There are three main horsehair configurations for holding hats to hair.

For this hat, I have chosen loops of horsehair in a color to match the wig. I have made four horsehair loops and sewn them in at the side fronts and side backs of this hat.

Now this hat is ready for the stage!

Final Shot of Garden Hat on Model

THE BONNET

Interior of The Stitching Studio, Day

[The host stands behind a work table. Behind her are shelves with hat blocks and assorted sewing and millinery tools. The rendering of the bonnet is on the table on the far left. Her tools are spread out before her.]

Introduction

STEPHANIE:

Hey there! Welcome to *Thoroughly Modern Millinery*. I'm Stephanie, your host, here at the Stitching Studio in Austin, TX. Today's project is this mid-19th century straw bonnet.

This bonnet has grosgrain binding, a pleated fabric underbrim, ruched ribbon brim trim, tie ribbons, ribbon, fabric, and horsehair bows, and feather trim. The first step in making any hat is to figure out everything that will go into its construction.

Millinery straw comes in many forms. There is straw braid, which must be stitched together, formed into the hat shape as you go. Straw also comes woven in pre-shaped pieces called hoods and cartwheels. The cartwheel that we will use for this bonnet is a plain-weave parasol straw.

The straw is somewhat flimsy, and can be sized, or strengthened, with a lacquer or a gelatin sizing. However, for this bonnet, I am choosing to reinforce the straw with buckram. Buckram is a fabric that has been treated with water-soluble stiffener. When you get it wet, the buckram becomes very pliable, and you can mold it easily. When it dries again, it hardens back to its original stiffness and retains its shape.

For this hat, I am going to use theatrical, also known as double, buckram.

Math

STEPHANIE:

Now we have to pause a moment for some math. This is a necessary step in which we can determine all the necessary dimensions of the finished hat.

Ok, so here is a copy of the original rendering on which I have figured out all the necessary dimensions of the finished bonnet, using a simple equation: $A/x=B/y$. In this equation, A and B are measurements taken straight from the drawing. X and y are the corresponding measurements in human scale. When using this equation, you always know A, B, and x, and then can figure out y. When you receive measurements of your actor, you will probably only have her head circumference. For this equation, you will

need a different measurement, and you can take this measurement off of yourself or someone with a face similar to the actor's. I measured the length of my face from hairline to chin. With this measurement and measurements taken from the drawing, I can determine all of the dimensions of the final bonnet. So, the length of the face on the rendering is $2 \frac{1}{8}$ inches. The same distance on me is 8. The width of the brim from the front on the rendering is $3 \frac{3}{8}$ inches. Y, the distance on the final bonnet, is unknown. So $2.125/8=3.375/y$, and therefore, going back to algebra, $27=2.125y$ and $y=12.75$ inches. You can use this formula on all the other unknown dimensions of the bonnet on both the front and side view because they are in the same scale.

Materials

STEPHANIE:

Before we go further, let's go over a list of the millinery materials you will need for this bonnet. One straw cartwheel with a 5-inch brim, 1 yard of double buckram, 2 yards of #19 millinery wire, 3 yards of 1 inch cotton bias tape, 2 yards of $\frac{7}{8}$ inch purple millinery grosgrain, 1 yard of shantung silk, 6 yards of 2 inch- wide purple silk satin ribbon, $\frac{1}{2}$ yard of habotai, or china, silk, 5 yards of 2-inch horsehair braid (or 10 yards of 1-inch horsehair braid, zigzagged down the middle), five ostrich feathers, and white nylon thread.

Another useful tool to have is a cardboard template of the angle where the crown meets the brim. This angle will be the same on the real bonnet as it is on the rendering.

Paper Mock-up

STEPHANIE:

Before going into the real materials, it's a good idea to make a paper mock-up of the bonnet. Using brown craft paper and a head block in the correct head size, start with a rectangle that will go around the block with some overlap. This part of the hat pattern is called the sideband. I have used the patternmaking techniques of slashing, spreading, and overlapping to achieve the right shape for the crown. Use a Varyform curve to find the appropriate line for the headsize opening. For more detailed instructions on pattern alteration techniques, refer to *From the Neck Up* by Denise Dreher or any patternmaking book. The same techniques that apply to garments work for hats. When you have the right shape, mark the center front, center back, and quarter points.

