

# Crawford's Orchid (ver 0.7.0a)

Patricia Crawford (designer)

©1973 - USA

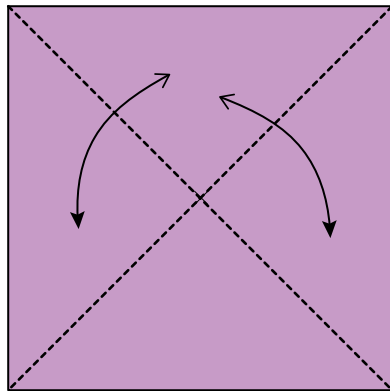
Diagrams ©2022 JC Nolan

## Complex

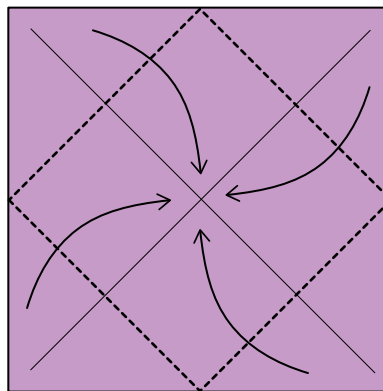
Crawford is a true luminary in the history of origami who 40 years ago was creating amazing color-change works such as her Unicorn, Full-Rigged Ship and Baby Grand Piano. Most of the best of her work was published in the later books of Robert Harbin yet this model was never reproduced or published. As curator of her collection of work I took on the task 15 years ago of making sure that her work was not lost to history and this was one of the first models I undertook to restore. Unfortunately, it turned out to be a massive challenge and was the first (and only, so far) model in her catalog to stump me. Working on it off and on the past 5 years I remained stumped over the proportions of the lower petals. It was not until the advent of social-media/zoom that I was able to reach out to the global origami hive-mind and find the answer. So here, published for the first time is what I consider to be Crawford's true magnum-opus, her color-change orchid.

So why, if this model is so amazing, was it never published? Answer – BECAUSE IT'S REALLY CHALLENGING! Both to diagram and to fold, even with these enhanced instructions. For that reason, to help optimize the chance for success for all folders who attempt it, in these diagrams I've utilized a LOT more text description than I usually do. I've also created photo-step folds, alternate detail paths in the diagrams and a more liberal finish, honoring the original design of the work. So it ain't easy, however it's not hard, just odd and with repeat foldings the unusual sequences become far straight-forward. As with other Crawford models, after folding it multiple times the whole process makes much more sense and is easy to execute.

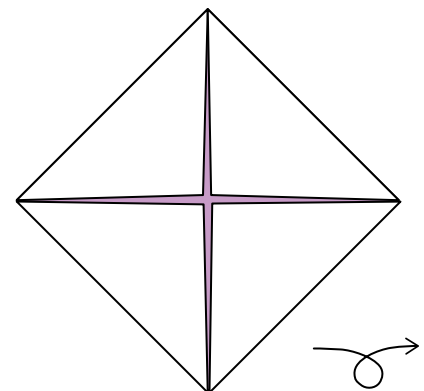
For first attempts I recommend folding from a large square of Japanese or American foil – even multiple sheets taped together. Complex / a 30" sheet produces a model ~12" wide with ~3" column.



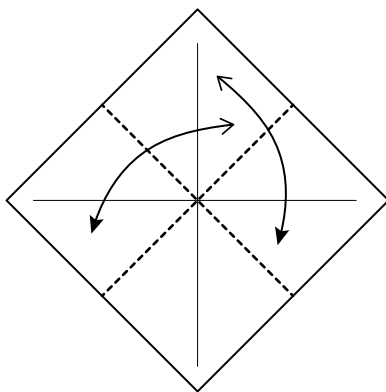
1) Fold and unfold



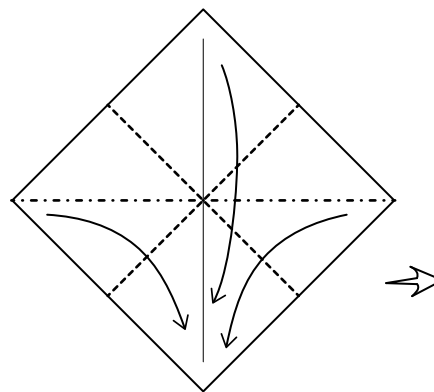
2) Blintz fold, colored side in



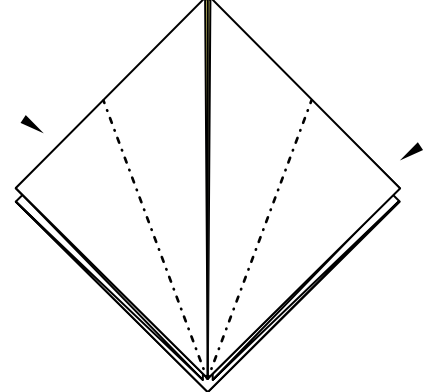
3) Flip over



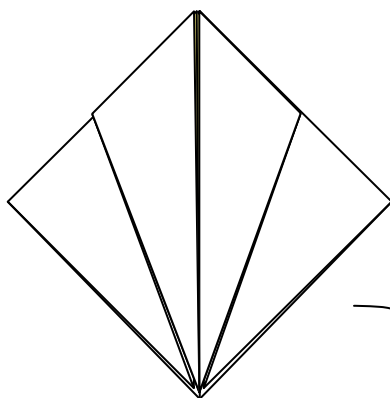
4) Fold and unfold



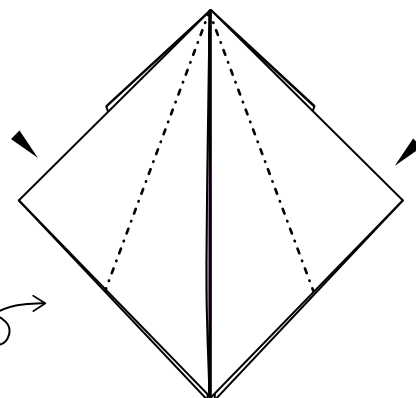
5) Fold into blintzed-preliminary base



6) Reverse fold ONLY the top two flaps.

