12) Julia-like barriers

All filaments of the M set are connected (as the M set is connected) and are uttermost built up of an infinite hierarchy of minibrots. They are found at centers of junctions where the number of branches, and eventually other features, increases according to the series 2, 4, 8, 16, etc (that is 2^1, 2^2, 2^3, 2^4 etc). On the other hand, zooming against towards a center from which a fixed number (any number) of arms are radiating leads to a singularity point, where there is infinite emptiness. More about that in article14.
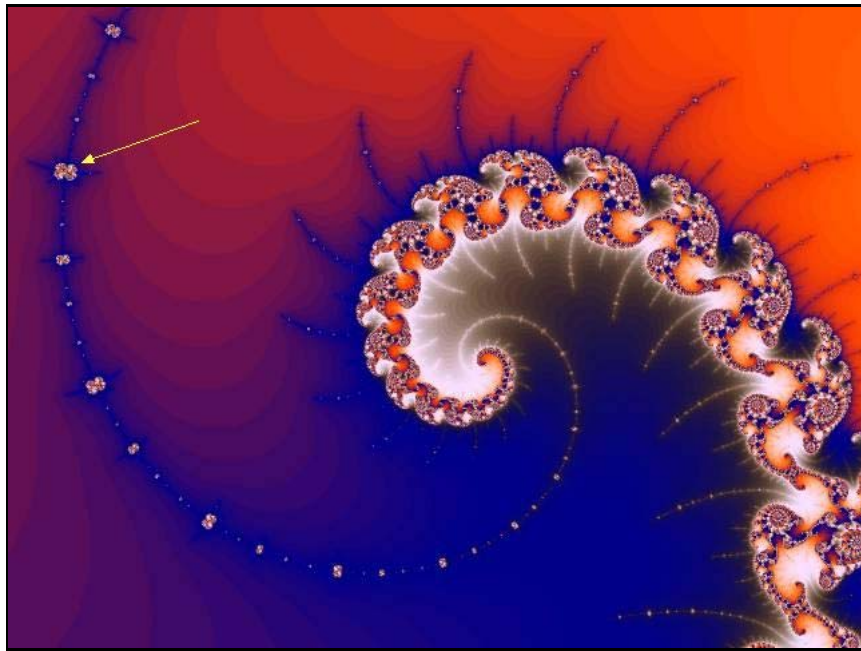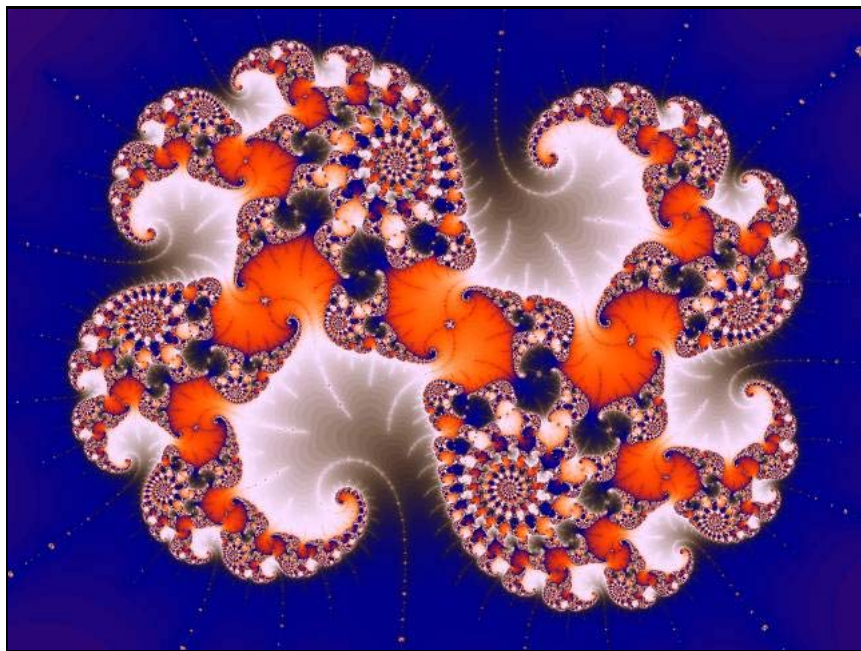

Fig 1. Elephant Start.

Fig 2. Elephant Barrier 1.

