EDUCATION & RESOURCES PACK

LIFE OF PI

PUPPETRY IN THE SPOTLIGHT

PUPPETRY IN THE SPOTLIGHT

Life of Pi utilises puppets all the way through the production. The information and activities below are designed to help you evaluate what you have seen and to suggest some ideas that you can use in the studio to experiment with your own.

We talked to Finn Caldwell (Puppet & Movement Director, and Puppet Designer), Nick Barnes (Puppet Designer), Scarlett Wilderink (Richard Parker – Tiger Heart) and Fred Wild (Tiger Head) to give us an insight into the use of puppetry in the show.

Susie Ferguson, for Mousetrap Theatre Projects, 2022
With thanks to Finn Caldwell, Nick Barnes, Caroline Bowman, Scarlett Wilderink and Fred Davis

STARTING THE PROCESS

Photo by Johan Persson

Finn explains, “When we start looking at a show that will use puppets Nick and I will work out what the puppet will need to do in the show. and crucially, how it contributes to the narrative. The puppet must have a strong sense of character”

With Richard Parker, Finn and Nick needed to identify all the different movements that the puppet would need to do to convey the character of a tiger. This includes jumping, swimming, existing within the boat, attacking the goat and climbing.

Richard Parker needs to be scary. In Western performance, puppets don’t tend to be scary, but this puppet needs to communicate a tiger’s strength, weight and power. He needs to be frightening both for Pi, and for the audience. There are moments where he is relaxed, and there are moments when he is tense and powerful.

There were two periods of research and design (R&D) in which a small team used simple cut out wooden shapes, and experimented with how many people would be needed to operate them, how they should be constructed and what their scale should be. Designs are created on CAD (Computer Aided Design) and CAM (Computer Aided Manufacturing) software. Puppets are created using a CVC milling machine, a 3D printer and through laser cutting.

CONSTRUCTION

Photo by Johan Persson

"The novel gave us a lot of information, including what people felt and thought about the tiger. That was our starting point."

Nick Barnes explains, "We used Plastozote to construct the puppets. Richard Parker is made to look weather beaten and like driftwood, but the audience will consistently see the form of the tiger. The armatures are made from aluminium, so they're lightweight, and the joints have bungees which provides resistance and pull the limb back to its starting point after a movement. The puppets are made of laminates of layered plywood and aluminium: they need to be hard wearing, but lightweight."

The orangutan is more like a traditional Japanese Bunraku puppet with a flexible nylon rod creating its rib cage. It's a complicated structure so it needs strength and support. The puppet is operated by three people. The hyena has two people inside it to operate it, whilst the giraffe only needs one operator. The operation of the giraffe is more like object puppetry, whilst Richard Parker and the orangutan are operated by three people and are the most complex puppets in the show.

The other puppets in the production are:
- The goat
- The zebra
- The sea turtle

Both Finn and Nick have backgrounds in performance as well as design. Therefore, they are aware of the many challenges that the puppeteers will face when using the puppets to bring the characters to life.

THE RULES OF PUPPETRY

Finn says, “The most important thing to remember is that the audience needs to believe the puppet is alive. If that doesn’t happen, everything else is lost. Puppets appeal to the audience’s sense of play, and there is a silent contract between the audience and the puppeteers to suspend all disbelief. It’s the same as two children agreeing to play with a toy. There’s an unspoken agreement that the object is alive.”

There are seven rules for animating a puppet, but the three most important ones are:

- **Breath:** Being able to see and hear a puppet breathing allows the audience to believe the animal is taking oxygen. We need to see their lungs inflating and deflating. Breath also tells us about emotions: fast breathing communicates tension or fear, whilst slow breathing tells us the character is relaxed and comfortable.

- **Focus:** It needs to be clear what the puppet is looking at – where its eye line is. It needs to be as precise as the way humans observe and focus on things. The audience stops believing in intention and thoughts if the eyeline is not clear. When it’s successful, we start to believe in the puppet’s thoughts, desires and intentions.

- **Weight:** The body of the puppet is just as important as the spirit and the mind of the puppet character. We need to convince the audience that this constructed object is actually a tiger, for example. The puppeteers must convey muscularity, weight, and gravity.