Make an oval with the correct circumference, based on the rectangle, for the tip, or the top of the crown. Mark the quarter points of this oval, and leave an extra one-half inch of paper outside this line when you cut it out. Clip little V's up to the line, making little paper tabs. Fold these tabs down and tape the tip to the crown on this inside, matching the quarter marks.

To stabilize the paper, it is a good idea to wire the headsize opening of the crown. We will do this in the final hat as well. Cut a piece of #19 millinery wire the length of the headsize opening plus an inch or two for overlap. The first thing we have to do to the millinery wire is spring it. Springing is a technique that removes the curve that is in the wire from the roll it came on.

To spring the wire, use your thumb and bent forefinger to gently squeeze along the length of the wire to straighten it, working from the center out toward each end, making sure that you are not changing the shape of the wire in any other way. Once the wire is sprung, shape it into the oval shape of the headsize opening of the crown. Once the wire is the right shape, tape it to the paper, right along the cut edge, with the overlap at the back.

Using more paper and slashing and spreading or overlapping, make a paper brim, checking the dimensions against the rendering.

Mark the center of the brim and make tabs on the inside edge. I have cut another piece of wire, the length of the outside edge of the brim, plus an extra inch at each end. I sprung the wire, and then I gently shaped it to match the outer edge of the brim. Now, bend the extra inch on each end out to a right angle. Tape the wire to the brim. Then tape the brim to the crown, matching center points. Tape the extra wire arms down to the crown as well. Also check the angle at which the brim meets the crown using the cardboard template.

The mock-up is ready for the designer to look at and for the actor to try on in a fitting. After you are sure that everything is ready to go, it's time to move into the straw and buckram!

The paper mock-up pieces will be your pattern pieces for the buckram.

Pulling the Crown

STEPHANIE:

Trace and cut out the tip, leaving half-inch tabs all around the edge. For the sideband of the crown, cut the piece on the bias, leaving an inch of seam allowance at the ends and two inches at the bottom.

If you have a wooden hat block that is the shape you need for the crown of the hat, you are in luck. Otherwise, you can use hard oil-based clay to build up a block that you have. You can even build upon a food storage container or anything that is already close in shape. Just remember to protect your block with plastic wrap before you add clay and then cover the block with plastic wrap again to protect your hat.

When your block is all ready to go, get a plastic tub full of warm water and place the straw cartwheel in the water to soften it. Just let it soak. Then, place the buckram tip piece in the water until it becomes translucent and the glue has softened.

Place the tip piece on the top of the block, smoothing the tabs down over the sides. Wet the sideband in the same way, and stretch it around the sides of the block, overlapping at the back. You may need to trim off some of your excess.

After the straw has soaked for about twenty minutes, take it out of the water, *gently* wring it out and place it over the block. Carefully smooth the straw, centering the cartwheel on the block. Place a tight loop of elastic over the block and pull it down to the base.

Continue to smooth the straw, trying not to move the buckram underneath. Use strips of muslin cut on the bias and pushpins to wrap the straw and buckram to keep them smooth on the block and tight to each other. Work from the top of the block down, smoothing as you go. Once everything is pinned down, nice and secure, let it dry overnight.

Finishing the Crown

STEPHANIE:

Once the straw is dry, remove the muslin, pushpins, and elastic. Now comes the tricky part. Using a corset bone will help you with this. Slide the bone between the buckram and the block—it's a little tricky. If you used clay, you can put the block in the freezer to harden the clay, and that will help too. Slowly work your way around. When your straw is off the block, take your sideband pattern piece, place it around the outside, and mark the bottom line. Also mark your side points, and your center front and center back. When—and only when—you are ready to actually wire the crown, should you cut off the excess straw. Otherwise, it will unravel and be a huge mess. Also, think before you cut, because this piece is going to be your brim, so you only want to cut into it once, at the center back, and then around.