Now we shall hunt for a minibrot in the secondary decoration, the spike, joining the Elephant's trunk of the previous article. The zoom is made at the spot market with the yellow arrow in the image Elephant Start (figure 1). There the number of sub spikes increases according to the above mentioned series, but not toward a minibrot, but are tangled to a structure forming an echo of the nearby elephant's structures in this area of the minibrot (figure 2, Elephant Barrier1). This is a very interesting structure. It has the form of the disconnected Julia set you will obtain if you pick up a parameter-value from a position in the Elephant Valley of the main M set which exactly corresponds to the position on the secondary decoration of the minibrot. I now encourage the diligent reader to blow up the Elephant Valley of the entire M set, select Switch Mode and move the cursor in this region (about using Switch Mode, see article 6).
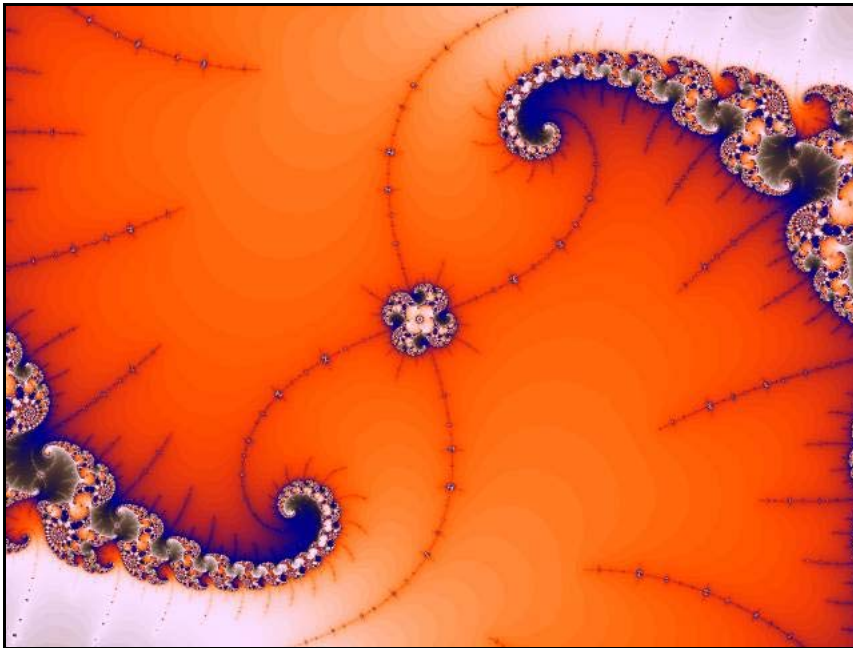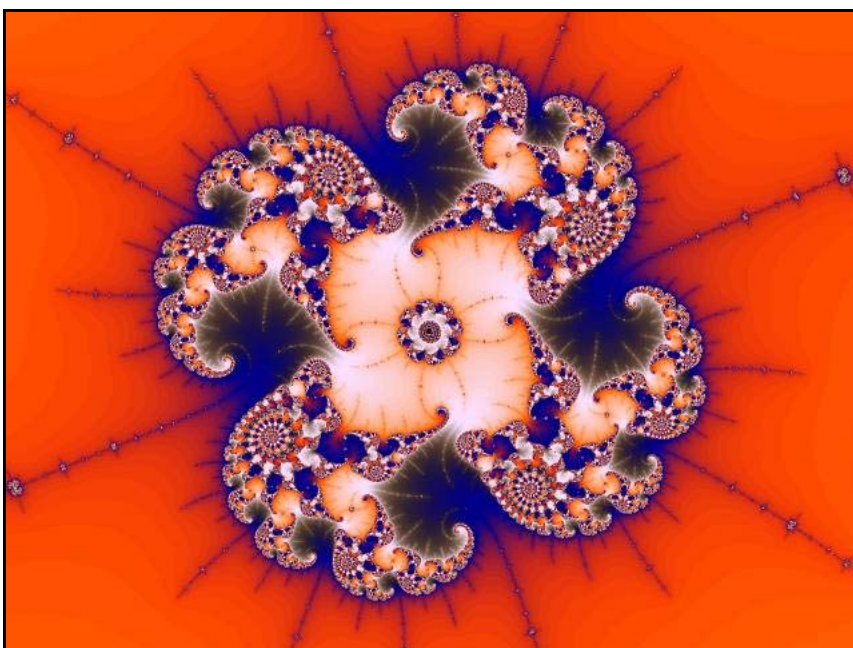

Fig 3. Elephant Barrier 1b.

