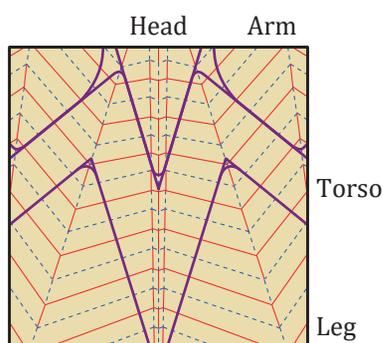


MUMMY

First time:  30cm/12"

- | | |
|--------------------|-----------------------|
| Paper preferences: | Recommended papers: |
| • Shapeable | • MC-treated mulberry |
| • Textured | • <i>Kami</i> |
| • Wetfoldable | • Foil-backed paper |

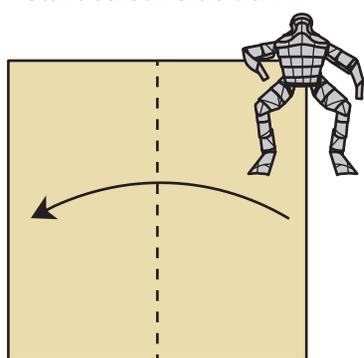


The model photographed above was wetfolded from paper with long natural fibres. Here are some tips for shaping your Mummy in this way:

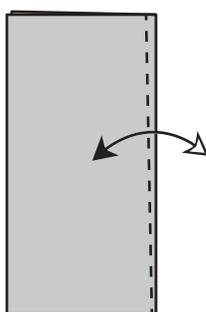
- Practice the model first with *kami* (dry folding).
- Use relatively large paper treated with methyl cellulose. Grey papers are relatively rare, but you can rub charcoal on white paper for a mottled appearance with greyish shades.
- Form an egg-shaped lump of tack and place this inside the head. Mould the paper around this lump, then remove it when the paper is dry.
- Work from the top down and let the paper dry before starting the next section.
- Prop the model up so it is standing while the feet dry. You can adjust the angles of the feet slightly afterwards if it doesn't quite balance.

Given the inexact nature of this Mummy, you might find that your paper doesn't look exactly like the diagrams in some places. Keep going anyway, and have fun adding your own details!

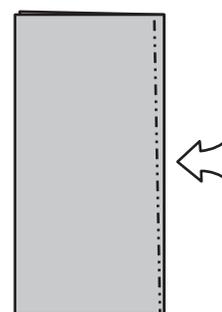
Start colour side down.



1. Fold the right half onto the left half.

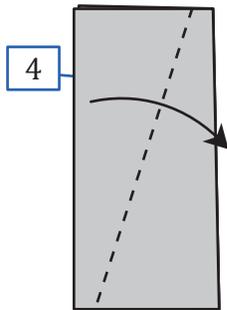


2. Fold and unfold a narrow strip. This will add width to the torso, so the gap at the top should be slightly bigger than at the bottom.

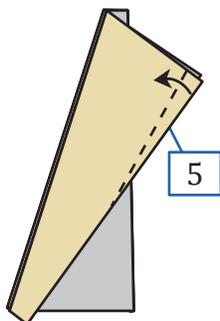


3. Reverse-fold.

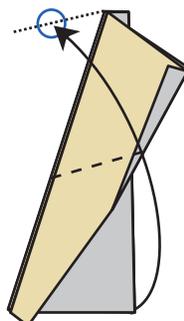




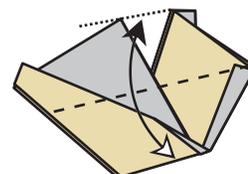
4. Fold the raw edge down and to the right. Repeat behind to match.



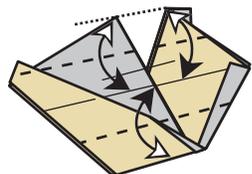
5. Fold the raw edge across to the left. Repeat behind to match.



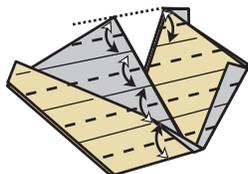
6. Fold the bottom-right corner to roughly where the circled point is.



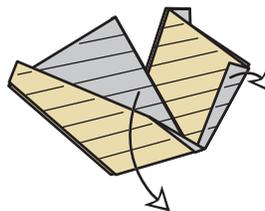
7. Fold and unfold firmly through all layers.