Cut and spring a piece of wire the length of the headsize opening plus two inches for overlap. Once it's cut, shape the wire to match the shape of the crown opening, matching up the marks at the center back. When the wire oval can sit perfectly on the straw crown, it is ready. Usually I like to use hand stitching on my millinery projects, but using a sewing machine saves time and is much more common in theatrical millinery shops. Therefore, for this bonnet, I am going to use machine stitching techniques.

Using a nylon thread and a size 16 needle, I am going to zigzag the wire to the crown. Use a zigzag stitch that is just wide enough to go over the edge of the wire—my machine is set on a stitch width of 5 and a length of 2. Keep the wire right up against the

edge of the straw and the buckram. Moving your sewing machine to the edge of the table helps make this much easier!

Once the crown is wired, take a piece of 3/4 " wide white cotton bias tape, ironed flat, and stretch it smoothly over the edge of the crown with the center of the bias tape on the wire and the ends overlapping at the center back.

Use a diagonal basting stitch with a single waxed thread to secure the bias tape to the straw and buckram.

Now we'll cover the bias tape with 7/8" wide purple millinery grosgrain. Millinery grosgrain, sometimes called petersham, has a sawtooth edge, unlike regular grosgrain available at your local fabric or craft store. This edge gives it much more flexibility, almost like bias tape.

I have cut a piece the length of the headsize opening plus an inch and sewn the ends together on the machine with a half-inch seam allowance. Fold the grosgrain over, hold it in place with alligator clips or small clothespins, and machine stitch along the very edge of the grosgrain, catching both sides. You can hand baste the grosgrain first for security if you want. Set the crown aside for now.

Pulling and Wiring the Brim

STEPHANIE:

Soak the extra brim from the straw, as you did with the straw, and place the buckram brim piece on a plastic-covered piece of fiberboard, or anything you can pin into.

Place the wet straw over the buckram, making sure your pattern piece is completely covered, and some of the inner edge of the seam allowance is covered. It's ok if a lot of the seam allowance on the buckram still shows. Use push pins and bias muslin strips to keep these layers flat. Once it's all pinned flat, let it dry overnight.

On the brim, place the pattern back on the buckram side and re-trace it, leaving as much seam allowance as you can. Cut, spring, and shape a piece of wire to match the outside edge, leaving an inch of extra wire at each end. Cut the outside edge of the brim on the straw piece when—and only when—you are ready to sew on the wire. Zigzag on the wire in the same manner as with the crown.

The Pleated Underbrim

STEPHANIE:

Before we put the bias tape on the brim, we need to line it with the pleated purple silk. Cut two strips of silk shantung on the bias that wider than the brim by three inches and about fifty inches long each. Seam these together on the sewing machine—use a straight seam, not a diagonal one. The best way to do the pleating is by eye. Pre-measuring seems like a great idea, but you will end up doing it by eye in the end anyway, so don't waste your time.

Start in the center of the brim and slightly off the center of the fabric strip Using pleats that are approximately one half inch deep, pleat the purple fabric in one direction at the outer edge of the brim. At the inner edge, pleat the fabric in the opposite direction. Changing the direction of the pleats adds depth and interest to the underside of the brim. These pleats will be deeper, because the circumference of this edge is much smaller than the outside edge. Hide the seam in one of the pleats.

Play around with the pleats and make them as even and beautiful as you can. When you are happy with your pleating, machine-baste it very close to the outer edge of the brim.

Machine-baste the pleats at the inner edge as well, right on the pattern line.

Binding and Trimming the Brim

STEPHANIE:

Now we can bind the outer edge in bias tape. Stretch the bias around the curve of the brim, leaving about an inch of extra at each end. Stitch the bias tape on with a diagonal basting stitch.

Once the bias tape is on, we can add the grosgrain. The grosgrain will be easier to sew on if you pre-shape it on a ribbon disc.

Place the center of the ribbon along the edge of the disc and stretch it to make the ribbon curl around both sides. Pin the ribbon in place and steam it really well with the iron. Once the ribbon has cooled, move on to the next section, until you have enough to go around the brim edge. Stretch the grosgrain along the outer edge of the brim, leaving an extra inch at each end.

