Spread Hex Tessellation

This is the first hexagonal fold that I ever made. I was attempting to fold triangles as fish scales for Robert Lang's Koi, and somehow I ended up with this instead. I think I started going downhill from this point into tessellation madness!

The place to start with this model is the center hexagon; crease it and all the pleats around it, and twist them to make a central hexagon "plateau". After that, you fold the next 6 hexagons in a very similar fashion. This pattern can be repeated to an infinite degree, and is very easy to fold once you get the hang of how it goes. The catch (as always) is to be as precise as possible. This is a great model to start with as a base for further tessellation exploration. Once you've accomplished the crease pattern, try folding it yourself out of normal paper!

My crease pattern is a little different, in that it's a crease pattern of the bottom of the paper. Additionally, the valley folds are indicated by RED lines, and the mountain folds are shown by BLUE lines. I know this contradicts common practice, but I felt that the dotted/dotted-with-dashes combination was just much too confusing with this many lines.

Everything I release will be available online at http://www.origamitessellations.com.

-Eric Gjerde

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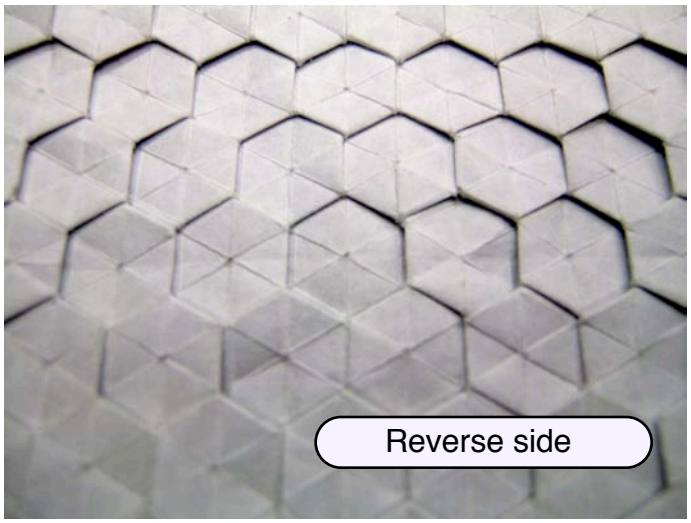

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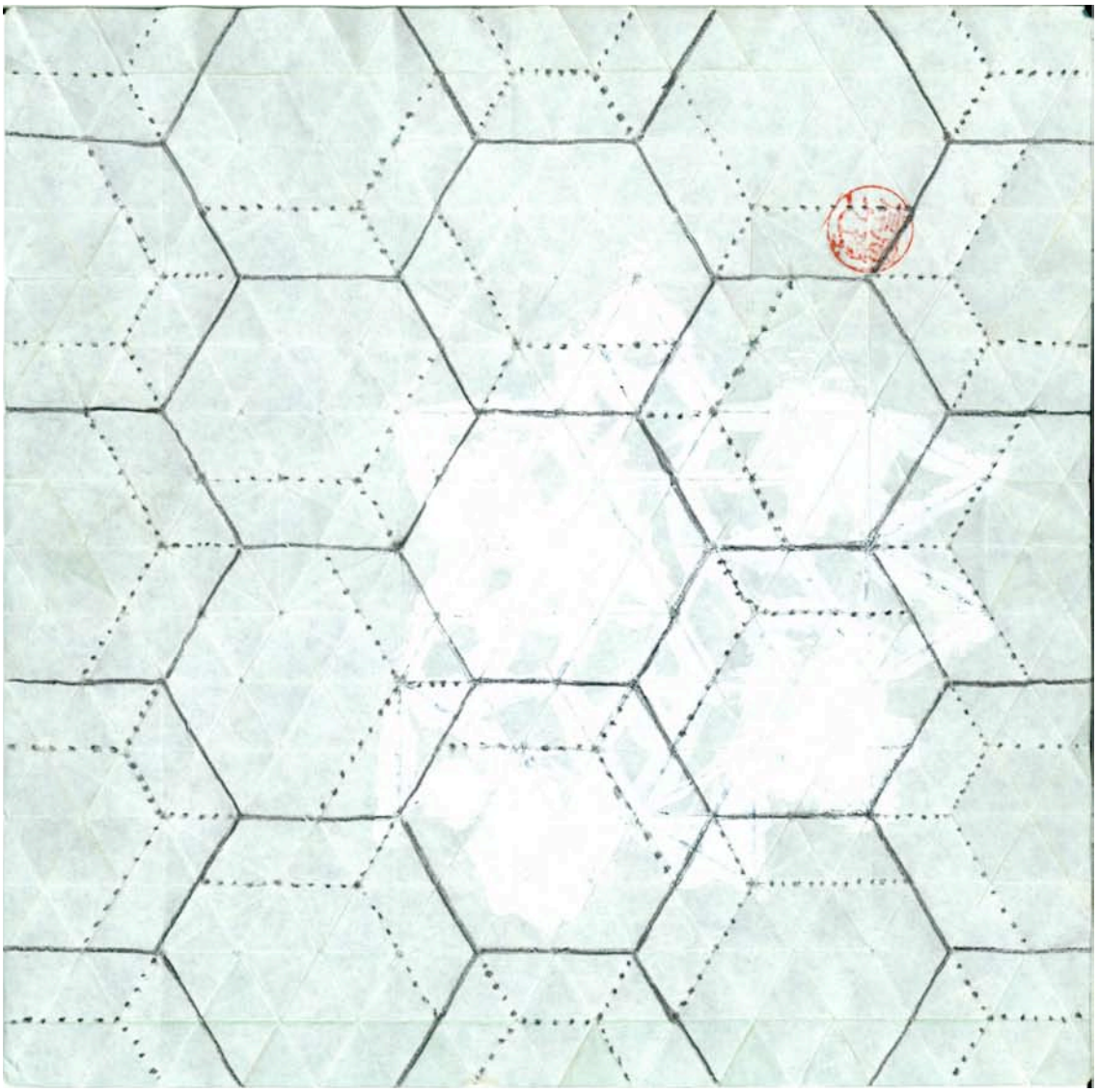
This is the original scanned paper- with some markup mistakes! But hopefully you see how it was folded from the original paper.