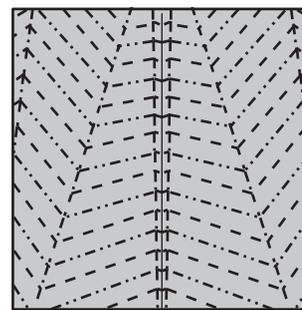
8. Fold and unfold firmly through all layers.



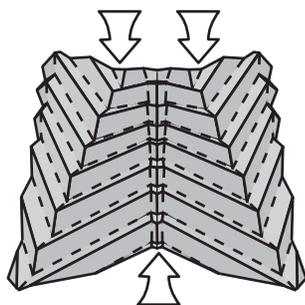
9. Fold and unfold firmly through all layers.



10. Unfold everything and turn the paper so the colour side is facing you.



11. Refold each fold-line as a mountain or a valley, as shown. These form pleats that won't lie flat until after step 12.



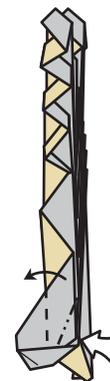
12. Collapse the paper flat.



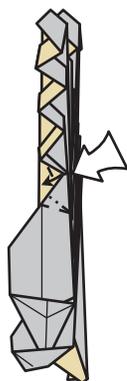
13. Squash-fold.



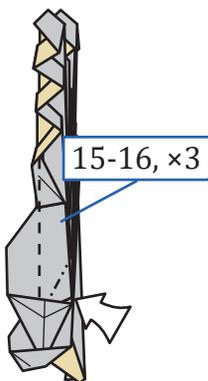
14. Squash-fold.



15. Spread-sink. It doesn't matter whether the resulting edge is exactly horizontal or not.



16. Squash-fold.



17. Repeat steps 15 and 16 three more times. Step 16 will be more like a spread-sink on each repeat.

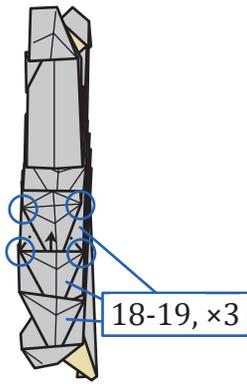


18. Carefully pull the paper out of the pocket and form a new mountain between the circled points on each side. The paper won't lie flat until after step 19.



19. Make two pleats and flatten the paper. Don't worry about mushing a little.

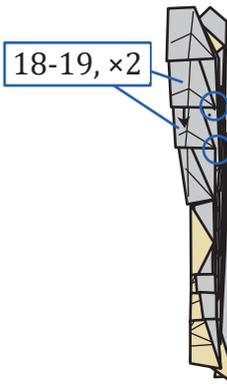




20. Repeat steps 18 and 19 three more times.



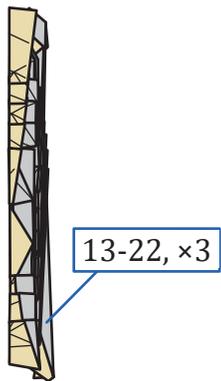
21. Fold one set of layers to the right.



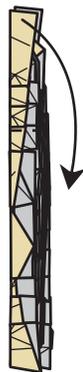
22. Repeat steps 18 and 19 twice on the right side of the paper.



23. Fold the layers to the right.



24. Repeat steps 13 to 23 behind.



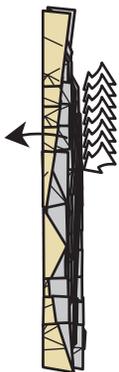
25. Gently bend the near flap down. The paper won't lie flat until after step 27.



26. Wrap the raw edge to the left so that it becomes vertical.



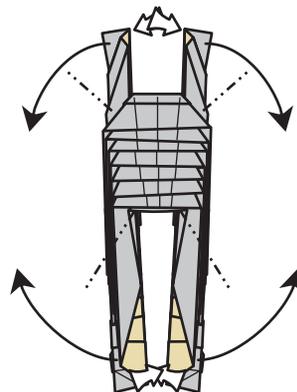
27. Fold the flap back up.



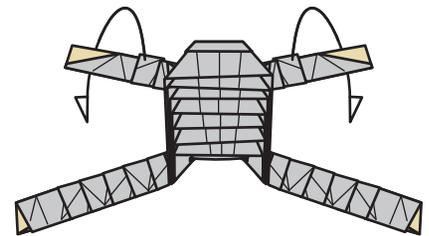
28. Fold half of the edges to the left and spread-sink the central layers symmetrically. You will have to pull the left and right halves apart a little.