Stitch by machine at the very edge of the ribbon. Because the underside of the brim is the most visible, sew the ribbon from this side so that stitching is the neatest.

Next, we need to add the tie ribbons. Cut two lengths of 2 inch-wide silk satin ribbon a yard long each. Place the brim and crown on a head block, and determine the location and angle of the ribbons.

Stitch the ribbons to the brim right on the line where the brim and crown will meet. Stitch the ribbon to the grosgrain at the edge of the brim. This stitching will be covered by the ruched ribbon that runs along this edge. For this ruching, I cut a piece of the same silk satin ribbon that measures three times the length of the outer brim. On the sewing machine, I ran a row of gathering stitches a half an inch from each edge.

Now gather the ribbon to the correct length, plus a little extra for folding under at the ends. Pin the ruching to the grosgrain so that one row of stitching matches up with the edge of the brim and the edge of the ribbon hangs off the brim a little.

Hand-stitch the ruched ribbon to the grosgrain. Tack the inner edge of the ruching to the straw layer of the brim.

Assembling and Trimming

STEPHANIE:

Now it's time to attach the crown and the brim! On the inner edge of the brim, where there is half an inch of seam allowance, snip into the buckram right up to the line. Don't touch the pleated fabric or the straw, just the buckram. Match the center of the brim to the center front of the crown, and working from the center out, stitch the tabs of the brim to the crown. Use a nylon thread and sew the tabs down in an X pattern. Only move from tab to tab at their bases. When you get to the ends where there is extra... stuff, stitch the wire to the crown securely right at the edge, then stitch down the bias tape and grosgrain. These stitches will be hidden later with the hatband.

Whew! The basic bonnet is complete, so now it is time to add trimming. For the hatband, I have cut a bias strip of the purple silk fabric that is 5 inches wide and 23 ½ inches long, and I have drawn a line down the center.

Press the long edges so that they meet at the line down the middle. Place a piece of satin ribbon on top of the right side of this strip. This is your hatband. Wrap this hatband down around the crown overlapping the ends at one side, where a bow will be placed. Tack the ends down, all the way through the crown. Mark the locations of the other bows—one at the center front, and one on the opposite side—and tack through all the layers at these points as well.

To make the bows, I have sewn three bias strips into tubes that finish at 2 ½ inches by 40 inches and pressed them flat so that the seam runs down the center of the back.

Slide a piece of 2-inch horsehair through the bias tube and place a piece of silk satin ribbon down the center. Start with one end of the bow and form a loop with about 5 inches of the ribbon. Stitch this loop together. Continue to make loops to mimic the bows

in the rendering, stitching at the base to get the right shape and to keep them together. Repeat for the other two bows.

Before the bows can be attached, we need to make the feather piece. Ostrich feathers need to be wired before they can be attached to a theatrical hat. The wire provides stability and shape through years of wear on the stage. Cut a piece of wire about six inches long. Use some floral spray to make the wire match the feather, and dip one end in some two-part epoxy. Do this outside or in a spray booth. Place this end of the wire as high up on the feather as you can while keeping the wire discreet.

Wire stitch around the wire and the quill of the feather. To do the wire stitch, thread both ends of a piece of thread through a needle. Bring the needle from back to front around the stem of the feather and the wire. Bring the needle from front to back through the loop at the end of the thread to form a knot. A quarter inch down the feather, bring the needle from back to front and leave a loop of thread at top. Go through this loop from back to front again to form a locking stitch. Continue this stitch down the length of the feather.

At the base of the feather, bend the wire into a small triangle and trim.

Repeat this process for the rest of the feathers. Cut a small piece of buckram and stitch the wire triangles at the bases of the feathers to this piece.

Next, stabstitch the piece of buckram to the crown of the hat. Now sew on the bows, hiding all raw edges. Make sure the bows are secure but that no one can see your stitching.

The Lining

STEPHANIE:

Now all you need is a lining! Use a habotai, or china silk, and use the same paper pattern as you used for the buckram pieces. Again, cut the pieces on the bias.

