

Explorations into Shadow Theater: An Instruction Manual from ShadowLight Productions

by Ramon Abad

Shadows are everywhere. Where there is light, there are shadows. Absolutely anything solid, placed in light, will cast a shadow. Shadows are as natural as clouds, streams and lightning. How have people interpreted shadows? Now that's where it gets really interesting!

In Western society, we associate shadows with menacing qualities. In our literature, movies and TV, villains and monsters hide in the dark, crouch in the shadows, run from the light of truth. Even the protagonist of the 1920s radio play *The Shadow* is an elusive, phantom character who avenges crime by mysteriously appearing from the shadows.

By contrast, numerous cultures around the globe have long used shadows to express heroism, redemption and humor in their art and entertainment. The oldest and most popular medium to employ shadows in this way is shadow puppetry.

Shadow puppetry is an ancient art form that still thrives in many parts of the world. There are, to date, only two ways to perform shadow theater:

- the **traditional** way - puppets are held up against the performance screen,
- the **modern projected** way- shadows are cast utilizing the space between the light source and the screen.

The main difference between these methods is the type of light source used and the size of shadows produced. Each approach has its own possibilities and limitations.

There is some literature available on shadow puppetry, but nearly all of it centers on the traditional method. What the audience sees in most shadow theater performances are the silhouettes of puppets pressed up against a screen with a light not more than 1' away. Projected shadow theater, on the other hand, involves using a source 3' to 20' away from the screen, and puppets or actors actually casting shadows onto the screen from some point in that wide distance between the screen and the light.

What follows are techniques in **modern projected** shadow theater that have been developed by Shadowlight Productions over the course of many years, through experimentation, rehearsal and performance. We hope that in using these techniques you will find your own approach to the ancient, yet ever-evolving art of shadow theater and help us keep this dynamic art form fresh and meaningful.

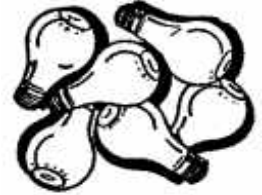
GETTING STARTED

A. Light Source

A single point light source is the key to projected shadow theater. Any type of clear bulb can work. The smaller the filament, the sharper the shadows. Reflective shields and frosted light bulbs cast fuzzy shadows.

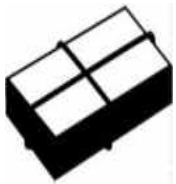
The cheapest and easiest lights to use are nightlights with the protective and reflective shields removed. Simple and small projections can easily be operated by children starting as young as first grade with these type of lights.

The bare light cast from slide or overhead projectors also works well at a certain distance for projected shadows. Slide and overhead projectors have a stronger light than nightlights and thus creating a larger playing space. The great advantage of these types of lights to create shadows is that they enable you to experiment with slides and transparencies. Also, most schools have slide and overhead projectors readily available.



B. Puppets

Most traditional shadow puppets from Asia, Greece or Turkey use water buffalo, cow or donkey hide for materials, but that is often hard to find in a big city. If you can find any of the materials listed below at recycling centers, discount shops or at no cost, go for it!



You'll need:

1. **cardboard** for characters, sets, masks, etc. Recommended types:
 - "poster board" or railroad board (6-8 grade is best, anything more is too hard to cut, anything less is too flimsy. Sold at office supply stores.)
 - manila board (old file folders are the cheapest.)

2. **heavy monofilament** (fishing line) for moving joints. Brass fasteners are also often used for joints, but they tend to stick when moved and the two -end prongs are visible on small connections like arms and hands. The thickest and highest grade of fishing line works best in terms of durability.

3. **dowels, sticks or wire** to support puppets and for hand/arm manipulation.

4. **colored gels or acetate** for puppet detail. Colored report covers are the cheapest and most accessible resource for adding color to your puppets. Clear covers can be painted with colored ink (rather than paint, which does not show up well in shadow), for more elaborate texture.

5. **scissors, exacto-blades, mat knives** for cutting shapes and details.



C. Performance Screen

A roll of 3' or 4' wide butcher or vellum paper is the most friendly material to use for screens. Cloth sheets tend to show the light instrument through the holes in the weave, whereas a paper or plastic screen provides a more evenly distributed glow.

You will also need several rolls of clear packing tape (3M works best; avoid any cheap brands) and a roll of rope, clothesline, or tie line.



D. Painted Scenery

You will need:

1. Sheets of **thick cardboard** approximately 3' X 4'.
2. Rolls of **clear polyester**, at least 3' tall.
3. **Spray paint, spray glue, colored ink paint pens.**
4. 10' - 15' of **PVC pipe** at least 1 1/2", two **PVC elbow T's** and two **threaded male adapters** and **PVC pipe cement.**
5. Two 3' X 3' squares of **plywood** and one 1" X 2" **stick** at least 5' long.
6. Two **galvanized steel pipe bases** at 1 1/2".