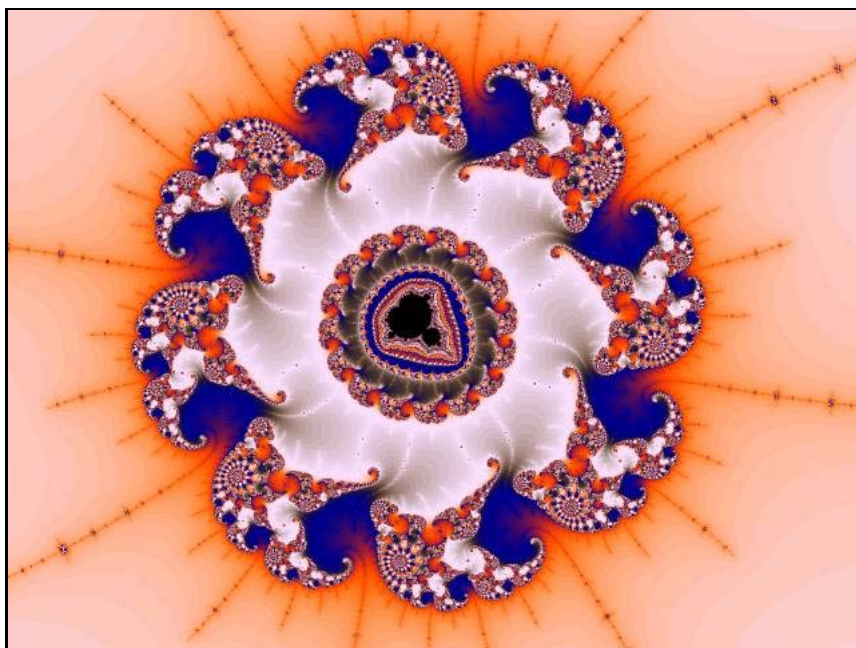**Fig 4. Elephant Barrier 2.**

Fig 5. Elephant Barrier 3.

Then you will see a similar structure. This kind of structures in the M set I call *Julia-like barriers.* The term "Julia-like" is used because these structures actually are no Julia sets, just looks like such ones. The term "barriers" is used because of the following reason: If we make successive zooms towards the center (figures 3, 4, Elephant Barrier 1b and 2) we come to another barrier. This time the facilities has doubles from 2 to 4, and then (figure 5, Elephant Barrier3) to a third barrier, again the facilities have been doubled, this time to 8.