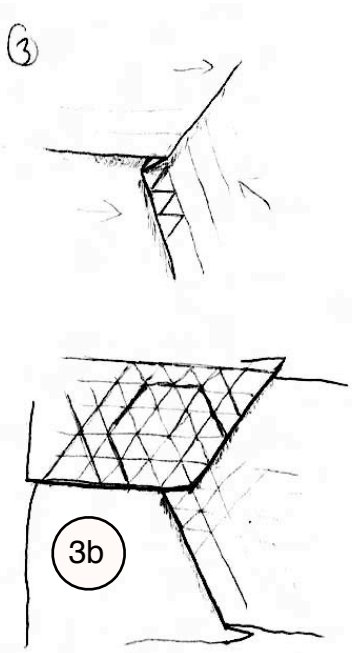


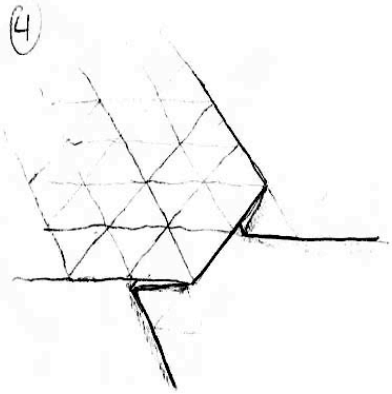
Solid Lines = Valley Fold
Dotted Lines = Mountain Fold

Folding from Pre-creased Paper

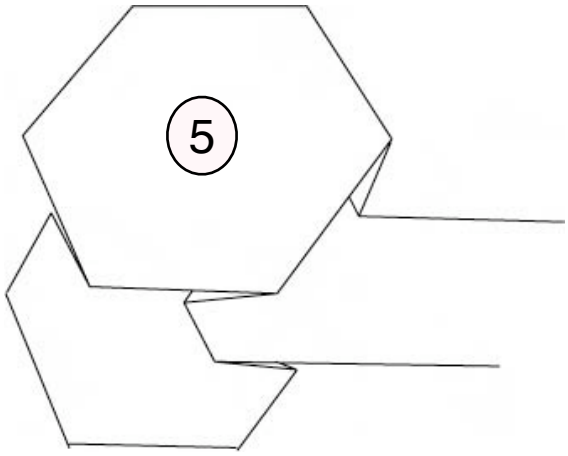
If you want to fold this model yourself from scratch, here's how to do it.