BUILDING YOUR SHOW

I. Puppet Construction

A. Design

The design and look of puppets is up to the infinite imagination of the artist making them. For inspiration, study the shadow puppets of cultures that have used them for centuries, and then study those used by modern puppeteers. What's common in all shadow puppetry is the use of **negative space** in designing and cutting out puppets. Balinese puppets are made with eyes which are not just holes cut out, but intricate cutouts which use the shape of the pupil and the space around it to define the eye.

After deciding on a character, draw an outline of it on your sheet of cardboard. Side profiles of characters are the easiest to make when working with children rather than having to figure out the logistics of a quarter turn or "straight ahead" look.

Colored acetate and gels or ink-painted transparencies can add color to the details of your puppets. For example, the intricate designs of a sultan's robe can be cut out first and then small pieces of yellow or orange acetate can be glued or taped on to give the designs a certain warmth beyond black and white.

B. Moving parts

To create a character with a moving arm, you must draw the arm and body separately. Kids tend to draw the entire figure with the arms included. When they try to cut the figure out and separate the arms, they end up with the arms shorter than they intended. You have to compensate for the overlapping of the arm on your figure's body by drawing and cutting out an extra length on it. This extra bit serves as a joint between the body and arm. This same idea applies to every other moving appendage.

To make joints for your moving parts:

1. Drill or pierce a tiny hole on the appendage and on the main body.
2. Take your monofilament, melt one end of it with a flame from a lighter or a candle, and immediately squash it against the body using a metal object like scissors.
3. Align the holes on the appendage and the body, thread the monofilament through the holes with the free end, and cut enough of the line's end to melt and squash it in place as well.

What you end up with is a capital "I" with the two thin cardboard pieces held together in the middle. The smashed ends serve as stops, and the short piece of monofilament is the joint that connects your moving pieces.

An alternative to this method, easier for younger children, is to use twine or thick string tied at the ends instead of monofilament.

Attaching manipulating rods

To control your shadow puppets, you must attach sticks or wires to manipulate the body and moving appendages.

For projected theater puppets, you can attach the manipulating rod for the body on top of the body itself with enough length left over below for your hand to grip.

For moving arms, a manipulating rod with a small hole drilled through at one end is connected to the arm or hand by monofilament or twine as described above.

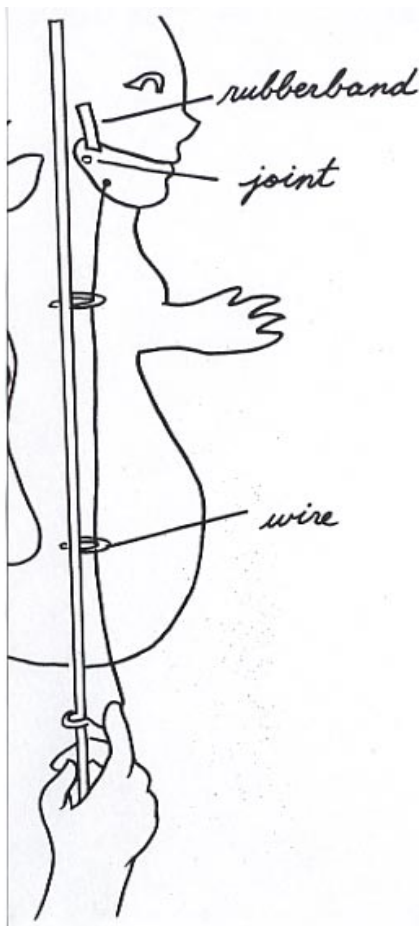
Moving mouths

Indonesian puppets have a string that moves the mouth, controlled by one finger of the hand that holds the puppets. Usually a thin, small piece of a horn from a water buffalo acts as a spring for this mechanism, but that, too, is a rare commodity in a city!

As in any moving appendage, you first must draw and cut out the puppet's lower jaw and chin separately, with an extra space at the end of the jaw for the joint. The face has the upper jaw as part of its design but with the lower jaw and chin cut out.