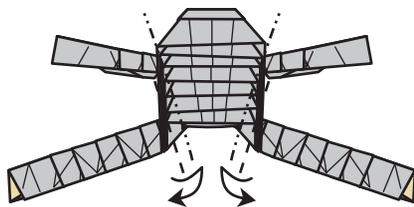
29. Petal-fold the raw edge underneath.



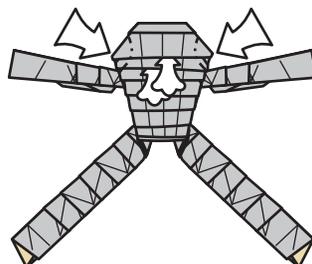
30. Reverse-fold the arms and legs to the sides so that the pleats are visible.



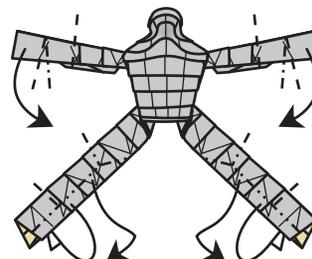
31. Mountain-fold the arms down.



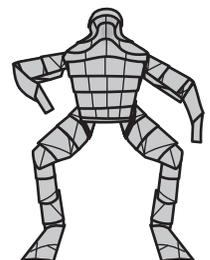
32. Pleat along the sides of the torso.



33. Push some paper down to make the head, neck, and shoulders.



34. Shape the limbs.



MUMMY

BEHIND THE DESIGN

What's the aim?

Generally speaking, I have three competing objectives when designing an origami model:

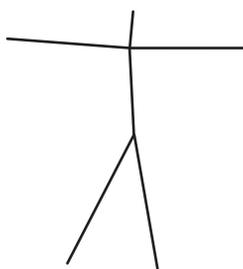
- Demonstrating a clever or novel design idea
- Making a striking or beautiful appearance
- Ensuring a pleasant folding sequence

In the *Folding Fantasy* series, this last point is the one I compromise on most frequently. Adding specific details and exploring technical design ideas usually necessitates a rather long and tedious folding sequence.

But this doesn't have to be the case. In fact, as noted in the *Cat's Behind the Design* chapter, working out how to make a simple sequence is an aspect of good design. In this chapter, we'll see a design idea that brings all three objectives into perfect harmony.

The subject

Let's imagine a reanimated, mummified corpse. It's human shaped, so we'll start by considering a tree for a human figure.



A tree for a generic human. A tree is a suitable approximation for the thin arm flaps and leg flaps, but perhaps not quite so suitable for the torso and head, because they are wide features relative to their lengths.

Compared with a generic human figure, we have two main differences with a mummy. On the plus side, we don't need details like facial features, fingers, or colour changes, since the entire model should appear to be wrapped in cloth-like strips.

On the other hand, the entire figure needs to appear like it's wrapped in cloth-like strips. So the main technical difficulty with this design will be patterning pleats across the entire surface of the model.

When we make thin flaps narrower, we often end up with several pleats running parallel along the length of the flap. In many subjects, these pleats can be used as extra detail, such as the Elf Princess's long flowing hair. But this won't look right here because the pleats of a mummy's wrappings should be perpendicular to the direction of these features.

We'll consider three approaches to making these cloth strip wrappings.

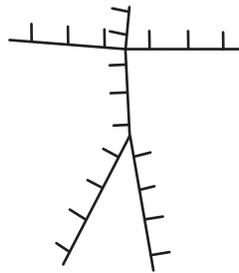
1. Pleating the whole flap

The most intuitive solution to getting pleats all over the figure is to make a humanoid figure, then pleat each flap. As we saw with the Phoenix and Scarab Amulet, the key problem with this is that the pleats go through all layers, resulting in thick, uneven flaps and wasted paper. We don't need to do this much pleating; all we need is to pleat the single layer of paper on the surface of each flap, so we'll try something else.

2. Tree Theory

If we wanted to follow tree theory exactly, we could decide on exactly how many pleats we'd like. For each one, we could make a circle (or perhaps a wider shape) for each leaf flap, with rivers separating the flaps.

In other words, what we need here is to make combs along every flap, including the river for the torso. The resulting tree looks suitably horrifying.



