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Topology - head

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08-12-2008, 06:04 PM

#1

mister3d

SDM User

Join Date: Apr 2008
Location: Kiev, Ukraine
Posts: 23

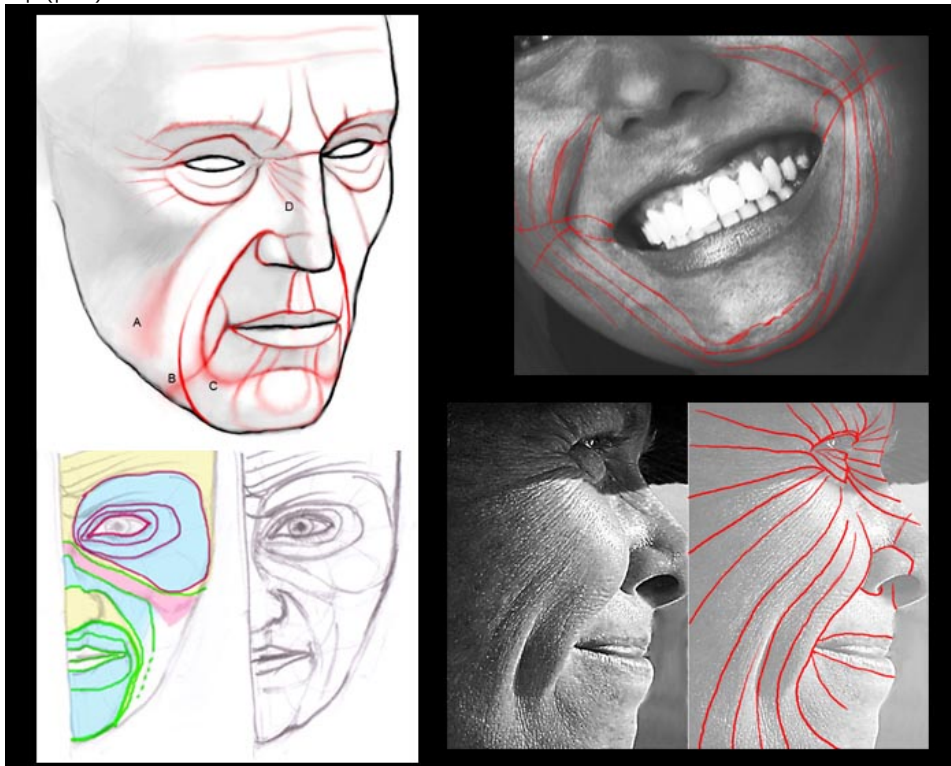
Topology - head

This is a summary of this thread <http://forums.cgsociety.org/showthread.php?f=25&t=38469> in my interpretation. I tried to make it short and practical. You can of course add your comments about how to improve the material. I'm not the author of the material (it is Stahlberg mainly and others), but I think it may be helpful to some people. The original thread lost many images, and is too flooded in my opinion.

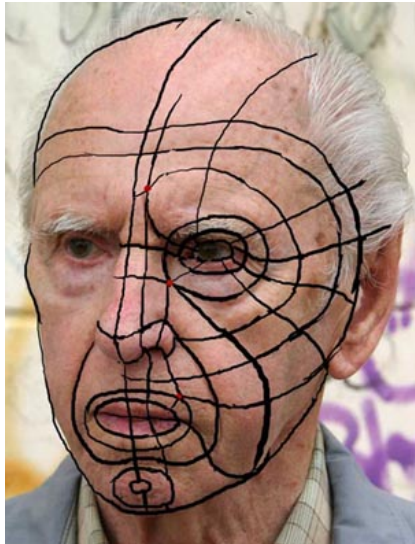
The artist Stahlberg (<http://www.androidblues.com>) kindly agreed for using his images he made for explaining the original material. Thank you, Stahlberg. There are others artists images as well. Actually you may consider that the author of this thread is Steven Hägg-Ståhlberg.

Currently the thread is under development, illustrations will be added.