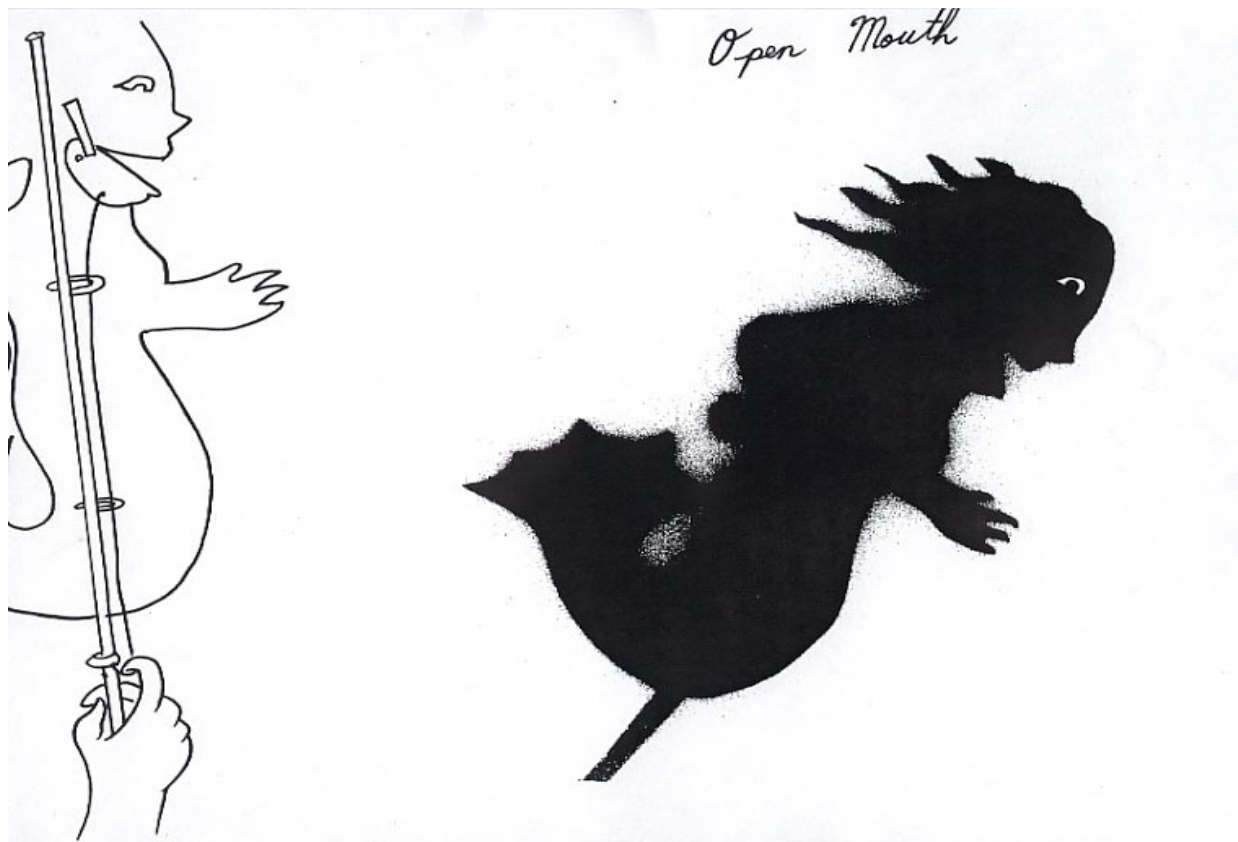
To make a simple version of this:

1. Start by attaching the puppet's lower jaw to a joint on its face.
2. Drill a hole in the corner of the lower jaw that is close to the center manipulating rod.
3. Thread twine or string through this hole and leave the end long and loose enough to reach the handle of the rod.
4. Take a small piece of elastic (a rubberband or the stretchy cord used in wrapping presents work well) and glue or tape one end of it to a corner above the upper jaw of the puppet.
5. Glue, tape, or thread the free end of this elastic through the top corner of the lower jaw on the side where the string is attached.
6. After experimenting to find the best place for your finger (usually it's the pointer finger) to control the string, tape the loose end of the string to the handle and give it a test run! Small loops of wire attached to the manipulating rod can serve as a channel for the string and help conceal the string as well.



Closed mouth





This mouth mechanism can work on any puppet. By testing and adjusting the placement of the elastic and the string, these basic instructions can make your shadow speak as eloquently as you desire.