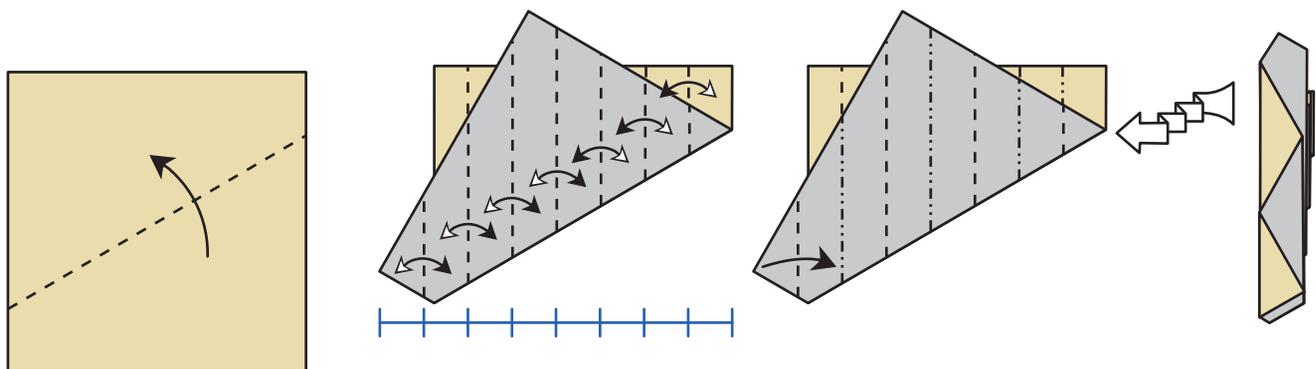
Potential tree for a mummy. The size and locations of the cloth strip flaps are just for illustrative purposes.

We could then move the flaps into an efficient arrangement. The resulting arrangement would probably be very hard to fold, because of the large number of flaps. Without any overarching structure, each pleat would need individual attention, which could lead to a model which is hundreds of steps long. This is arguably even more grave (pun intended) than the previous option. We'll try something else again.

3. The multi-sink method

Sinking is very useful for subjects with narrow flaps. They let us separate the design process into two stages: first we only consider the lengths of the flaps, then we sink to make flaps narrower, as appropriate. This works best with axial models. Even though sinks allow us to make things easier, we might still have to make a complex base to begin with. Let's extend this idea in an almost ridiculous way: we'll prepare a base by making only valley folds and mountain folds. Then we'll sink (or reverse-fold/valley/mountain, when there are two or fewer layers) across the entire paper to make the paper narrower.

As a quick example, follow the instructions below. Please do actually give this a go!

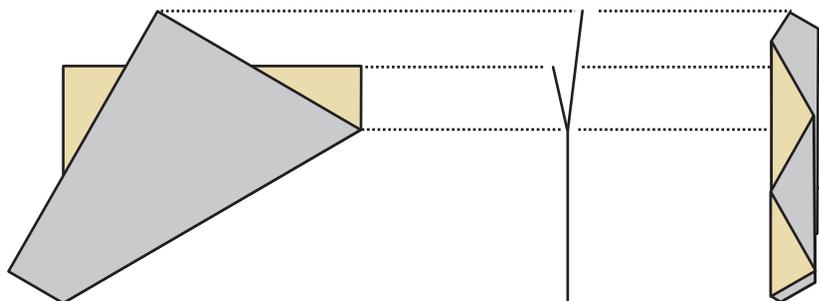


1. Fold roughly where shown.

2. Fold and unfold along vertical fold-lines to divide the total width into eighths.

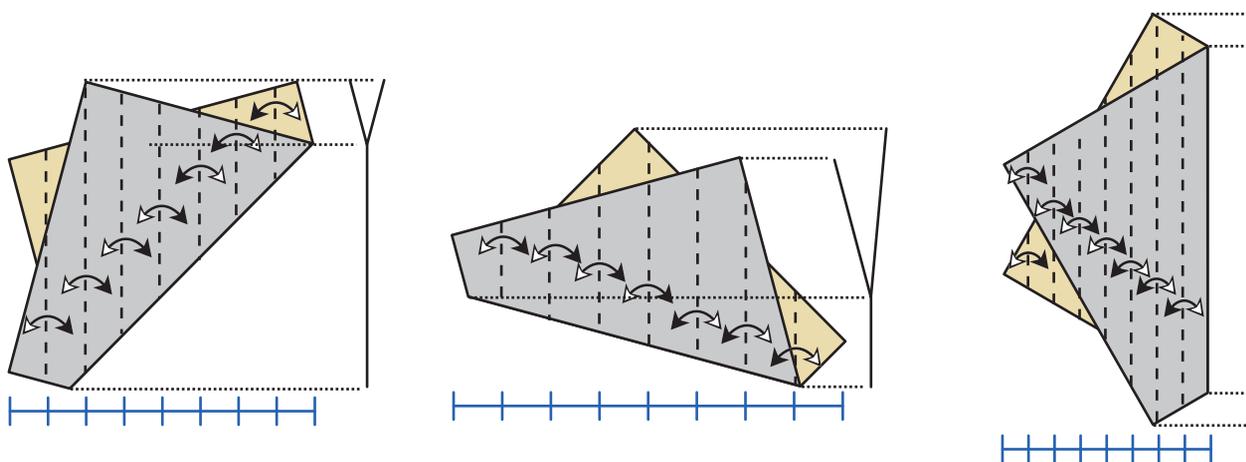
3. Reverse-fold in and out to narrow the paper without locking the near and far layers together.