A specific example of this would be when Richard Parker jumps. The puppeteers could just lift and throw it! However, to help the audience to believe in it we have to include the preparation for the movement (bending or squatting down, for example) before releasing into the air. When an animal lands on a hard surface, the muscles will compensate by bending. Our puppets need to do that too. Its preparation and recovery, as well as the action of being in the air that’s important.

STUDIO ACTIVITIES

Photo by Johan Persson

Puppetry is the process of animating an inanimate object. You can therefore create fantastic effects with everyday objects such as books, shoes, toys, pieces of clothing and even pieces of paper. **The most important thing is to commit to making the object live.**

Object puppetry – flocks of birds

Find a mixture of books – hardback, paper back, notebooks, various different colours and sizes etc. Open a book near its centre point and try to simulate the flapping of bird wings through manipulating the book. Your audience will know that it is not really a bird, but audiences enjoy the abstraction of using one object to represent something else. Working individually, experiment with creating a 'flight path' for your bird. Consider what type of bird you are trying to create. Is it a delicate one, or a strong and intimidating bird of prey?

Once you have done this, find some videos showing bird murmuration – where the fly in large groups and create a shapes in the sky. It can be a very beautiful sight. Once you have noted the movement patterns, and chosen one you wish to try and create through puppetry, work in a group of up to 10 people to create a murmuration with your book puppets. Who leads? Do they lead all the time? How will you use levels? When and how will you change direction? Remember that you will also need to work closely with your ensemble to agree where the eye gaze should go, and what vocalisations might be needed.

Hoodie puppets

Find a normal hooded jumper. You are going to create a puppet of a child using this piece of clothing. The arms are already formed: you could knot the cuffs to create 'hands'. The hood can be scrunched or folded to create a head that matches the scale of the puppet you want to create To create the legs, hold the two outer corners of the bottom of the hoodie. Twist both corners away from each other so that they start to create 'legs'. Keep twisting until the bottom half of the hoodie forms legs that are in proportion to the arms and head you have created.

Depending on the size of the hoodie, you will need from three to five people to operate the puppet. Using the three principles outlined earlier, can you:

- **Make the puppet breathe?** Where does the tension and movement need to be? Do you need sound to make it more convincing?
- **Make the puppet walk?** Watch one of your group members walk across the room, and note how opposition works (we swing our right arm forward as we walk on our left leg, for example). Note how feet make contact with the ground. How should the ensemble member's co-ordinate their movements so that the audience focus is on the puppet at all times? Make sure your puppet doesn't start floating, rather than walking!
- **Create a short sequence of action?** For example, introduce a ball in to the sequence (either a real one, such as a tennis ball, or a scrunched up piece of paper).
- **Create an interaction between two puppets.** What happens if you add a second hoodie figure? How do you need to collaborate to ensure that the puppets are equally convincing, and which one we need to look at, at any given moment during their interaction?

Remember that in Life of Pi rehearsals, puppeteers work together for significant lengths of time. They learn to anticipate each other's movements. It will take time for you to develop those skills so rehearse with purpose and use the three main principles to keep you focussed as you refine your work.

Shadow puppetry

Research Indonesian shadow puppetry. You will find beautiful puppet designs and performances which are created using screens, and well-defined, jointed figures on rods.

Create your puppets by finding clear outlines of the animals in Life of Pi. Cut them out on stiff cardboard. You will see that the ornate Indonesian puppets are very intricate – this might come later as you learn the basic skills of shadow puppetry.

Your puppets should have jointed limbs – these can be created using split pins – and need to be mounted on rods (you can use kebab skewers, pencils, chopsticks or other thin rods).

Use a sheet or thick gauze, and light it from behind with theatre lights, desk lamps or torches. **Be careful that your sheet does not touch the lamps. Your teacher may also provide you with a special spray which helps fire-proof fabrics and other materials.**

Once you have created your different shadow puppets, storyboard the images that you wish your audience to see. Remember that in shadow puppetry it is easy to overcrowd your 'screen' so be clear about the key moment in each scene.

Once you've choreographed your puppetry, you can experiment with sound effects, soundscapes and music to create mood, atmosphere and emotion for your performance.

Designing Puppets or Masks for *Life of Pi.*

The following extracts from the novel can guide you in your initial ideas for puppetry designs. You could also create masks for actors to wear – either full or half masks. There are acting exercises in Pack 3 that can be supported by mask designs.