Sew the lining on the machine and press it, then insert into the crown. Turn the edge of the silk under and pin it to the grosgrain. Slipstitch the lining in.

This bonnet should not need any extra methods for securing it to the head because of the tie ribbons.

Ta-da! This beautiful bonnet is ready for its close-up!

Final Shot of the Bonnet on Model

Appendix C: The PDF Supplement to the DVD



The Felt Hat

Thoroughly Modern Millinery

The Felt Hat

Supply List

General Supplies

Calculator
 Ruler
 Pencil
 Tape Measure
 Nylon cord
 Quilter's pins
 Spray bottle
 Scissors
 Wire cutters
 Needlenose pliers
 Nylon thread
 Sewing machine
 Iron
 Alligator clips
 Thread colors to match

Hat Block Supplies

2-inch pink foam insulation
 Foam-safe glue (Super 78 from 3M brand)
 Personal Protective Equipment
 (gloves, apron, respirator, goggles)
 Permanent marker
 Rasp
 Razor blade
 Band saw, hacksaw, or electric knife
 Medium-grit sandpaper
 Particle mask
 Plastic wrap

Millinery Supplies

Hat steamer OR plastic bag and microwave
 Gelatin sizing pellets
 1 yard of 19-gauge millinery wire
 2 yards of 7/8-inch millinery grosgrain
 ½ yard of 8-inch wide French hat veiling
 ¾ yard of velvet rouleau trim
 6 inches of 1-inch horsehair



Thoroughly Modern Millinery

The Garden Hat

Supply List

General Supplies

Calculator
 Pencil
 Plastic tub
 Towel
 Plastic wrap
 Permanent marker
 Tape measure
 ¾ yard of length of 1-inch elastic
 Pushpins
 Scissors
 Ruler
 Wire cutters
 Needlenose pliers
 Alligator clips
 Painter's tape
 Nylon thread
 Hand sewing needle
 Quilter's pins
 Brown craft or pattern paper
 French curves
 Variform curve
 White glue
 Paintbrush
 Lighter
 Personal Protective Equipment
 (gloves, apron, respirator, goggles)
 Sewing machine
 Iron
 Fabric paint, dye, or acrylic paint, if desired
 Thread in colors to match

Specialty Supplies

Wooden crown block
 ½ yard double buckram
 9 yards of 19-gauge white millinery wire
 1 yard of 1-inch bias tape
 6 yards of 19-gauge millinery wire
 1 yard of tulle
 ½ yard of fleecy domette
 1 yard of silk charmeuse
 4 yards of 6-inch horsehair
 1 yard of silk chiffon
 1 yard of habotai silk (china silk)
 1 yard of 1-inch horsehair
 Floral spray paint (Design Master brand)
 Silk satin ribbon in various widths and colors
 Flower stamens



Thoroughly Modern Millinery

The Bonnet

Supply List

General Supplies

Brown craft paper
 Tape
 Scissors
 Pencil
 Ruler
 Varyform curve ruler
 Wire cutters
 Needle-nose pliers
 Tape Measure
 Quilter's or straight pins
 Pushpins
 Plastic bucket
 Towel
 Piece of fiberboard or homosote (24"x24")
 Plastic wrap
 Muslin
 ¼ yard of 1-inch elastic
 Sewing machine
 Iron
 Personal Protective Equipment
 Alligator Clips
 (gloves, apron, respirator, goggles)
 2-part epoxy
 Nylon thread
 Thread in colors to match
 Hand sewing needles

Millinery Supplies

Crown block in appropriate size
 2 yards of 19-gauge millinery wire
 1 yard of double buckram
 1 parasol straw cartwheel with 5-inch brim
 3 yards of ¾ inch-wide bias tape
 Oil-based clay (optional)
 2 yards of 7/8-inch millinery grosgrain
 1 yard of silk shantung
 9 yards of 2-inch silk satin ribbon
 5 yards of 2-inch horsehair
 Floral spray (Design Master)
 5 Ostrich Feathers