II. Making Shadow Masks

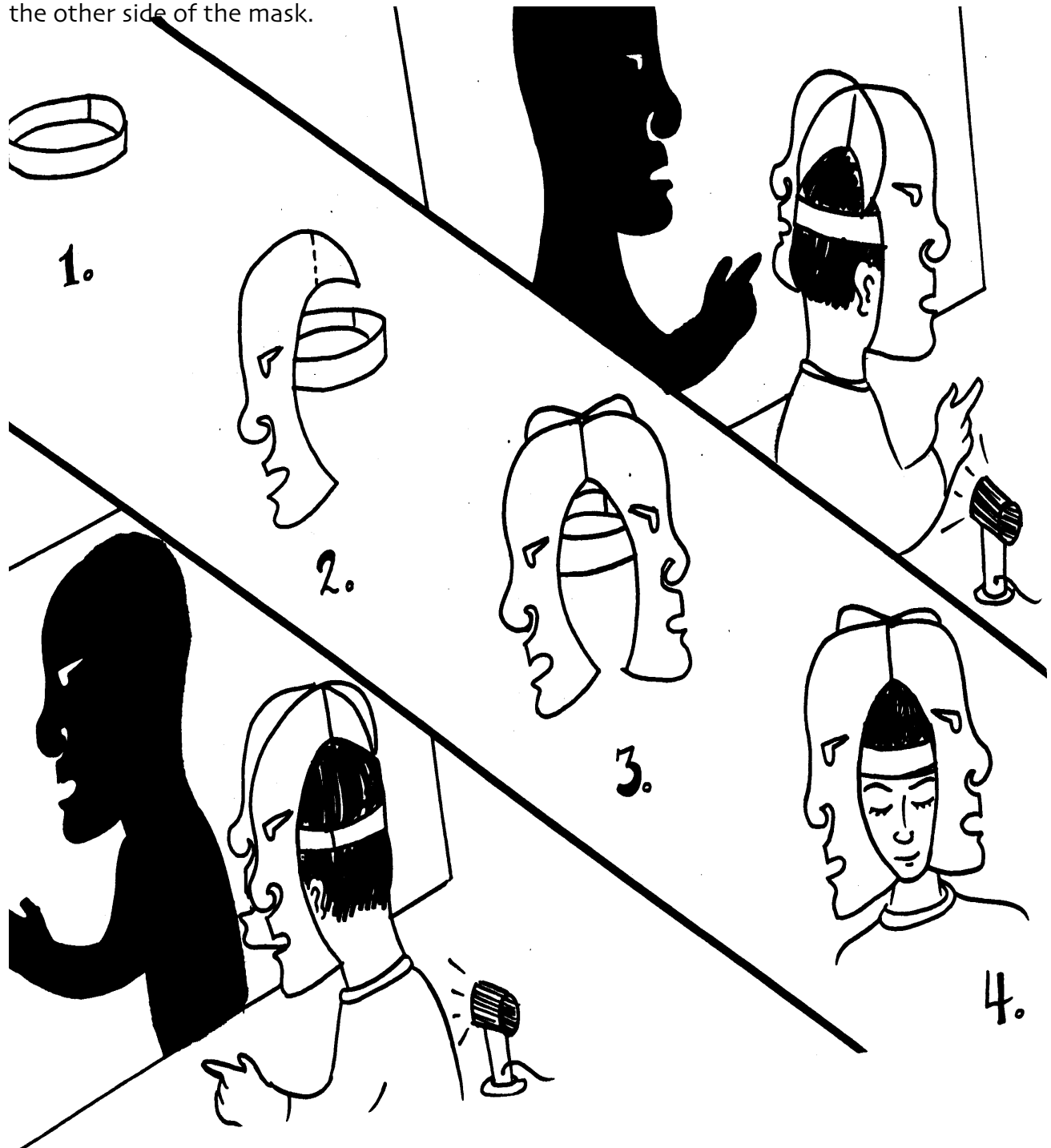
A dynamic element, unique to projected shadow theater, is the use of shadow masks. Two opposite facing faces are attached to the actor's head at forty-five degree angles, so that the actor can look at the screen and see his mask in profile in front of him on the screen. These masks don't work with the traditional method since it is difficult for actors to press their faces against a screen!

Follow these steps to create a shadow mask:

1. Make a headband for your actor by cutting a 3" strip of thin cardboard slightly longer than the width of your actor's head. (Measure from his forehead around the back of the head.)
2. Tape one side with clear packing tape and attach a tab of Velcro on the other. Make sure you have the corresponding Velcro tab on the taped side since the taped side is the outside of the headband and the Velcro adjusts to the head from the inside.
3. After deciding on a character, draw a profile with eye, mouth, nose, and details of wrinkles, warts, scratches, etc. on a sheet of cardboard. This profile must be slightly longer than the profile of your actor in order for the actor's features to be concealed. So, draw the forehead, top, and back of the character's head larger than actor's also.

5. Cut out the character's head and adjust it to the shape of the actor's head.
6. This is just one side of the mask. Draw and cut out an extra copy for the other side.
7. Place the headband on your actor's crown, then add one profile on top of that at an angle which should rest on one of your actor's cheeks. Tape this side on the headband.
8. Place the other profile on the other cheek but cut its end to meet the first profile, then tape this end on to it, and tape the remaining bit following the line of the second profile.

When completed, you should have an "X" when viewed from above. The actor can watch the screen and show just one profile at a time. If a actor changes angles, he/she can reveal the other side of the mask.



III. Set Design and Construction

One great advantage of projected shadow theater is the ability to use sets that are not necessarily the same scale as your screen. Traditional shadow theater involves cutting sets and backgrounds to fit within the dimensions of the screen-- which tends to be small for practical purposes. In projected shadow theater, however, a tree cutout might only be two feet high and completely fill a 20 foot high screen.

Two elements are essential in making shadow sets work: scene frames and a scene frame holder.

To make a scene frame:

1. Cut a rectangular hole on a sheet of your 3' X 4' cardboard, leaving at least a 3" border on all sides.
2. Cut a sheet of acetate to cover the hole and tape the edges to the border.
3. Cut two small holes that will correspond to the screws that you will place on your set frame holder. This is how you will hang your frame onto your holder.

You have several options for constructing set frame holders. The cheapest route is using medium-sized clothes racks that come as a kit in many department or hardware stores. Simply adjust the height of the top bar and clip your set on it and you have a fast and easy set frame holder.

Wooden frames are another choice but require a lot of time to assemble and break down for storage and transport. PVC pipes with a wooden base are easier to use and store more compactly.