What we get is a base with a thick flap at the bottom and two flaps at the top. The flap lengths can be seen easily from the initial fold.



Left: Initial fold. Centre: Tree. Right: Base.

But we didn't need to make the fold-lines in step 2 vertical. If we use a different angle, we obtain different trees. This is equivalent to rotating the paper before making the vertical fold-lines, which makes the properties a little more apparent.



Three more examples using the same starting shape, but different rotations. Notice the degenerate case on the right where there are no longer two flaps at the top.

And of course, we don't need to divide into eighths, or even use parallel fold-lines at all. You may like to experiment with the different options here.

What we notice is that the uppermost point along the initial valley fold-line determines the branch point on the tree where the two upper flaps touch. By turning the paper upside down, we can see that with a mountain fold, the bottommost point along the fold-line determines the branch point.

Meanwhile, each flap tip comes from the furthest point from the branch point. This means that some rotations will not contain every potential edge of the tree – see the image on the right above.

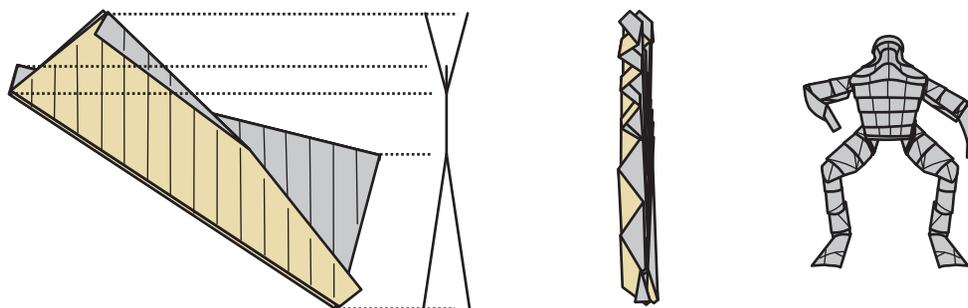
What's the point?

While this method is quick, it's not normally very useful. We can see that some rotations above give short flaps; this usually indicates wasted paper. However, where is the wasted paper going? For each flap, the excess paper is spread in uniform pleats along the length of the flap, which is exactly what we need to make a comb!

In practice, the best way to make each comb is by spread-sinking along each flap. The rotations that yield short flaps generally make combs with long leaves which are close together, which is exactly what we want for a high-density pattern. So the rotations that seem least efficient are most effective in this case!

This means we can easily create the pleats needed for the mummy's cloths. What's more, because there's no underlying design geometry, the pleats are naturally disordered.

So all we have to do is fold more complicated starting patterns to find varied trees. In particular, we can quickly experiment to make a tree with humanoid proportions for a mummy.



Initial folds, tree, base, and folded model of the Mummy.

Once we've applied the multi-sink method, we spread-sink the pleats and pose the model by moving the limbs. Rather than being tempted to add lots of shaping steps, the sequence on page 143 (steps 31 to 34) is deliberately brief. This emphasises the simplicity of the idea and gives an opportunity for the folder to be creative and do things their own way. In fact, this model is perfectly suited to honing one's shaping skills:

- An animated mummy is dishevelled and the cloth strips look best when they are raggedy and uneven
- As early as step 2, the folder makes their own choices
- The sequence is short, so it can reasonably be practiced multiple times

Post mortem

I'll let you decide how effectively this model fulfils the subjective aims listed at the beginning of this chapter. Looking quantitatively though, the final sequence for the Mummy has an astonishingly low number of instructions, but the actual folding time is longer than a typical model with a comparable number of steps. This shows how much folding information is compressed by this idea.

One downside to this method is that every flap has pleats along it (or wastes this potential paper). For many subjects with patterning, this isn't desired. However, it would be interesting to see this method incorporated into other structures. Parallel pleats should make a seamless transition into box pleating or hex pleating, but this may undermine the goal of a simple folding sequence. I leave you to experiment to see what unique models you can make for yourself!