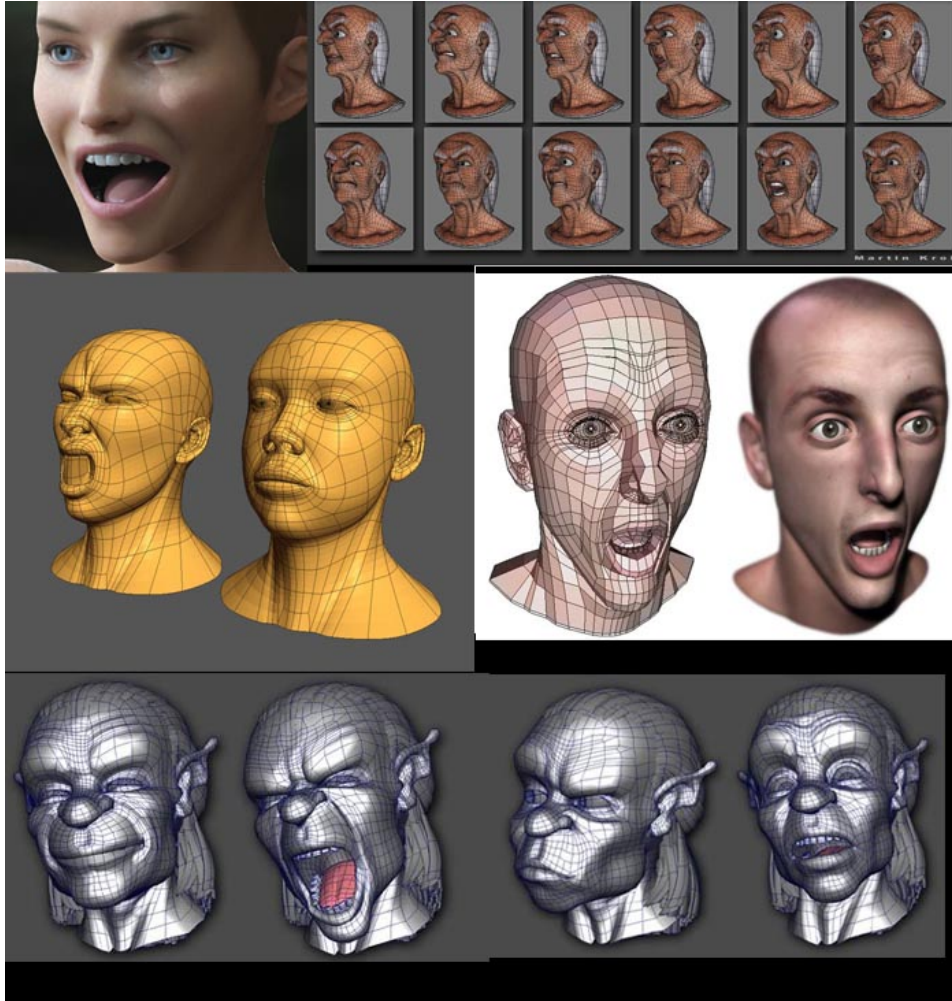
There's no perfect topology, it is definitely a game of research and development as it is a simplification of form. It's good to understand how muscles work under the skin and how fat and bones crease and wrinkle up the skin at the top.(pic1)