To make a PVC frame holder:

1. Screw in the galvanized steel pipe bases at the center of your plywood squares
2. Cut two 5' lengths and one 4' piece of pipe
3. On the 4' piece, cement the elbow T's on both ends and cement one threaded adapter on each of the 5' pipes.
4. Once the cement has completely dried, screw your 5' pipes on the squares and simply insert the ends inside the elbow T's of your 4' pipe. If successfully accomplished, you should have a small football goal post in front of you.
5. Cut your 1" X 2" stick to the width of the holder and screw on the sides at least 1-2 feet from the top bar.
6. Screw in two small screws on this wood bar to match the holes on your set frame. Now you should be able to hang your set on the holder.

Within the scene frame you can spray-glue cardboard cutouts or colored acetate, paint with colored ink or acrylic paint, draw with permanent markers or paint pens, make stencils, and experiment with shading using spray paint or even spray glue!

What is crucial in working with your sets, however, is the distance they are placed from the light. **Sets tend to be sharper further away from the light source.** You'll need to experiment to find the best size and distance for your sets and frames.

IV. Performance Screen Construction

The advantage of using rolls of butcher paper or vellum is their adaptability to any size space. Rolls of paper can fit in a 15' X 9' room and also be made to fill a 50' X 30' stage.

A. Laying your paper out

1. After measuring the length and height desired, roll out the paper to slightly more than the measured length.
2. Depending on the width of your roll of paper, roll out enough lengths so that when put together they equal the screen's height. Then roll out one extra length of paper. For example, if you use 3' wide paper and you need a 15' tall screen, cut out 6 pieces.

B. Taping edges together

1. Butt one side edge of one piece with the edge of another, making sure the edges don't overlap. Any overlapping piece will be seen on the audience's side.
2. Tape the edges with clear packing tape as evenly as possible. If gaps occur, it's easy to pierce them with a blade, stretch the edges closer, and retape.
3. Tape all your pieces together until you have one large raw screen.

C. Adding the hanging rope

1. Decide which side is your top and run your line of rope or tie line along the edge of the paper, leaving long lengths of rope at both ends for tying when hung.
2. Make a two inch pocket in the paper for the rope, reinforced with tape.
3. Tape the end of the fold on the screen, then tape the new edge of the screen by folding the tape to cover the front and back of the screen, and, most importantly, tape and retape the top corners where the rope exits from the fold. The purpose of all this taping is reinforcement when the screen is hung. If successfully done, you should end up with a special pocket for your rope.

D. Finishing touches

With very large screens, you often need to make pick points along the rope to keep it from sagging. This is easily done. First find the center of the screen's top edge, cut a hole to find the buried rope, and tie an extra piece of rope on to it.

Find the center from that piece to one of the edges, make a hole and tie another piece of rope onto that center and the same for the other side. If that is still not enough, keep dividing the sections until you believe it's ready.

To reinforce the sides and bottom, simply cut, fold and tape to the desired length.

E. To be seen or not seen

At this juncture, you have two options to consider:

1. do you want the audience *not* to see the lines on your screen?
2. do you care if they do?

If you don't care, you're ready to hang your screen.

If you *do* care, here is a fun way to make them disappear.

1. Have people hold the four corners of the screen, and, if there are enough hands, the four sides as well. The more people, the merrier. (this part of screen construction is a favorite among kids of all ages.)
2. Instruct your crew to start bunching the paper up on their chest or belly so that everyone ends up in the center of the room. What you end up with is a huge paper ball with people sticking out of it!
3. While you have your crew still laughing, make them take their edge and pull back to their starting positions.

If done well, you should have a large, wrinkled screen on front of you. The lines between the pieces of paper are mysteriously invisible to the audience when you have a wrinkled screen like this!

F. Hanging your screen

Many theaters have a pipe, either stationary or floating, from which you can hang your screen. Start by tying the center pick point of the screen on to the center of the pipe and tie off the other points taut to the edges.

If there are no pipes available, hang the rope's ends on screws, thumb tacks, flagpoles, etc. until the sags in your screen are gone.

Attaching two small pulleys on the walls is an easy solution for hanging screens. Roping the ends of the lines through the pulleys and tying the ends near the ground makes it faster to raise and lower the screen.