Having passed infinite many barriers, coming closer and closer, we finally arrive to our desired minibrot. These extra barriers are not there in the Julia set you achieved above (with help of Switch Mode if you use UF).
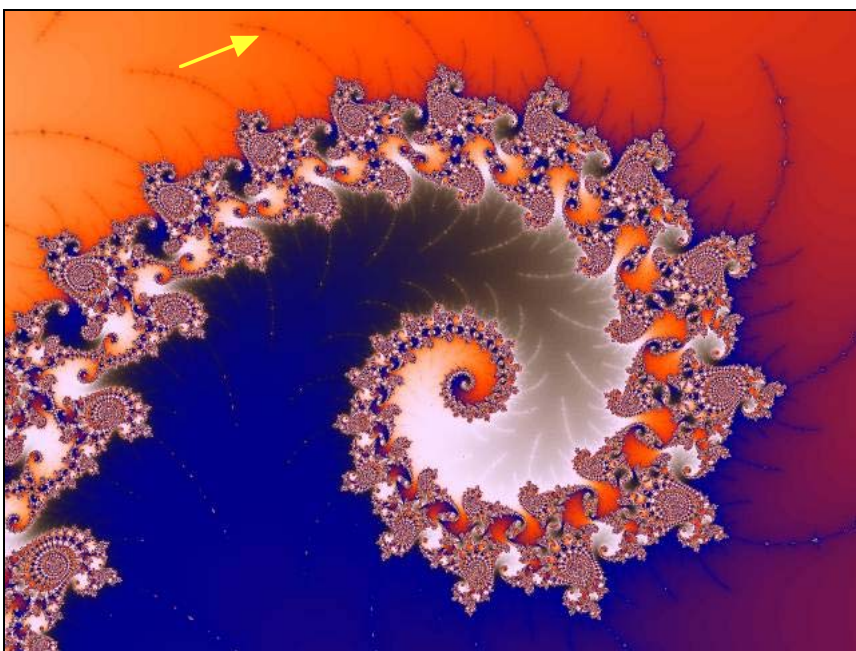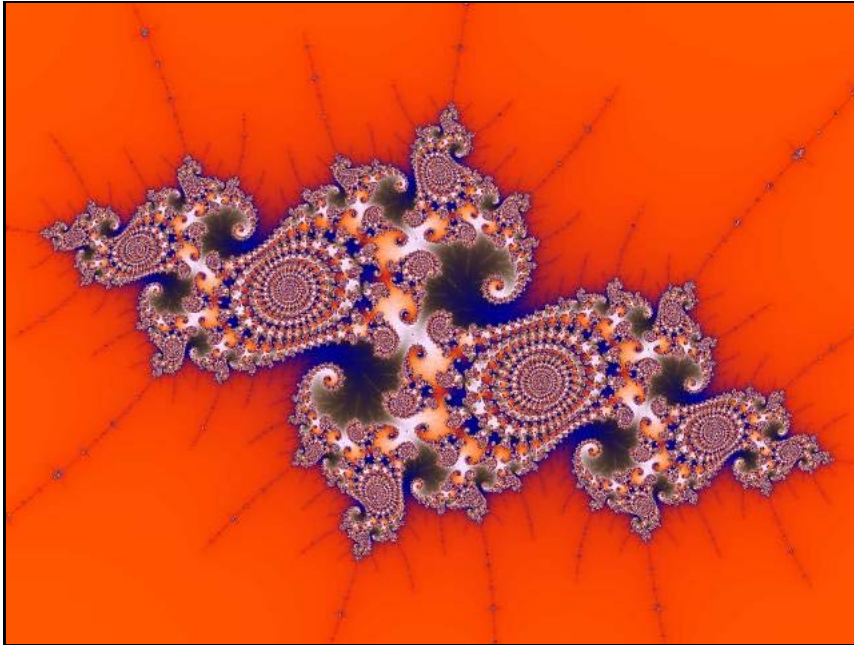

Fig 6. Seahorse start.
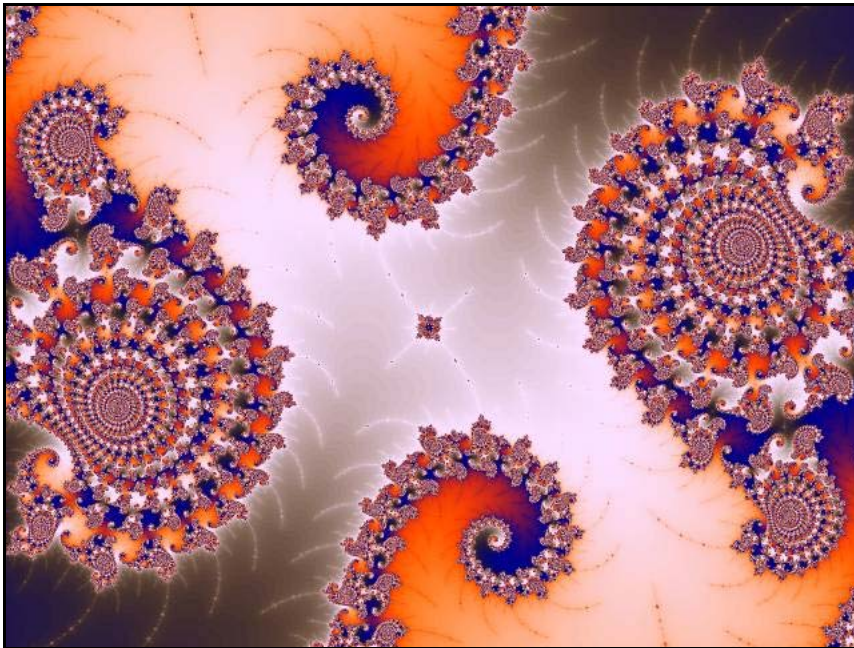
Fig 7. Seahorse barrier 1.

Fig 8. Seahorse barrier 1b.