- Start off by following the pre-creasing methods described on the last page.
- Rough out the center hexagon, using a hexagon that is two triangles in length on each side. Or you can think of it as four crease widths wide.
- Starting with one corner, fold over one edge of the hexagon while also valley folding the crease that falls underneath the newly-folded edge.
- Either at the same time, or afterwards (this depends on your comfort level) do the same step on the next hexagonal edge. This will require you to make a "rabbit ear" type fold out of the corner. This particular process is shown in drawing (3). It should come out looking like drawing (3b).

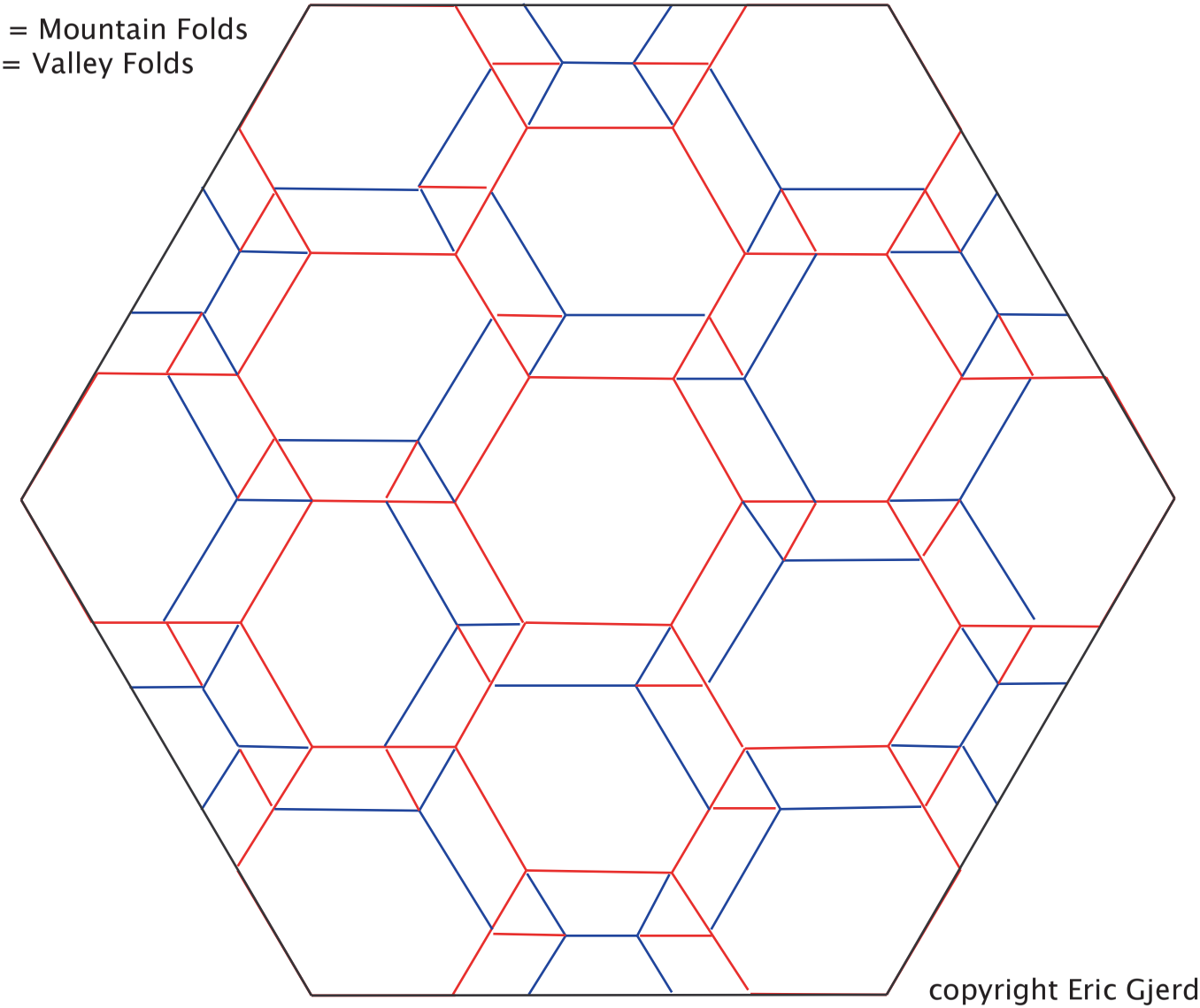




•The next step is to continue this process around the hexagon, until all the creases are complete. The second crease should resemble drawing (4).
•The next step is to shape the hexagons by angling them inwards as shown in drawing (5).
•Continue this all around the hexagons, closing off each hexagon in turn. Refer to the crease patterns for further hints.