V. Constructing a Light Source

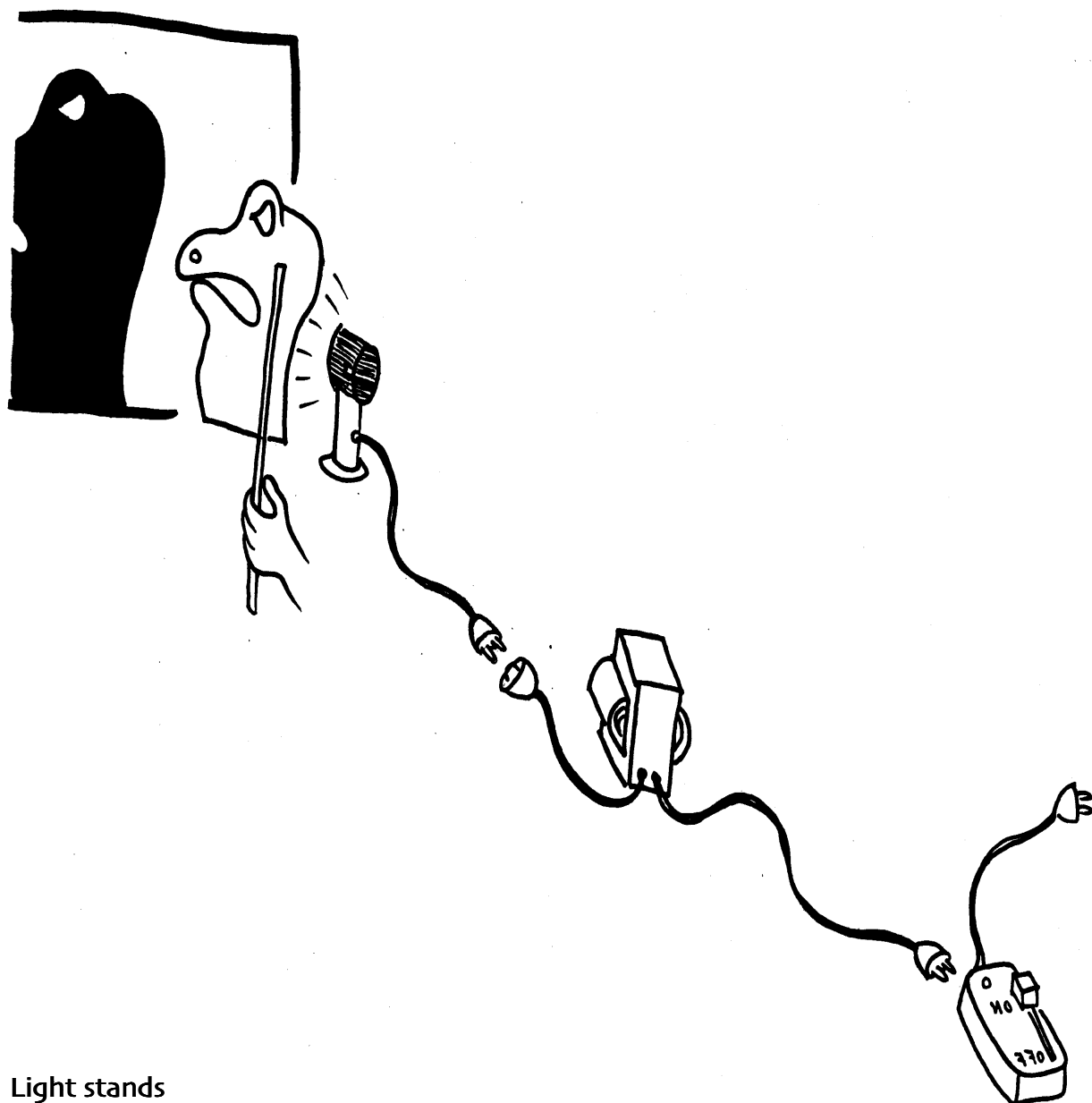
All lamp or lighting fixture stores carry halogen desk or floor lamps. Hardware stores sell work light and halogen bulbs. In using these lights, the reflective shields must be blackened in order to provide the single point light source (the mirror acts as a diffuser of light.) Painting the shields with **high heat** black spray paint works best.

WARNING: Regular black spray paint will not withstand the heat of the light and burn hot enough to start a fire.

The brightest small-filament lights currently available have 24 volt, 250 watt bulbs. Most stores do not sell these lights, so often times you must build them yourself. Specialty or industrial lighting stores carry the bulbs and hardware you need to power them. Lamp or hardware stores sell the fixtures to house the bulbs, wires and wire connectors.

There are three major components to a 24 volt light:

1. **Light source**- your bulb is placed inside a 2-prong light socket which is run by wire through your lamp housing and ends up as a male plug. The shield for your light must be blackened. The male plug of your light is connected to the female outlet of a transformer.
2. **Transformer**- converts regular wall outlet electricity to power the high voltage bulb. Without it, you will continually blow out the bulbs. The transformer's male plug is then connected to the female outlet of a light dimmer or switch.
3. **Light dimmer/switch**- regulates power to light. Light dimmers are great for experimenting with fading in or out of scenes and regulating brightness. Floor dimmers work best. The dimmers' male end is connected to any regular wall socket.



Light stands

What type of stand you use to hold your lights depends on whether you want them to stay stationary or if you intend to move them by hand during the show.

For lights that stay put, it is easy to tape them to an adjustable microphone stand.

If you want to move your lights manually, adding a base and a handle to your housing makes them easy to place on a table or the floor.