Remember that Yann Martel and Nick Barnes both say that the audience don't necessarily need every piece of information spelling out for them: they are capable of filling in any gaps. Less is often more.

Using the 2018 Canongate edition of Life of Pi, look closely at the way in which the animals are described on the following pages:

The zebra and the hyena: p. 109. The hyena is described further on p.115-116.
Orange-Juice, the orangutan is described between pages 129-131.
Richard Parker is described on p.151.
Other animals that populate the zoo are briefly mentioned on pages 36-37.

THE PUPPETEER

Photo by Johan Persson

The majority of the performers in this production operate at least one puppet during the performance. When you are watching the production, consider the following points:

- In the same way that an actor uses their body, a puppeteer does too. Not only do they move the puppet, but they also amplify what the puppet is doing.
- Puppeteers need strong vocal and breath skills. Each animal in Life of Pi has its own set of vocalisations, which have been created in rehearsal and based on considerable research. Without breath, the puppet cannot be animated and will not encourage the audience to suspend their disbelief. Where there is more than one operator for each puppet, they all need to co-ordinate with each other in their breath and sound.
- Successful puppeteering requires a performer to have a responsive body, which is strong and flexible. The performer must use their physical ability to communicate character and story – it is not simply about manipulating an inanimate object.
- It can be helpful for puppeteers to have a background in physicality, whether through acrobatics, dance training or even martial arts – it all helps them understand the precision that's needed.

All of the jobs in the show are physically difficult – head, heart and hind. 6 puppeteers in the show cover all the puppets. Pretty much every actor in the show does some kind of puppetry.

PERFORMING WITH PUPPETS

Photo by Johan Persson

Fred Wild says, “We all had to do quite intense weight, endurance and stamina training in order to be able to puppeteer the Tiger effectively. We achieved this with thorough physical warm-ups, wearing ankle, wrist or chest weights while rehearsing, and by just using the puppets for as long as we could bear to in each rehearsal session. It was essential to build the required muscle as early on as possible so as to reduce the chance of injury and to facilitate us to be able to rehearse the show and not have to stop for a rest because of fatigue.”

Scarlett Wilderink continues, “We also have a physiotherapist as part of the production team who works with us, focussing on prevention – stopping injuries before they happen. Our physio also works with a nutritionist so it really is a holistic approach to us keeping well and safe.”

Developing Your Skills
Finn is joint Artistic Director of Gyre and Gimble. You can find more about their work here: www.gyreandgimble.com

The Curious School of Puppetry also run short, and often online, courses.
www.curiouspuppetry.com/events

Little Angel Theatre run a variety of accessible courses:
www.littleangeltheatre.com/take-part

MAKING PUPPETS

Photo by Johan Persson

If you're working with a class or a club to make puppets, consider investing in the following items:

- Masking tape
- Newspaper
- Brown paper – you can buy it in rolls which is often cheaper than smaller packets
- Googly eyes
- Split Pins to help create joints
- Pipe cleaners
- Glue, for example PVA which dries quite quickly
- String
- Wire

You can also collect:

- Cereal boxes and other pieces of cardboard
- Kebab skewers, chopsticks or thin cane
- Clean milk cartons of different sizes
- Yoghurt pots
- Clean soft toys
- Jumpers, hooded ones are particularly good!

PUPPETRY 'TOOLKIT'

A SHOPPING/RESOURCE LIST FOR BUDDING PUPPET MAKERS IN THE DESIGN STUDIO OR WORKSHOP, BY NICK BARNES

DESIGNING PUPPETS

Choice of Materials
The choice of materials you use for your puppets will be the result of three factors: the size of the puppet, the look of the puppet and your budget.

From these three considerations a list of factors becomes important: weight, movement, robustness, aesthetics, durability, cost.

Think of a traditional stringed marionette puppet. Most likely it will have been carved from wood. If the puppet is small then the weight of the wood will not be an issue for the puppeteer, it will more probably aid in its operation, as a marionette relies on gravity for its movement. The size will likely mean that the cost of materials will be less. If you are building a large walkabout puppet supported on a backpack, wood will almost certainly be too heavy to carve body parts, and for reasons of weight and cost you may want to use bamboo, withies and tissue paper – less expensive materials for the size of the puppet. If you have a bigger budget, you might consider using plastazote.