Thoroughly Modern Millinery



Millinery and Specialty Suppliers

- Hats by Leko
www.hatsupply.com
Felt bodies; straw bodies; buckram; millinery wire; hat stretchers; hat steamers; pre-made buckram frames; hat blocks; lacquer and gelatin sizing; millinery grosgrain; horsehair; flowers, leaves, and feathers; pre-made linings; french fleece (fleecy domette); veiling; tiaras; notions; finished hats
- Manhatco
www.manhatco.com
Felt bodies; straw bodies; straw braid; hat blocks; hat steamers; spray lacquer sizing; veiling; millinery grosgrain; notions
- Judith M Millinery
www.judithm.com
Hat blocks; buckram; straw bodies; felt bodies; millinery wire; millinery grosgrain; lacquer and gelatin sizing; straw braid; veiling; flowers; notions
- Richard the Thread
www.richardthethread.com
Buckram; millinery wire; horsehair; ice wool (fleecy domette)
- Lacis
www.lacis.com/catalog
Hat blocks; lacquer and gelatin sizing; buckram frames; horsehair; millinery wire; felt hoods; veiling; straw braid
- Dharma Trading
www.dharmatrading.com
Silk charmeuse; silk chiffon; habotai silk; dye, dye paint, fabric paint
- M&J Trimming
www.mjtrim.com
Silk satin ribbon; ribbons; fringe; rhinestones; lace
- eBay
www.ebay.com
Ostrich feathers; hat blocks; vintage trimmings; assorted supplies

Glossary

Bandeau: A shaped, wired, and covered piece of buckram that extends down past the headsize opening.

Brim: The part of a hat that extends out past the headsize opening.

Buckram: Woven fabric that has been treated with a water-soluble stiffener.
Available in different weights and thicknesses.

Charmeuse: A light- or medium-weight fabric with a shiny side and a dull side.

Crown: The part of a hat that sits on top of and covers the head. My include the sideband and tip.

Felt Hood (Cartwheel): Unsized, semi-shaped piece of millinery felt that resembles a dome. A cartwheel has the addition of a flared brim area.

Fleecy Domette: A lofty knit fabric used for mulling buckram hat shapes prior to covering with the fashion fabric. Also called Eskimo Cloth, Ice Wool, or French Fleece.

Floral Spray: A light-bodied spray paint made for use on silk flowers. Adds color to a surface without dramatically changing its texture.

Habotai silk (china silk): A lightweight, tightly woven, plain-weave silk fabric with no distinguishable right or wrong side.

Hat Block (Crown Block, Brim Block): A form, often wood, on which the foundation material of a hat is shaped.

Headsize Opening: The shape (usually oval) that is the opening for the head on both the crown and the brim.

Horsehair Braid: A diagonally-woven polyester monofilament braid available in a

variety of widths and colors. Also comes woven in tubes.

Millinery Grosgrain/Petersham: A ribbed ribbon made of cotton or a cotton/rayon blend and woven with a saw-tooth edge instead of a hard-bound edge. Easily shaped into curves with an iron.

Millinery Wire: Steel wire wrapped with white or black rayon thread. Also available wrapped with paper, but this is an inferior product.

Millinery Sizing: A stiffening agent, either made of lacquer or gelatin, that is added to felt, straw, or fabric to help it retain its shape.

Mulling: The process of covering a foundation shape with a fabric, such as fleecy domette, to provide a smooth base for the final fashion fabric layer.

Parasisal: A tight plain weave of sisal hemp. Comes woven in hoods and cartwheels.

Rouleau: A bias-cut tube of fabric that has been stitched and turned, with the seam allowance left inside the tube to round it out.

Ruching: Decorative trim made by gathering up ribbon or bias-cut fabric strips.

Shantung: A plain-weave fabric with slubs on the crossgrain.

Sideband: The lower portion of the crown that fits around the head and determines the height of the crown.

Springing: The process of carefully removing the extreme curve in millinery wire in preparation for shaping.

Stick-up: A decorative element that sticks up above the headsize opening.

Straw Hood (Cartwheel): Straw that has been woven into a basic bell shape.

A cartwheel has the addition of a flared brim area at the base of the bell shape.

Tip: The top portion of the crown of a hat. May or may not be a piece separate from the sideband.

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