Dimmers

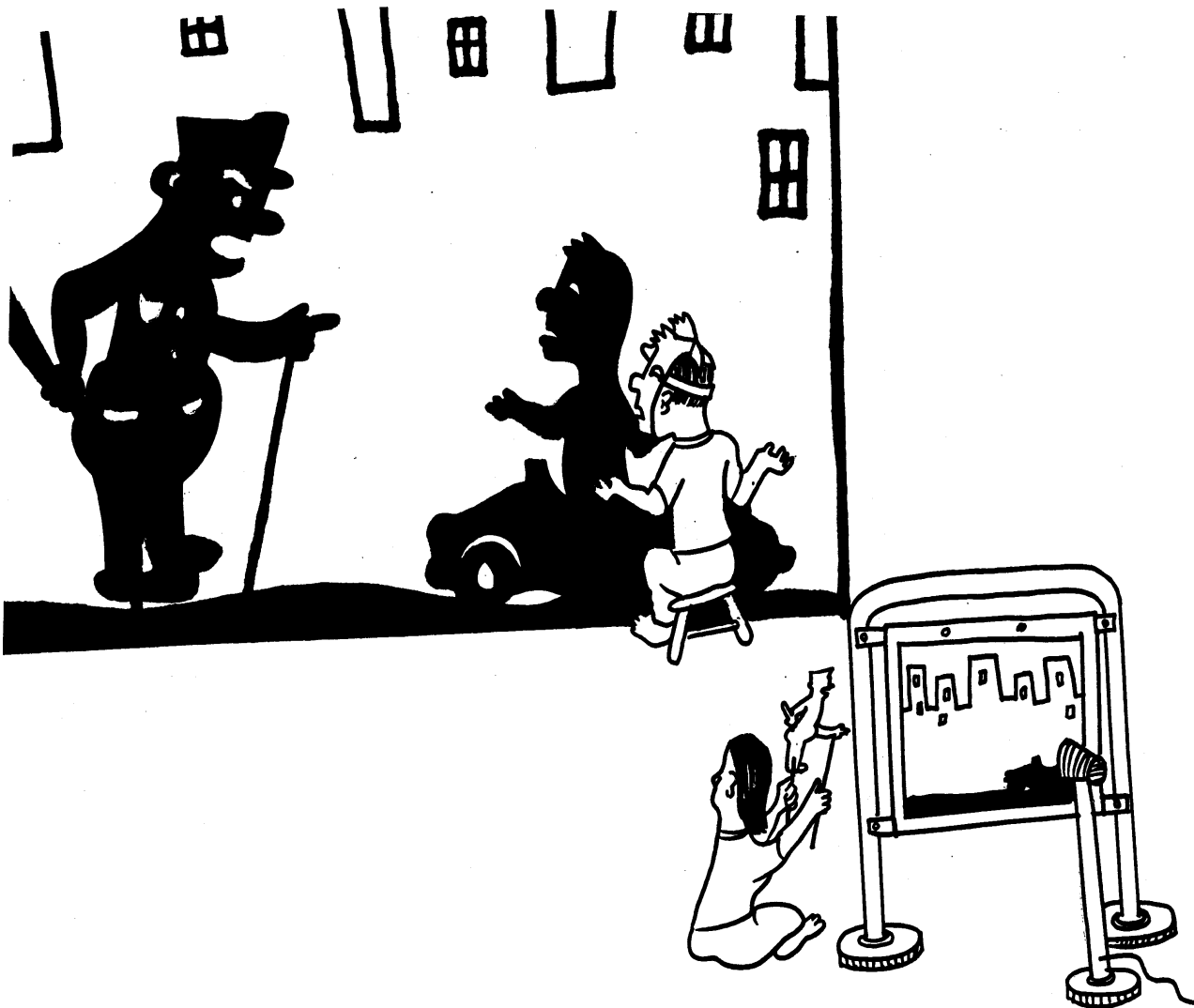
A backstage table with a row of dimmers taped down on it is an efficient way to set up the dimming system for your lights. Usually the transformers rest on the floor to keep cables from getting tangled. The cables that run from the transformers to the lights can often run to about 20', so it is crucial to have thick, high-grade cable from a spool. You can also use thick industrial extension cables which are available in hardware stores.

PLAYING IN THE SHADOWS

Once you have your screen, lights, sets, and puppets in order, you are ready to jump right in between the light and screen and cast shadows.

Every element described so far is dependent on the physical demands of your space. With trial and error, everything can be adapted to suit your special conditions. The rest is entirely up to you.

The greatest teacher in shadow theater is the screen itself. Only if you try your ideas out on the screen can your ideas for shadow puppets actually work.



Basic Elements

The first exercise in playing with projected shadow theater is to place yourself in front of a light and watch your own shadow. If you are with a group of people, make everyone jump in and find their shadows. In minutes, someone or other will start developing some sort of relationship between their shadow and someone else's. Grade school kids, for instance, love making dog and bird shapes with their hands. Then eventually some kid (who is usually the class clown) comes in with a bigger dog or bird and scares the rest of them off the screen.