Remember also that natural materials can be a more environmentally friendly way to go. Check that wood has come from a responsible source and that it is FSC stamped. (FSC certified wood comes from forests managed in an environmentally appropriate, socially beneficial, and economically viable way).

As a designer part of your role is to be conscious and thoughtful, about both aesthetics and process. It is also important to think about what happens once the puppet has fulfilled its role- will it be stored complete or dismantled, or will it be recycled or scrapped?

Puppet Design
Puppets are performance objects, whether for theatre, film, TV, events, or any other prupose and there are puppet traditions in most cultures around the world. How a puppet looks varies from hyper-realism to highly abstracted depending on the project.

Puppets for theatre usually benefit from some level of abstraction. A theatre audience enjoys being asked to use their imagination and to fill in the gaps when a puppet is not completely realistic to look at. They are often at their best if the way they look adds to the story or themes of a production and the overall design of the show. We don't mind seeing the puppeteers or the mechanics of the puppet if the direction and design support this.

Equally there can often be practical or economic factors you must work around when designing. Perhaps you only have one puppeteer for an animal which has four legs and needs to bound realistically around the stage. Maybe your budget is too small for the number of puppets in the production. These factors need not result in a negative impact on the design. Often the more restricted you are, the more creative and interesting the result. If you can make a bird only using spoons, it's going to take some figuring out, but the result will be something that looks both like a bird and like a bunch of spoons, which excites our imagination.

First Steps

Begin your design with a concept drawing of the puppet which captures its character and aesthetic. From this create a profile drawing of the puppet (ideally 1:1 scale) and a side view drawing. This will enable you to work out the internal structure (armature) and body shapes.

Remember though, design is not all done on paper, much of your puppet will be figured out by trying ideas in 3D, so test ideas by making prototypes. Keep handling these, and where possible ask a puppeteer to test what you have made. Use feedback to make the puppet work better and be prepared to cut bits away, shorten or lengthen parts, make changes to shapes or mechanisms. You may make something which looks beautiful, but if it can't fulfil its role in the show for which it is designed it is not going to be a good puppet!

Designing with CAD

Learning how to use a computer to help with design is potentially a worthwhile endeavour and as you get more proficient and move on to bigger projects it can help speed up making, is more precise for mechanical applications, and can make repeatable tasks and future modification easier. Used in conjunction with CNC milling machines, 3D printers and laser cutters, it offers many creative possibilities. There is free software available for most CAD applications, and some paid-for packages will offer free student versions. Fusion 360 from Autodesk is an excellent product design software package which has a free version for students and lends itself well to puppet design.

Movement

No matter how good your puppet looks, if it doesn't move well it will struggle to fulfil its purpose. In almost every case movement trumps aesthetics. If it moves well it is going to live in the minds of you audience far more than if it simply looks good but moves awkwardly. Always consider the puppeteer(s) as part of your tool kit and give them as much responsibility to bring your creation to life as you give your materials. If you use them well, they will take your inanimate object, and make it incredible. Consider how they will move their human bodies, and how they will take up space. The interface between puppet and puppeteers is usually handles. Design these to be comfortable and to help the puppeteer be in control without being too bulky or pronounced. Handles should be built strongly and connect soundly with the parts of the puppet they control.

PUPPET MAKING MATERIALS AND HARDWARE

Here are some materials and some of their applications in relation to puppet construction. Note- each material has its own set of qualities. Play to its strengths rather than trying to force it to work in a way which it is not naturally able to.

Large Scale Puppets

Bamboo
Used around the world as an alternative to metal scaffolding, bamboo grows fast and is incredibly strong and straight. Useful for making light-weight frames, for example you could extend upwards from a backpack which could form the basis of a large-scale figure. Note: when cutting use a hack saw or junior hack saw and put masking tape around the area to cut. Cut slowly, as it is prone to splitting, making the piece unusable.