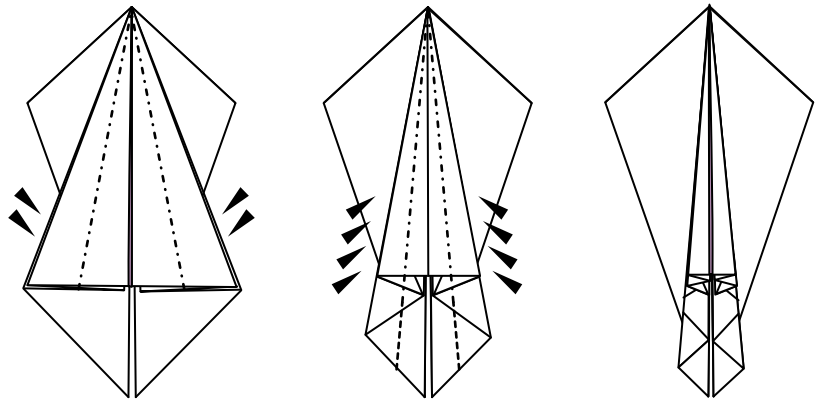


7) Flip the model over and squash fold the two remaining flaps

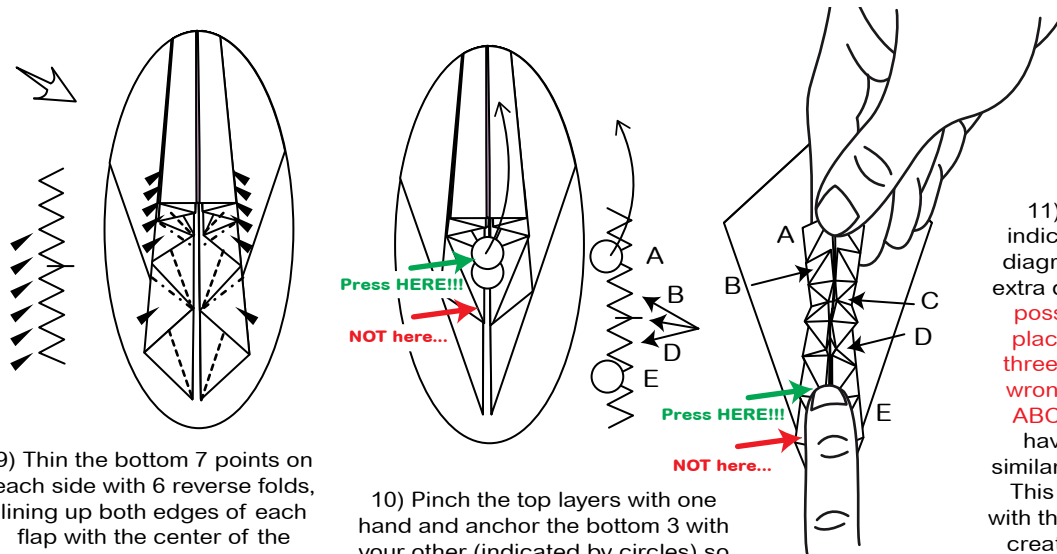


8) Tuck the flap inside - **important!**

We now go through the process of fan-pleating the model down to 16ths. Depending on the thickness of the paper this can become somewhat untenable. Fortunately the model is pretty forgiving with regard to these steps. I've found the best way to proceed is to, on each level: 1) precrease each flap in both directions, front and reverse; 2) precrease every flap on a given side before doing the reverse folds; 3) work from bottom to top rather than top to bottom; 4) carefully line up with the center line as you go.



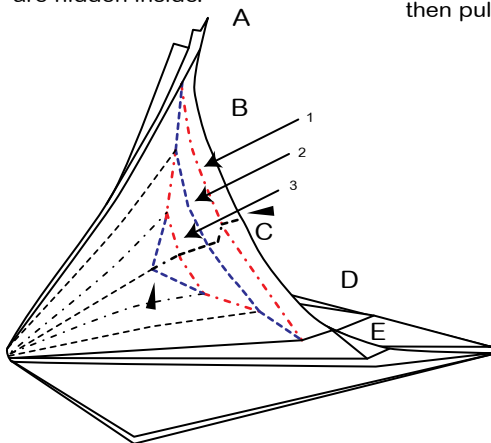
Now we will spread-squash the middle three points on each side and fold the resultant flattened area flat by pleat-sinking the paper as we go. This can be relatively challenging as most of the creases for the refolding are not yet in place and will have to be stated by hand as you go. To execute pinch the top 3 layers with one hand and anchor the bottom 3 with your other hand (indicated by circles) so that the middle 3 points remain free — then pull upward flattening out the 3 points. Don't crease or flatten out the lower portion, just open up as needed to execute the stretch. To fold back up you will have to lay in the creases in place by hand matching the map, as indicated in the 3d diagram. For extra help, photo step-folds and additional resources are available at [creatingorigami.com/diagrams/orchid.html](http://creatingorigami.com/diagrams/orchid.html).



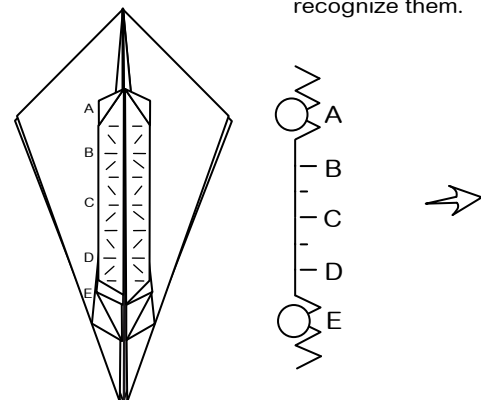
9) Thin the bottom 7 points on each side with 6 reverse folds, lining up both edges of each flap with the center of the model. Three are visible, three are hidden inside.

10) Pinch the top layers with one hand and anchor the bottom 3 with your other (indicated by circles) so that the middle 3 points remain free then pull upward.

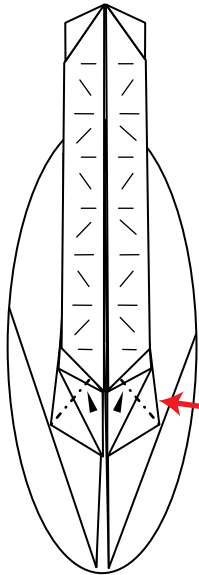
11) Notice the three points indicated by B, C, and D in the diagram. The reason for all the extra diagrams / maps is that **it is possible to grab the WRONG place at the top and still have three points in between but the wrong ones, causing all letters ABCDE to be one flap off** but have the model still be very similar in appearance but locked. This will cause problems later with the reverse folds/wraps while creating the lower petals (they will be too short and the flap will not fold down easily/all the way.) The correct points are centred over the middle of the structure, and will be quite visible once you recognize them.