One of the key elements you'll find in playing around is that **the closer you get to the light, the larger your shadow becomes**. Conversely, as you step further away from the light, your shadow gets smaller. In playing with this difference in scale, you will discover a whole world of possibilities that is often hard to come by in traditional shadow theater.

Exercise One

1. Have a friend stay large on the left side of the screen
2. Place another person to the right but have him or her stay small.
3. Direct the actor making the larger shadow to pound at intervals with one fist on the head of the smaller shadow and have that person react. (The reactions should be overexaggerated movements.)
4. After a couple of minutes of this routine, instruct your shadow casters to switch scale as slowly as possible. The character that was once beaten upon now has the upper hand (literally) and the oppressor is now the victim.

An exciting aspect of this demonstration is that a physical connection and a dynamic tension between two characters were made without the actors actually touching each other. Slowing down the speed of the movements helps the audience read the action better. **Rapid movements tend to appear blurred on the screen.**

Exercise Two

1. Take two actors with masks and place them on opposite sides of the screen but have their shadows stay the same size.
2. Place another actor on the left side off-screen and another on the opposite side, also off-screen.
3. Instruct your masked actors to enter into the screen one at a time and have your two off-screen actors make vocal noises or nonsense words only for the character that is on their side. Gradually the masked actors help motivate the vocal actors with their movements and they, in turn, give some direction to the masked actors.
4. Let this run for a few minutes, then switch with other members of your group.

Adding sound to a shadow character grounds it, gives it meaning. Putting words to your characters gives them motivation. Having an actor stop performing and observe on the audience side of the screen helps in teaching what the shadows actually look like.

Exercise Three

Set up

This exercise requires at least 2 or 3 lights and, as an option, 3 frame holders with sets in front of the lights.

The lights need to be spread out in your backstage area enough so that if an actor is in front of one light, he or she will not be caught in the light of another. By doing this, you will discover, depending on your space, that there is an area between lights in which actors can stand and not be seen on the screen. You can use this blank area as a place for sudden entrances or exits.

1. Place an actor or puppet close in front of each light and/or set.
2. Have your light technician (the person dimming) turn up only the stage left light.
3. Direct an actor to enter and exit slowly on one direction at mid-stage from stage left to right.
4. As the actor crosses from one light to another, have your light fade out from where he or she just left and simultaneously fade in to where the actor is entering into.
5. You can break down the timing of this movement by having the actor stop at certain points in front of each light and interact with the character that is placed within it.

In blocking this exercise, make use of the blank space between lights for other characters to come in and out as well. As the walking character progresses, you will notice that in each light change, this character's position on the screen is different. It is the varying angles of the lights that causes this.

Exercise three can be altered to include your set frame holders. Make different scenes on each light and have your actors interact with their backgrounds. In a castle set, for instance, a King character can be placed on a throne by having an actor sit on a chair and blocked in a way that will correspond to cutout of a throne on your set frame.

Exercise Four

With cinema in mind, this exercise deals with the notion of a "split screen" on your shadow screen.

1. Block the left half of your Stage Left scene frame with cardboard.
2. Cut out half of a tree shape and attach it to the end of the Stage Left cardboard.
3. On the Stage Right scene frame, block the right side and attach the other half of a tree.
4. Align the two tree ends on your screen- you should have one tree at center screen.
5. Place an actor with a mask in the middle between the two lights, upstage enough that his or her shadow is not visible in screen.
6. Position a puppeteer in front of Stage Left scene with a puppet and have him or her make a puppet enter from Left slowly.
7. As the puppet "disappears" into the tree, direct your masked actor to enter slowly from Left to Right.

If successfully enacted, what you see is an instant transformation from a puppet character to an actor. Timing the movement of puppet and actor is crucial for this trick to be convincing. Practicing slowly helps to discover the right match of movement and scale.

This concept of “split screen” can be applied to a myriad of theatrical possibilities. With a horizontal split, you can have a colony of ants shown on the bottom half of your screen busy borrowing tunnels, while above ground, on the top half of the screen, rabbits frolic through tall grasses. This technique simply relies on blocking one section in order for another light to show a separate action.

Story Development

A vast ocean of stories, characters, and settings is at your disposal in creating stories for shadow play. The most exciting and rewarding approach is collaboration. In a school setting, creating a shadow play can be incorporated in a classes drama, writing, and visual art curriculum at any grade level. Getting your students involved in every aspect of production is essential to make this art form meaningful. Have fun, and learn from watching the screen.

Conclusion

Projected shadow theater is a dynamic theater form that blends ancient forms with new ideas and technology. The techniques described within this manuscript have been developed by ShadowLight Productions over countless hours on a dark rehearsal stage. What is crucial to exploring this art form is your participation and imagination. Having seasoned theater professionals and/or neophytes new to theater manipulating puppets, dancing with masks, or running to change sets makes this theater form very physical. But through sweat and hard work, we discover the power and magic that only shadows possess.

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