Wicker Withies
These are bought in bundles. Used very effectively to make mid to large-scale, light-weight puppets, as well as other outdoor parade props like lanterns. The withies should be soaked, overnight preferably, to make them supple. They can then be bent into shape and left to dry. They can be joined with cord or twine (if you can get hold of a waxed cord this will allow the cord to do a lot of the work of holding the knots tight without using glue). A great a renewable resource, like bamboo it grows fast. It can be used to make wonderful organic shapes and can be used on smaller or larger scale projects. You may support the wickies on a more rigid bamboo frame or you could use wood or even aluminium depending on the how the puppet will be used.

Wet Strength Tissue Paper
This is a material that can be used with wicker to make light weight large forms. It will dry to a translucent finish, so a light source can be placed inside the form. You will need to build up several layers for strength.

PVA Adhesive
Useful for many things. Mix in equal parts with water to make it go further. Use with tissue paper to attach to withies (completely coat each side to make sure it laminates well). Also good for papier-mâché.

Plumbing waste pipe (rigid/various diameters)
A good way to build large scale forms. Unlike bamboo it is a uniform size, it doesn't taper. Can be drilled through, easy to cut (hack saw), and is readily available. Available in white, black or grey, you will need to prime the surface to help the paint adhere if you wish to paint it a different colour.

Barrier pipe (flexible)
Bought as a continuous reel, larger quantities are cheaper. It can be used in a similar way to withies except it doesn't need soaking and because it is on a roll it may need less joints. Being rolled does mean it has a natural curl, which can take some wrangling if trying to use it on larger forms, you may have difficulty getting it completely straight, which can lead to it kinking. Barrier pipe can be drilled and held together with machine screws or cable ties.

Chicken Wire
A quick way to make self-supporting forms. It comes on a roll but can be bent into shapes and then covered. We never use it as it is heavier than other materials. You will need to wear gloves as the ends of the wire can scratch. Cut with side cutters. Quick, easy to get hold of and relatively cheap.

Single wall corrugated cardboard sheets
These are very useful! One of the basics of any design process is working out the size of the puppet you are making. Draw onto cardboard, cut it out, and check the scale. Also useful for making prototypes or even finished puppets. Cut with a scalpel on a cutting mat and use a hot glue gun to join pieces together. Great for multi-faceted forms.

Timber
Source from a hardware shop. A variety of lengths available and often referred to by their imperial dimensions (i.e. 2 by 1 - two inches by 1 inch). Like bamboo (although more expensive) it can be used to quickly make frames but is more uniform to work with. Also useful for making joints and handles and other parts of mechanisms and armatures.

Gaffa tape
Very strong tape useful for a quick fix for prototypes or mock-ups. Won't last forever and can leave sticky residue on materials over time.

Small Scale Puppets

Papier-Mâché/Brown Kraft Paper
A great way to make a light-weight head. Sculpt a head in clay, and then cover with layers of papier-mâché. Lastly remove the clay from the inside and tidy up any edges. Papier-mâché technique: tear (don't cut) the paper into small pieces. This is so the fibres are exposed and to avoid straight edges in your finish. Pieces should be relative in size to the area that is to be covered i.e. small pieces for detailed areas such as eyes and noses, larger pieces for simple areas without much detail. The aim is to get a nice smooth layer - try and avoid creases or bumps. Have a bowl of PVA and water in a 50:50 mix. Start with a neat (not watered down) layer of PVA and allow this to dry before adding layers. Scrunch up your paper to soften the fibres, brush one side with the adhesive and smooth the paper onto the head with more glue using a paintbrush so there are no air bubbles. Continue covering the head, overlapping the pieces of paper a little, allowing the torn edges to mesh with the paper beneath. Cover with three layers minimum. For larger heads or a stronger form use more layers but beware you may lose some detail from your sculpt.

Polystyrene
Polystyrene is a very lightweight rigid expanded foam. It can be easily sawn, carved or cut with a hot-wire, and is useful for large forms.

Styrofoam
Styrofoam is a lightweight insulation foam. When carved it has a fine texture and so can allow for far greater detail than polystyrene, although it is heavier, and so better for smaller forms. Never use contact adhesive with styrofoam or polystyrene as it will eat into the surface. Use Polyurethane expanding foam from a DIY store, epoxy adhesive or extra strong carpet tape. when carving stryofoam you can use a serrated knife, a rasp, and sandpaper. If carving a head, it is advisable to stick two pieces together with the seam running down the centre of the face. This will give a helpful guide when trying to make the head more or less symmetrical. Styrofoam creates a lot of dust, so always wear a mask. You might want to wear overalls and it is advisable to work somewhere without a carpet! A cheap and good alternative to buying blocks from art or model shops is to use off cuts of similar materials from a building site - it might have silver foil laminated on one side and be a different colour, but it is more or less the same thing and potentially free!