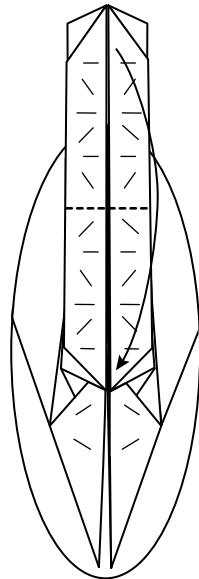
12) 3d side view showing the creases to incorporate while flattening it back down. To flatten the model you basically have to pleat the model in three directions laying in the missing creases as needed. In the diagram the colored lines are the ones that will be added by hand — execute them in order as indicated 1, 2, 3 pinching/pleating as you go. The remaining creases (in black) are already there and will incorporate naturally as you flatten things out. Feel free to check out the photo step-folds posted on [creatingorigami.com](http://creatingorigami.com) for extra clarity on this sequence.



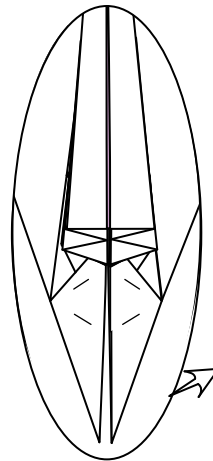
13) Stretched and flattened flap — carefully note the pattern of creases and number. If you used the correct points the flap should be centred between the remaining points. It is possible to use the wrong points which will result in problems later in the model when folding the lower petals down into place and thinning them.



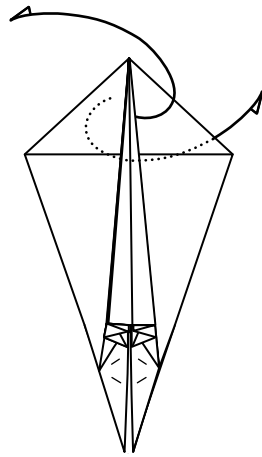
14) Thin the bottom points by tucking the two flaps inside, basically as far as the model will allow. Be careful not to skip this step. Push as far deep inside as possible. Keep looking for more depth, it might even take 3 tries to match the next illustration.



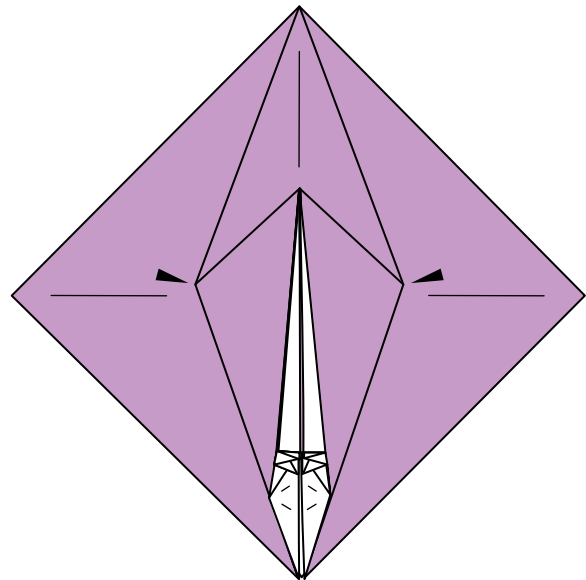
15) Swing the flattened flap back down... like this



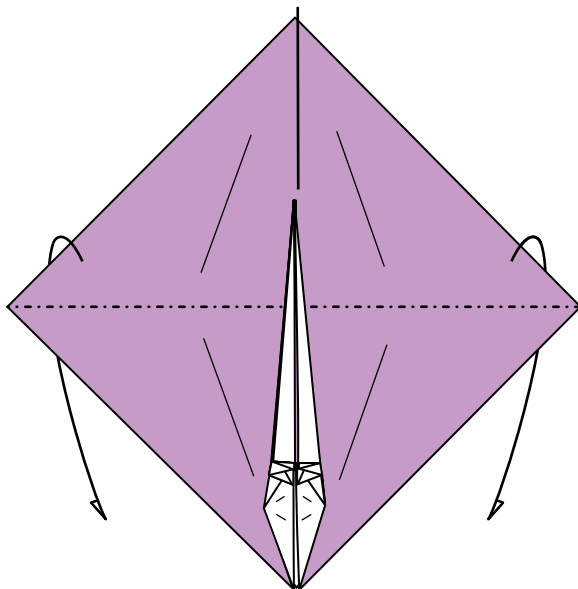
16) Open the model slightly on the sides and release the hidden layers inside the blintzed birdbase. This is easier than it seems once you find the location of the hidden paper



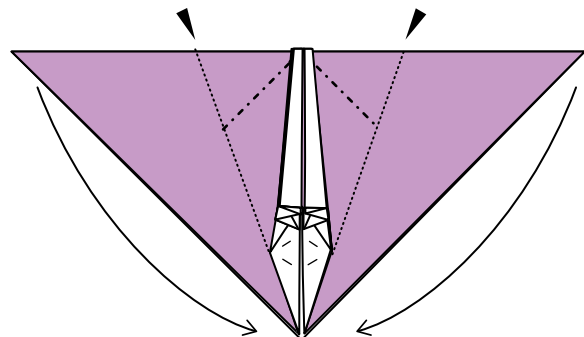
17) Flip the large flap behind upward



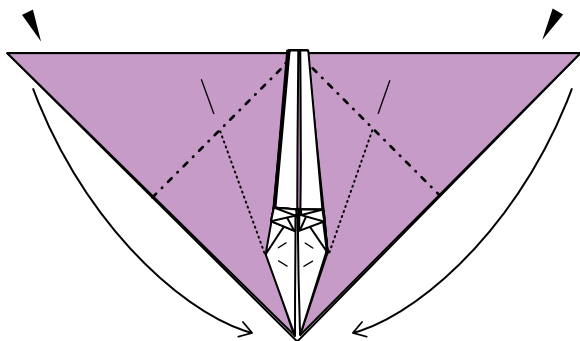
18) Closed sink the two large points being careful as you go, the paper can easily split at the main points on this step. Additional photo step-folds on this sequence are available online and in the Appendix. Clean up / bone fold the creases on the other side afterward, Clean up / bone fold the creases on the other side afterward,



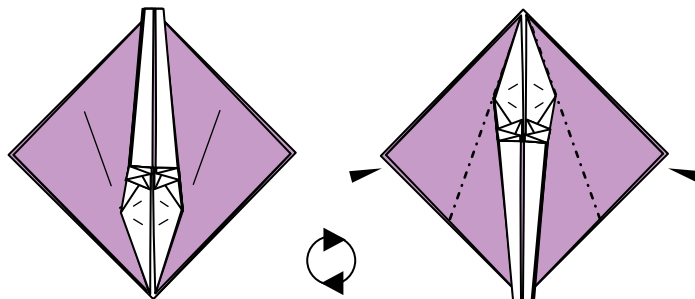
19) Fold in half through all the layers (really)