The same phenomenon of course occur in every secondary decoration anywhere around a minibrot. Figure 6 (Sea horse Start) and figures 7 - 10 (Sea horse Barrier1-3) show a similar zoom sequence. You can verify this structure to be Julia-like by blowing up the Seahorse Valley of the main M set and then use the Switch Mode as described above.

Not only in the centers of each barrier there are smaller systems of barriers, but in every gap where 2, 4, 8 etc spirals meet. Are these smaller systems to be found there in any way different?

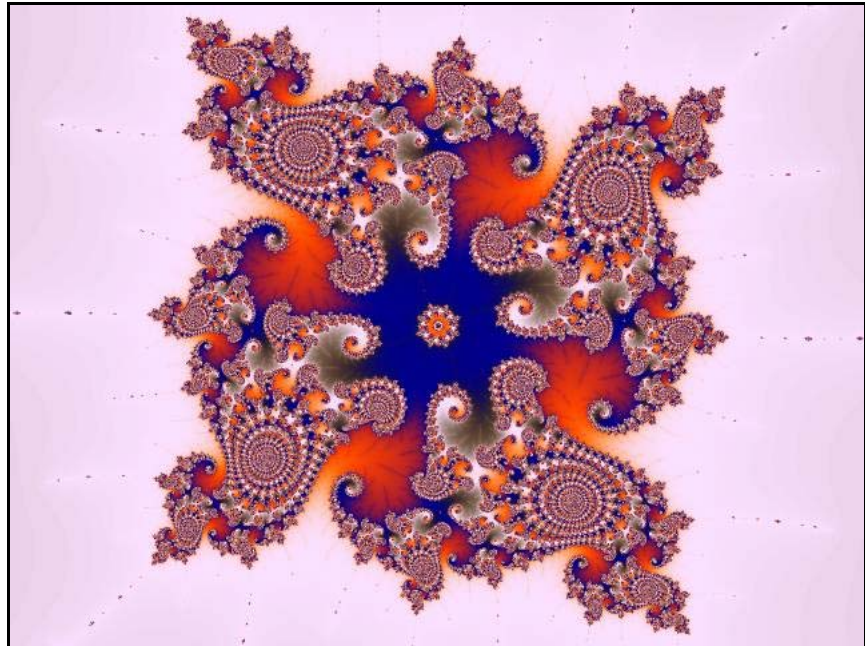This question I leave to the diligent reader to explore.
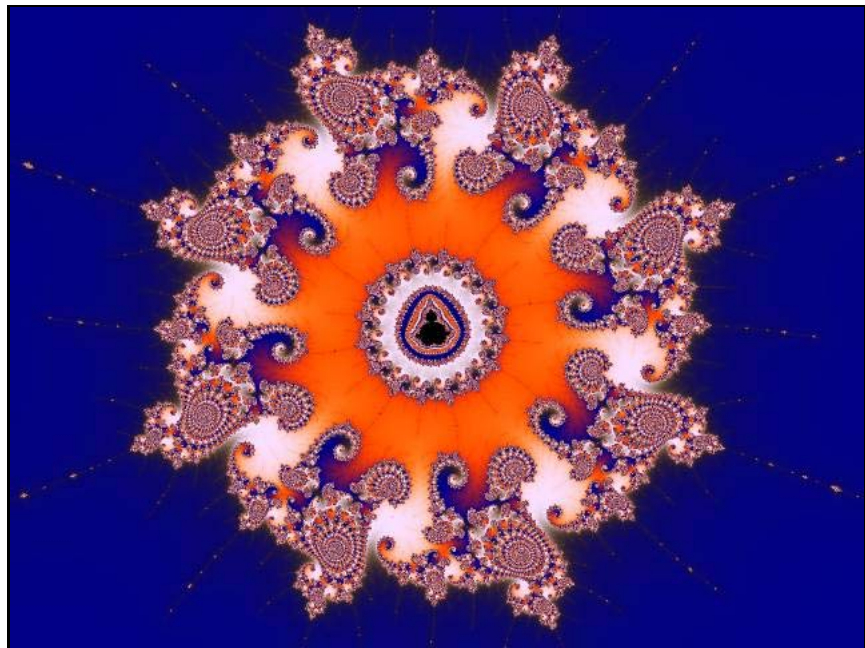
4

Fig 9. Seahorse barrier 2.

Fig 10. Seahorse barrier 3.

Regards

Ingvar