Plastazote
This is a fine textured flexible foam sold in sheets of different thicknesses, and available in different densities. Puppet makers tend to use LD33 (33 kg/m3). It is usually black or white, but it is available in certain colours. You can either carve it like styrofoam, or you can make a pattern, cut the pieces out and assemble them into a lightweight hollow form. For detailed shapes cut thinner sheets with a sharp scalpel or craft knife. For sculpting larger blocks (which you may need to glue together yourself) use a kitchen knife, rasp and sandpaper. Plastazote is glued together using contact adhesive, or a hot glue gun. Plastazote has some excellent qualities for puppet making: it is very light, waterproof, and easy to carve and manipulate. It can be heated and shaped and can be painted (add a flexible PVA medium to your paint). To add strength to a patterned form, scrim it using muslin or power mesh and a mix of pva and water; allow this to dry completely before painting.

Upholstery foam
The foam used in furniture. This is easy to carve and cut with scissors or a knife. It's soft and holds a shape well but not pleasing when painted. It is heavier than plastazote or styfofoam, and not waterproof. It usually covered and can be used for 'muppet' style puppets, which often use patterned heads on top of a carved foam body.

Fabric and wadding/pillow or cushion filler
Use to stuff puppets made from fabric. You can make simple cheap puppet bodies from calico fabric and use this to bulk them out.

Bungee
Also known as shock cord. Comes in various thicknesses, always melt the ends as soon as you cut it and use a dab of superglue to hold knots. Good for looser, flexible joints. For puppets that are used for long periods it might need replacing, so always consider how a puppet maintenance person will be able to easily remove the old bungee and insert the new.

Webbing
Various widths available, either in polyester or cotton. Non-stretchy and useful for making strong joints and connections.

Milliput
Very robust two-part plumbing material which hardens when mixed together and can be shaped and sculpted into forms, like small hands, feet, beaks, etc. Can be drilled and carved when fully hardened.

Nuts and bolts
We tend to use 3mm and 4mm machine screws of varying lengths. Use with washers and locknuts, or normal nuts with super glue.

Tools
Some useful tools are listed here. You may be able to borrow these. If you are trying to build up a tool kit try to buy the best within your budget, good tools are invaluable!

- Keep your tools clean.
- Don't let glue get all over the outside of the container.
- Wash brushes straight away.
- Have a sharps jar for old blades (any glass jar will do, once full dispose of safely).
- Put tools away after use, keep your work area as clear as possible for clear thinking.

Scissors - (one pair for general use, 1 pair for fabric)

Scalpel & Blades - (Swann Morton, we use a number 3 handle with No.10A blades, and a number 4 handle with No. 26 blades). Make sure your scalpel blade is sharp, it should cut rather than rip. Good for cutting paper, card, plastazote.

Glue gun - we like the Bosch one as it has a good nozzle

Cutting mat - Keep clean. Store flat and out of sunlight and don't put hot drinks on it!

Needle nosed pliers - very useful for delicate work

General purpose pliers - for general purpose making!

Screwdriver (Philips and cross head)

Side cutters - for snipping

Mechanical pencil - always sharp!

Metal ruler - 30cm and possibly 1 metre

Tape measure

Kitchen knife (with serrated edge) - A cheap kitchen knife for carving

Super glue - Useful for gluing nuts and bungee knots

Cigarette lighter - For melting the ends of things like bungee or webbing.

Contact adhesive - Great for all sorts of materials

Glue bottle - A small plastic bottle with a nozzle- buy a larger tin of contact adhesive and decant into this and it will be so much easier to use, last longer, and is less wasteful.

Junior hacksaw - this is a small hack saw

Files (various shapes) - for taking burs off edges

Surform/rasp – for smoothing and shaping

Sculpting tools – for working with clay

It is also useful to have:

Power drill (& driver)

Socket set

Bench vice