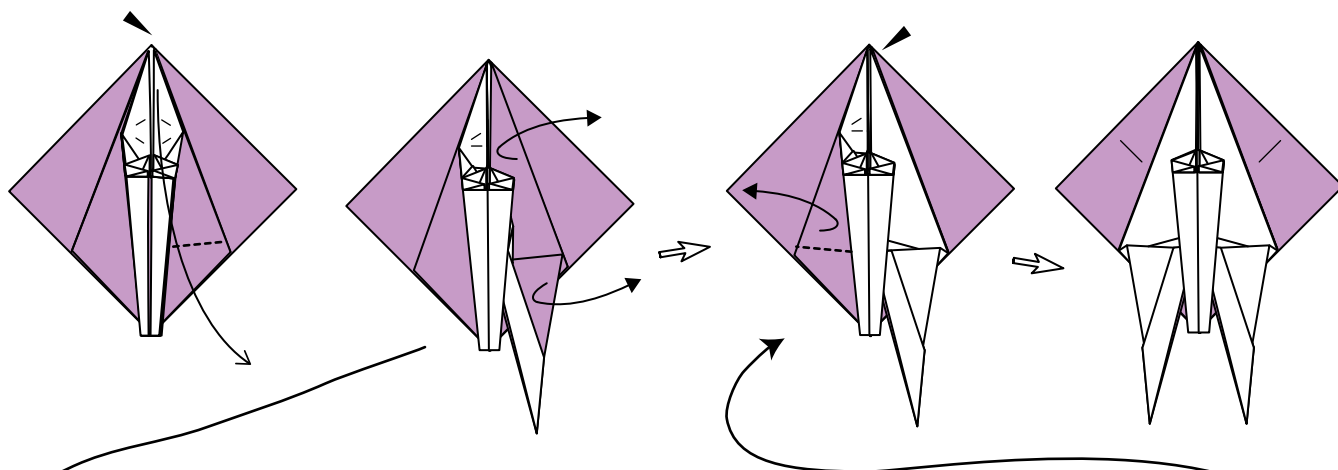
20a) This step simplifies the reverse folds in subsequent steps and can be skipped if need be. Reverse fold the thick internal layers to prepare for the subsequent reverse fold



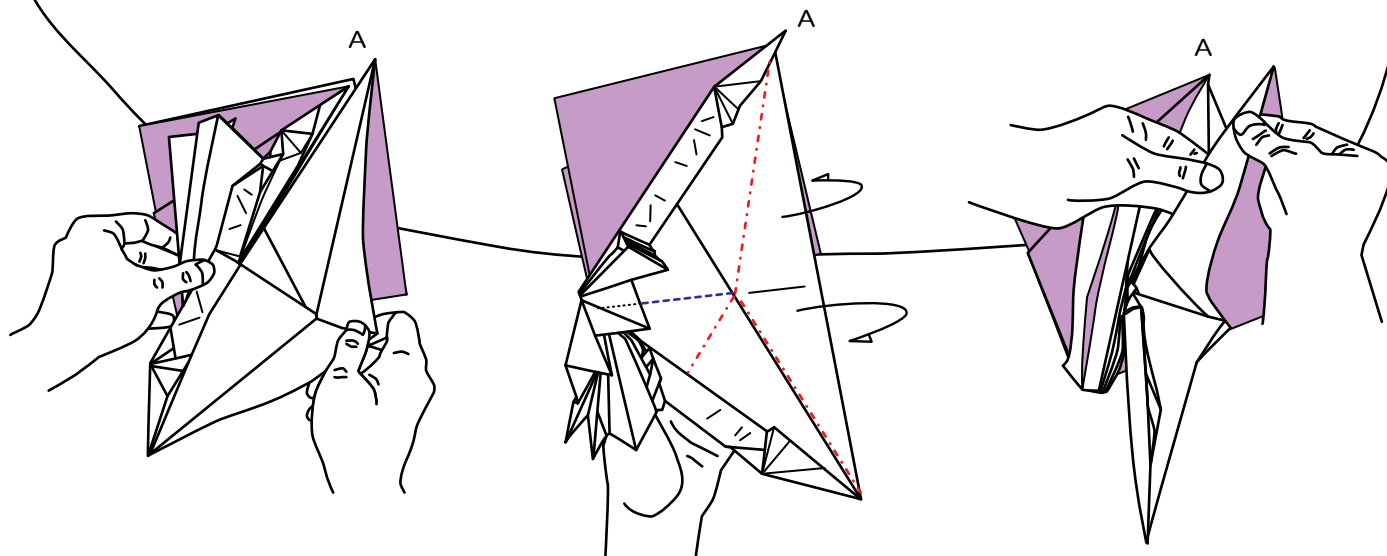
20b) Now reverse fold the outer layers



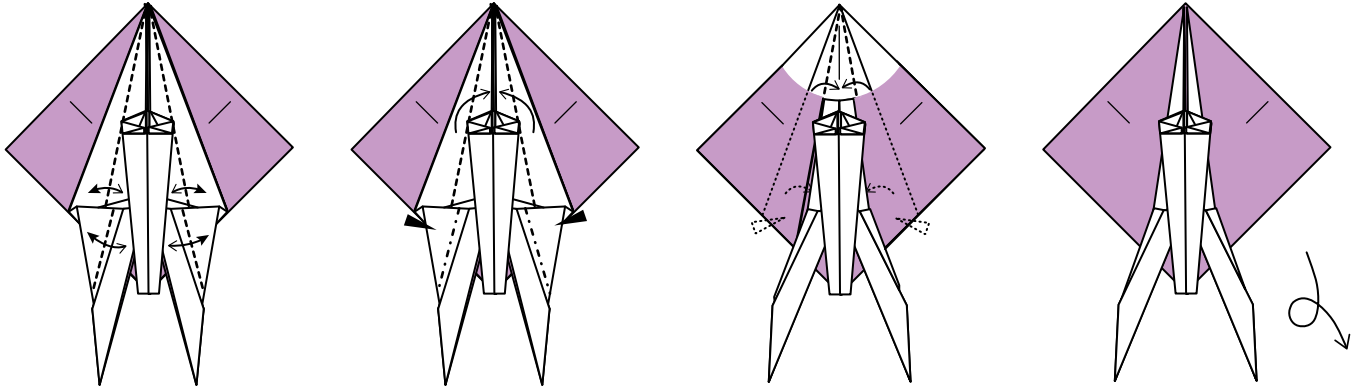
21) Rotate 180 degrees and reverse fold the top two flaps only



22) Now the real fun starts with the 2nd of three very unusual folds in this model.... reverse fold as far down as the paper will allow. If the flap does not come down all the way then it's likely you got the wrong points back on the spread-squash / pleating sequence. Once the reverse fold is completed, note that the horizontal crease is not truly horizontal, then perform a wrap of the entire structure by pulling out the hidden paper, opening it out and refolding on the same creases with the white layer outside. This is not quite as tricky as it seems but may take a few attempts to master. Two paths are shown here in the diagrams: a detailed one below and more concise one above, just follow the arrows of choice. Additional help is available in the photo step-folds online at [creatingorigami.com/diagrams/orchid.html](http://creatingorigami.com/diagrams/orchid.html).