Blue Lines = Mountain Folds
Red Lines = Valley Folds



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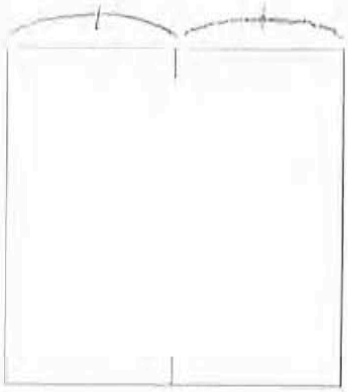
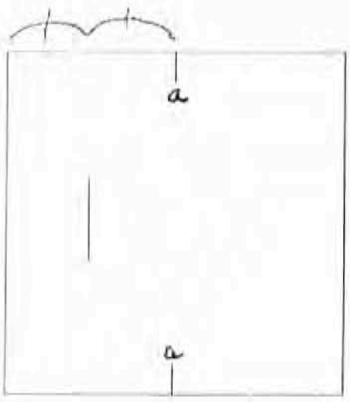
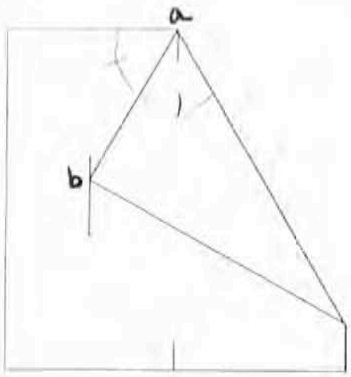


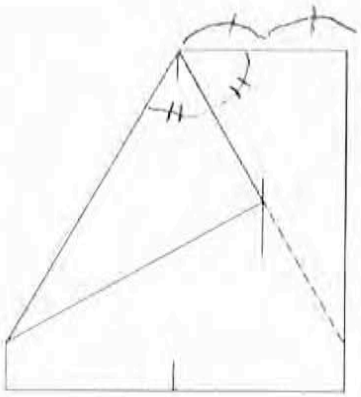
1. Book-fold center, crease ends only.



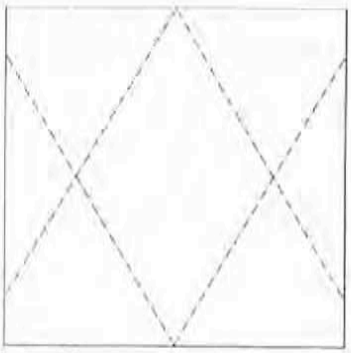
2. Valley fold to crease 'a', crease where indicated.



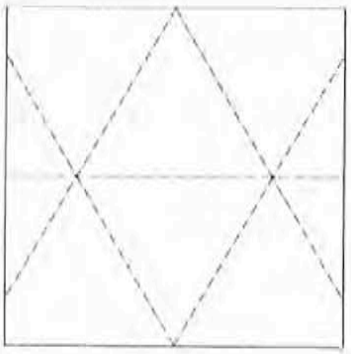
3. Fold corner to crease 'b' using crease 'a' as guide point.



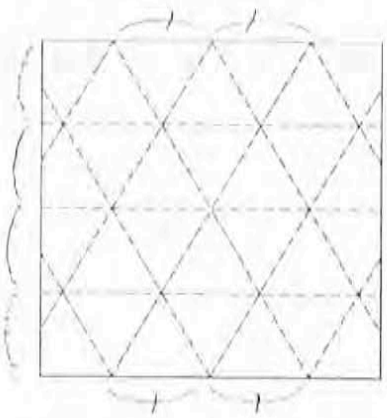
4. Repeat on other side use existing crease as guide or repeat step 2 on other side, folding opposite corner to



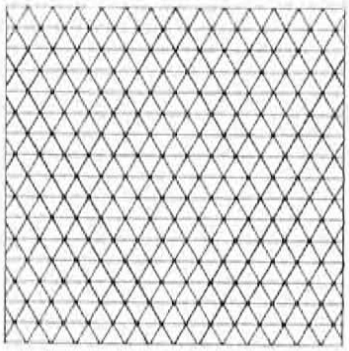
5. Rotate 180°, repeat steps 3 & 4.



6. Fold in half. (Crease should fall on intersecting points of diagonals.)



7. Fold in quarters horizontally; fold additional diagonals using existing creases as guideline.



8. Repeat till you can't stand it anymore.