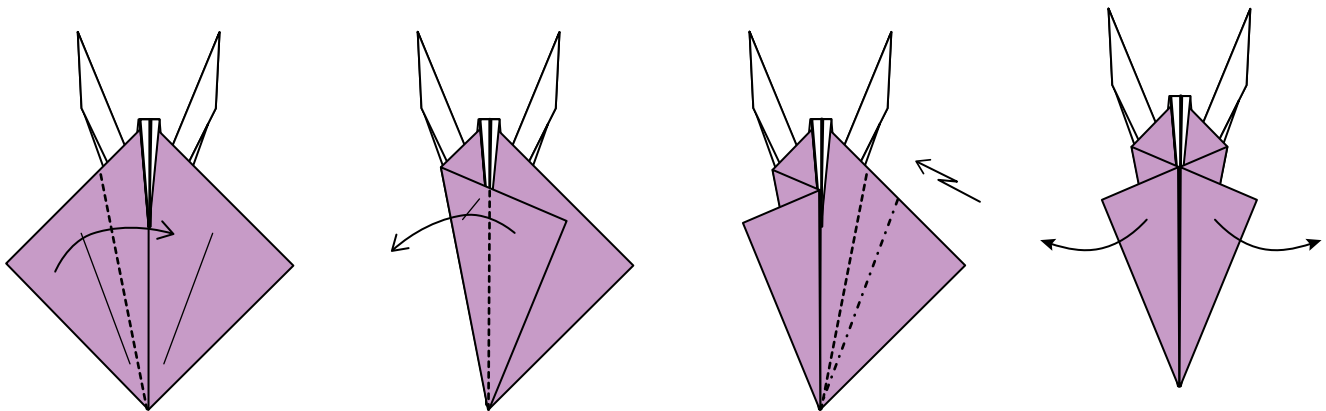


Interim steps for the above sequence being shown here. Carefully unfold the paper and fold back up on existing creases so that the white area is now outside and the colored hidden inside. Note that there is a little jog in the direction of the main mountain fold. Note also that you will need to roll the paper at the tips as you fold to get everything to settle into place.

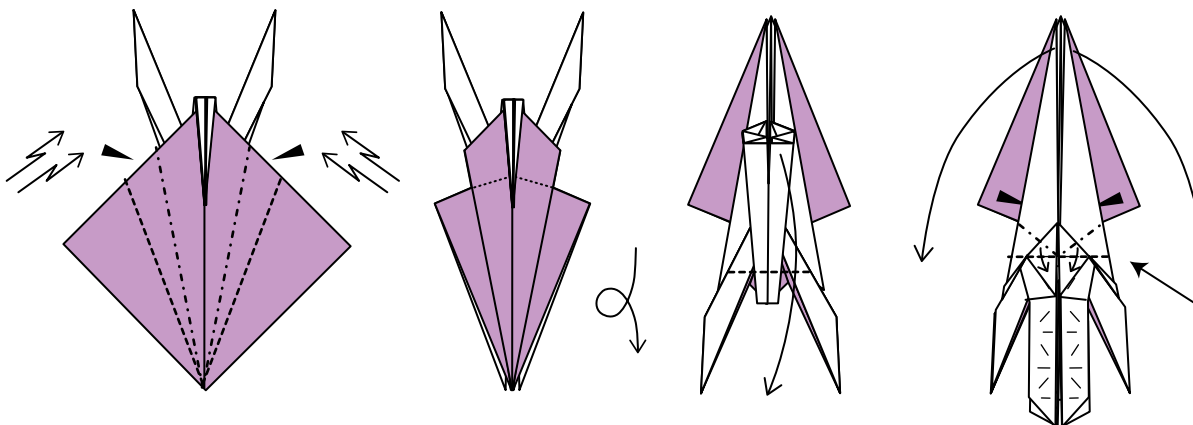


23) Fold and unfold to precrease, then fold in on the creases closed-sinking the delta-shaped portion at the bottom as cleanly as possible. If done correctly it ends up looking like a reverse fold. This obtuse fold is actually pretty important later as it can cause some binding in the second set of petals if not done right, but can be futzed later if necessary - just easier if you nail it here.

24) Reverse fold the to thin the next set of layers hidden inside the model on the same lines as the previous step. Flip over top-to-bottom when complete.

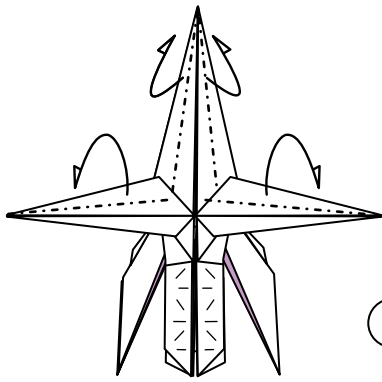


25) Adding precreases for the coming crimps, fold the flap left, lining up the crease with the hidden layers inside. The diagonal crease on top will line up with the center of the model, but the back of the flap does not have a crease so it's not much help. These folds will be a little messy due to all the layers, but don't worry as you'll be able to clean it all up in the subsequent steps.

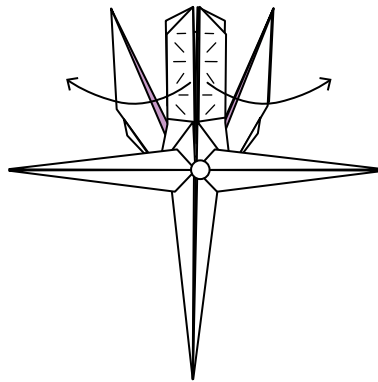


Note, this area in the middle may be mushy or look different depending on delta sink and such... doesn't really matter much. Above and below it should look similar though

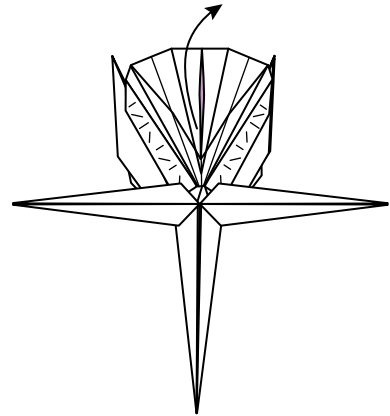
26) Unfold and crimp on the creases cleaning up any previous messiness that happened in the previous steps. Then, carefully fold the large, thick flap upward and open up the side petals with two squash folds. The internal, colored flap goes to the top so you have a double layer at the top. This step is not shown in photo step-folds but looking at the original Alice Grey diagrams (in the Appendix/online) may be helpful (or not). At this point we really start to sculpt the model and the folder may choose to adjust things to their own taste moving forward, for example the location of this fold can be adjusted higher or lower to affect resulting flowers overall proportions and feel.



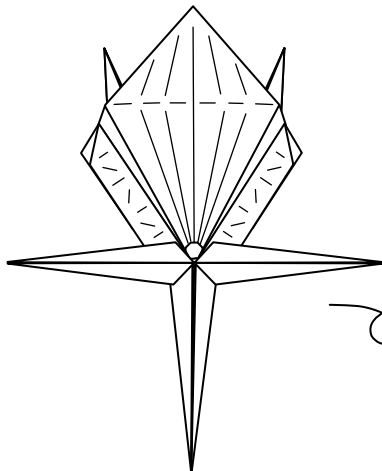
27) Thin the upper edges and rotate 180



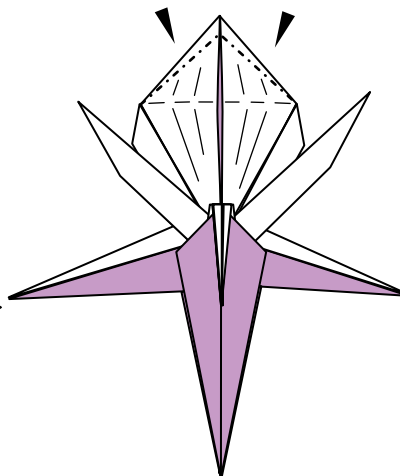
28) Open out the folded area keeping flat at the bottom



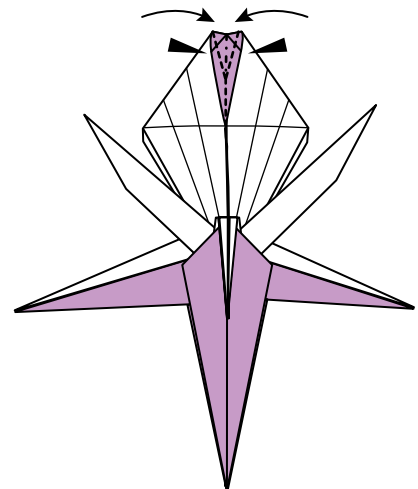
29) Lift up the very large, hidden flap, this paper will become the stamen in the throat of the flower



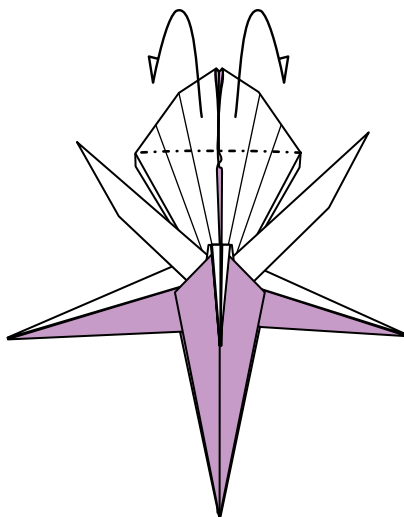
30) Like this, flip the model over to reexpose the colored region



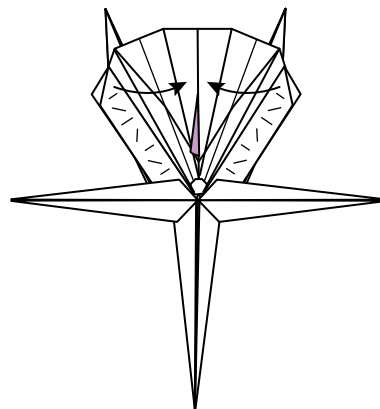
31) Unusual operation but not complicated. It is basically two squash folds to open up the color layer for the stamen



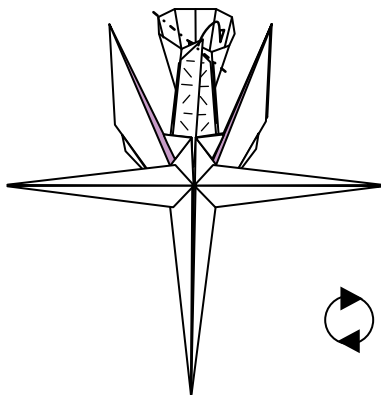
32) Pinch... note that the lines do not go all the way down, though you can tune it as you wish



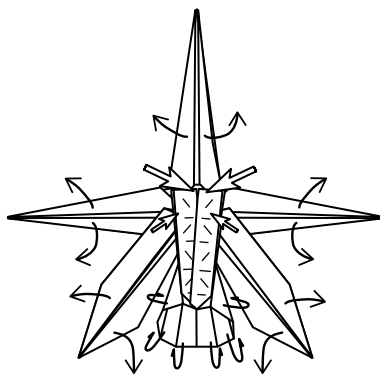
33) Fold the flap back inside, turn over



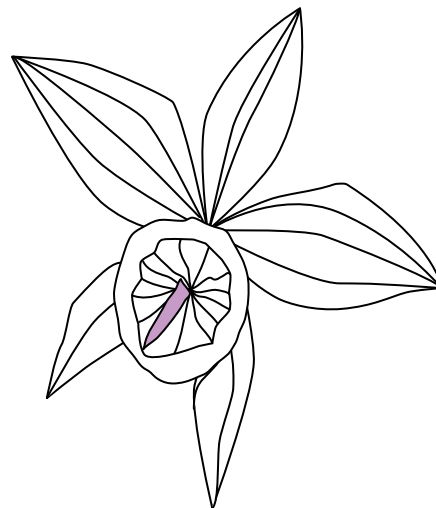
34) Bring the two side flaps back in, crossing slightly leaving the fan of the model open to create a large, horn shaped column



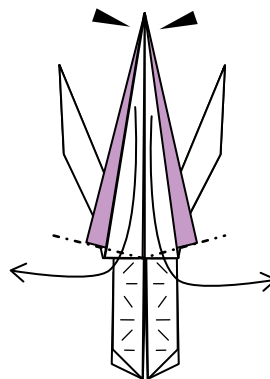
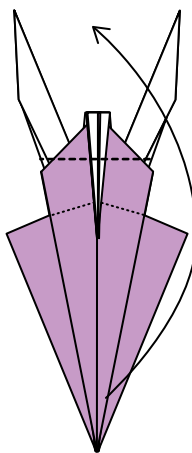
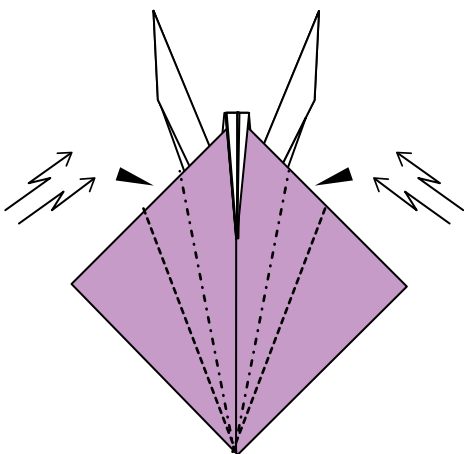
35) Lock the column/throat closed by tucking the little flap inside the other



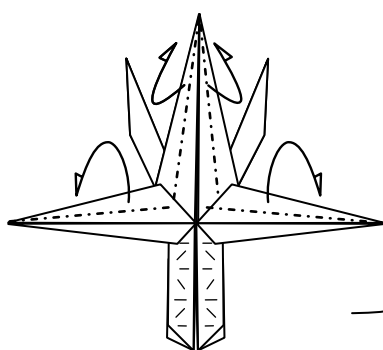
36) With the model flat on the table start to sculpt, bringing the column downward and adjusting / shaping your petals as desired.



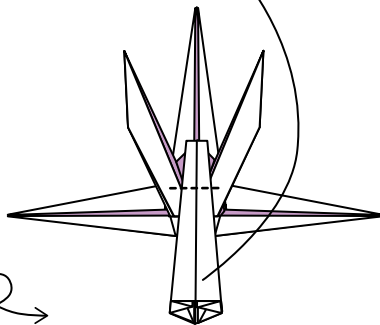
### Alternate closing sequence for colored petals...



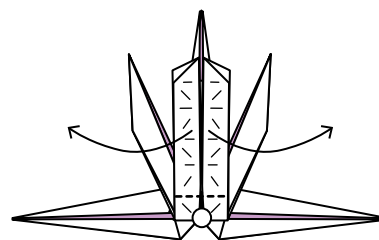
26') Starting with the previous setep 26, crimp on the creases cleaning up any previous messiness that happened in the previous steps. Then, carefully fold the large, thick flap upward and open up the side petals with two squash folds. The internal, colored flap goes to the top so you have a double layer at the top. This step is not shown in photo step-folds but looking at the original Alice Grey diagrams (in the Appendix/online) may be helpful (or not). At this point we really start to sculpt the model and the folder may choose to adjust things to their own taste moving forward, for example the location of this fold can be adjusted higher or lower to affect resulting flowers overall proportions and feel.



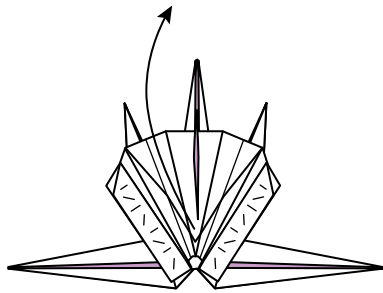
27') Thin the upper petal and flip over



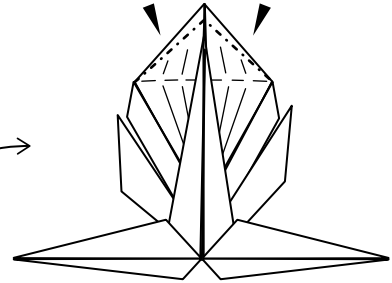
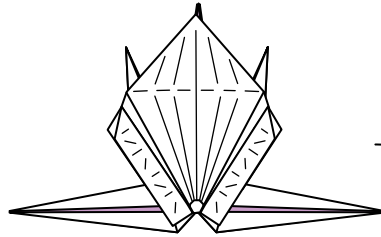
28') Flip the large flap up basically as far up as you can without tearing the paper



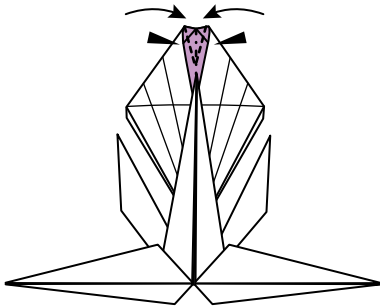
29') Anchor where shown and gently open out the folded area keeping flat at the bottom



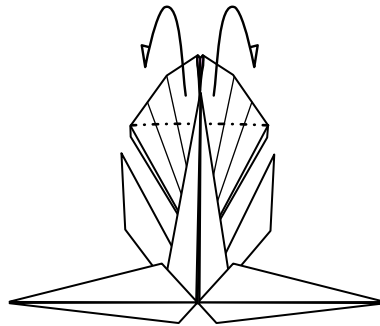
30-31') 3d view... gently pull out the very large hidden flap which will be used to create the stamen. Note that the bottom of the illustration is slightly distorted to make the internal structure a bit clearer



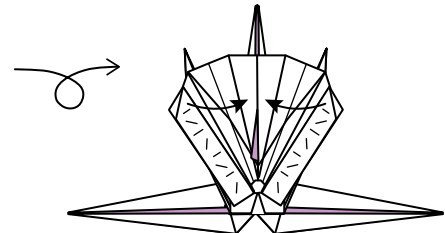
32') Unusual operation but not complicated. It is basically two squash folds to open up the color layer for the stamen



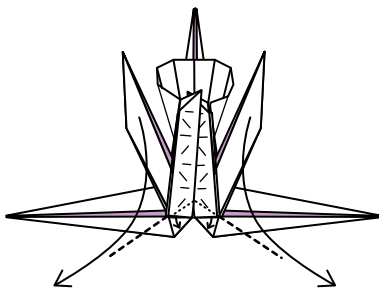
33') Pinch... note that the lines do not go all the way down, though you can tune it as you wish



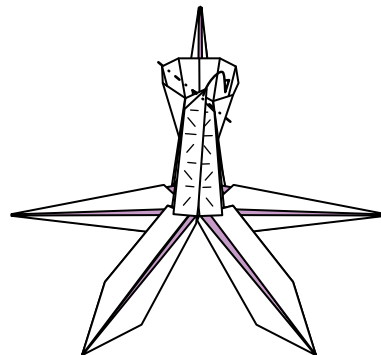
34') Fold the flap back inside, turn over



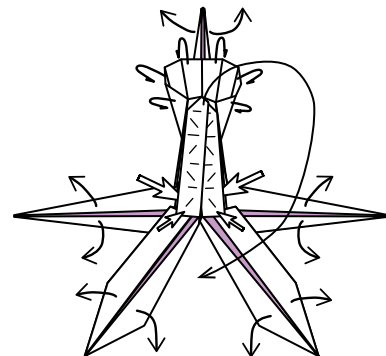
35') Bring the two side flaps back in, crossing slightly leaving the fan of the model open to create a large, horn shaped column



36') Swing the petals down with swivel folds



37') Lock the column/throat closed by tucking the little flap inside the other

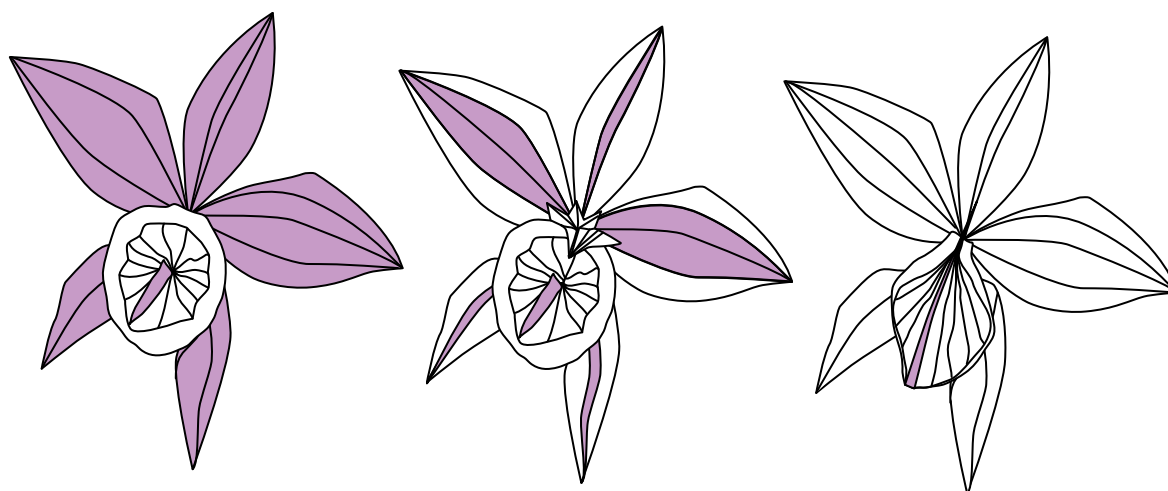
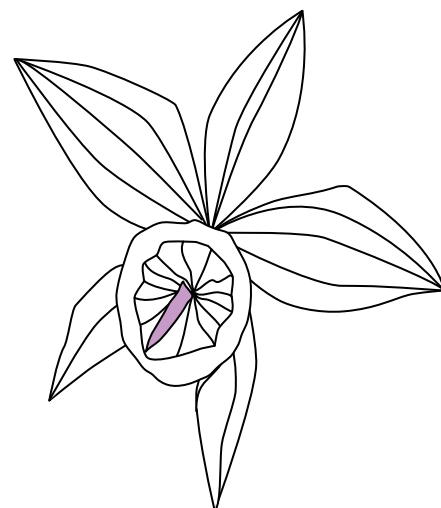


38') With the model flat on the table start to sculpt, bringing the column downward and adjusting / shaping your petals as desired. A lot can be left to the imagination here and various possibilities (including Crawford's original design) are below.





At this point in the original diagrams very little information was given to the final shaping so feel free to sculpt as you desire, creating your own invention by pushing sides of column inward while also curling the lip of the column outward - curling / opening petals, positioning them as desired. By rolling the colored paper, doing wraps or other inventions you can have white leaves, colored leaves or leaves with a stripe; convex or concave; tapered at bottom or not. Note also another earlier version I did with horn tips (anther cap), you could also create "pods" at the end of lower petals... all sorts of variations possible. By opening the center and/or leaving the stamen flap extended you can have more complex stamen - the possibilities are endless, there is lots of paper to work with. Enjoy!



*I first saw Patricia Crawford's unpublished origami orchid in 1978 during my first visit to Lillian Oppenheimer's Origami Center of America at 71 West 11th Street in New York City. "What took you so long?" Lillian said. She wondered how someone so passionate about origami had not come to visit sooner. She led me down the hall into her apartment, and it was a Wizard of OZ moment. New York's grimy gray changed miraculously into the colorful world of origami: the bright papers, cheerful books, and wondrous origami models that she had folded or collected from all over the world.*

*Lillian spoke of her experiences getting to know the many origami artists who had come to visit, and of all them, none were dearer than Patricia Crawford. "You can count the number of notable women origami designers on one hand; Patricia is on par with the best of them!" Handing a shoebox to me, she invited me to have a look inside. "These are some of Patricia's models; some are unpublished." There was a grand piano, a bud vase with roses on-stem, a log with a squirrel, a ship with tall color-changed sails, and there was a Cattleya orchid. Most of the models were folded from colorful, thin foil paper, a popular origami choice at the time, and nearly a necessity for folding complex models.*

*I marveled at them all, but the orchid impressed me the most. It was folded from a purplish foil and included a full, showy lip. I had designed some origami orchids, but I resorted to a 1:2 rectangle to achieve the distinctive lip of a Cattleya while including all of the remaining petals and sepals. Doing so from an uncut square had eluded me. Confronted with Patricia's solution, I just had to learn it. Then Lillian broke my spirit:—"There are no diagrams."*

*Patricia's orchid was inspiration enough for me to revisit my approach. When I was finally successful, I named that for my sister, "An Orchid Susie". Since I had only seen Patricia's model once, and with no photos for reference, I never knew if my orchid folded from a square was similar, or in any way close to Patricia's method. Now, thanks to J. C. Nolan's efforts, we may all see the secret behind the curtain and bring back this landmark in origami design, enhancing Ms. Crawford's wonderful legacy.*

—Michael G. LaFosse