1. First draw loop lines over the 2d sketch(pic2)

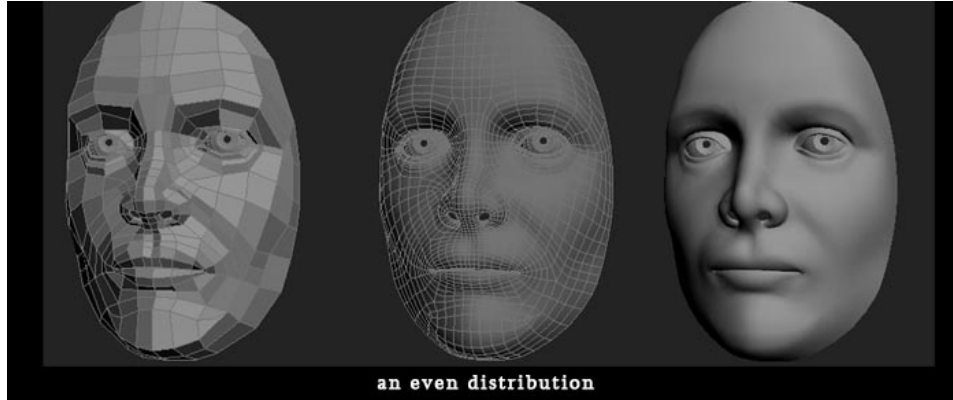


2. Then pick up a mirror, study your face and make facial expressions you need. Make shots if you can. (pic3)



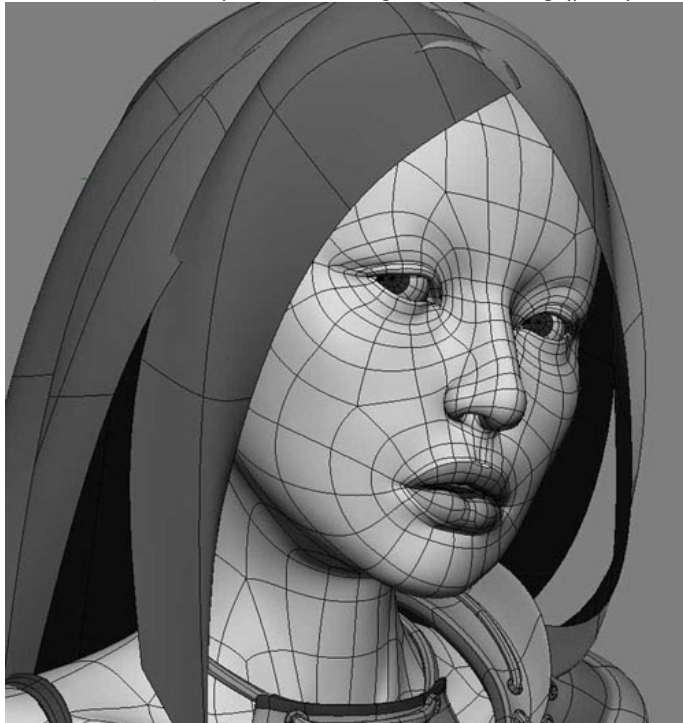
3. Try to make them with your topology. Compare with reference wires. Rework it, try again. Make the tests and see if you have enough polycounts for good facial expressions. You can try doing morph targets in zbrush. Beware of long polygons. You have to form an even balance of poly distribution, as you may get tearing and shearing.

(pic4)



The loop distance and shape differs with each person, though the underlying topology is similar.

The beautiful, pronounced, anatomically correct form is an important factor. Even the topology may be wrong, but if the model is static, it may look convincing and fascinating.(pic4b)

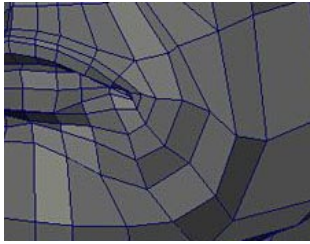


The next step is correct topology for animation.

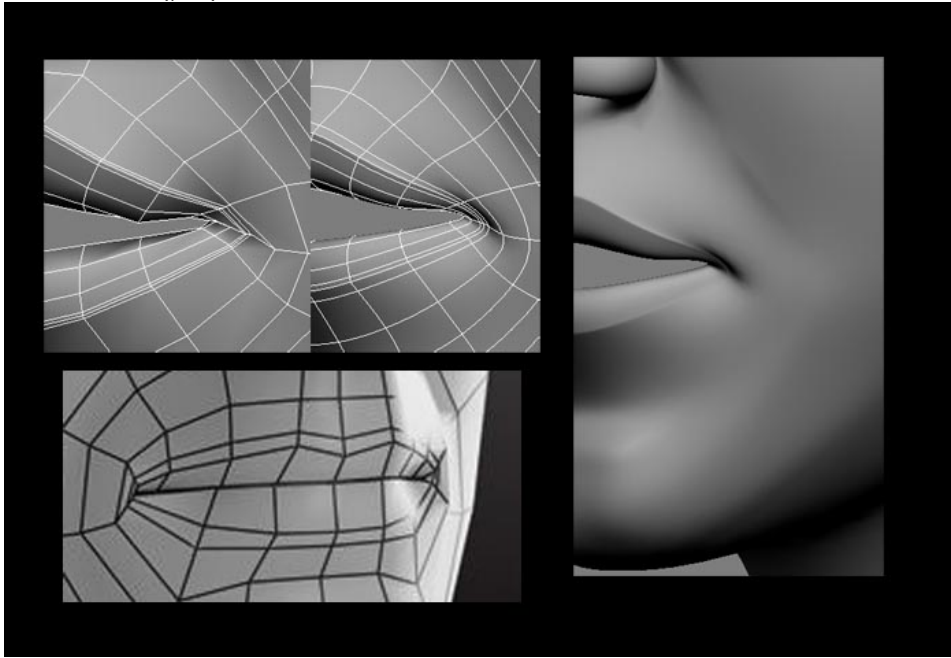
The question is: what kind of details we need for the form and animation?

Important details:

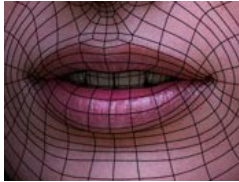
1. **The corners of the mouth** should not be one thin line – at least 2 edges forming the corner. In most wires I see 3 edges -one horizontally and one above and below.(pic5)



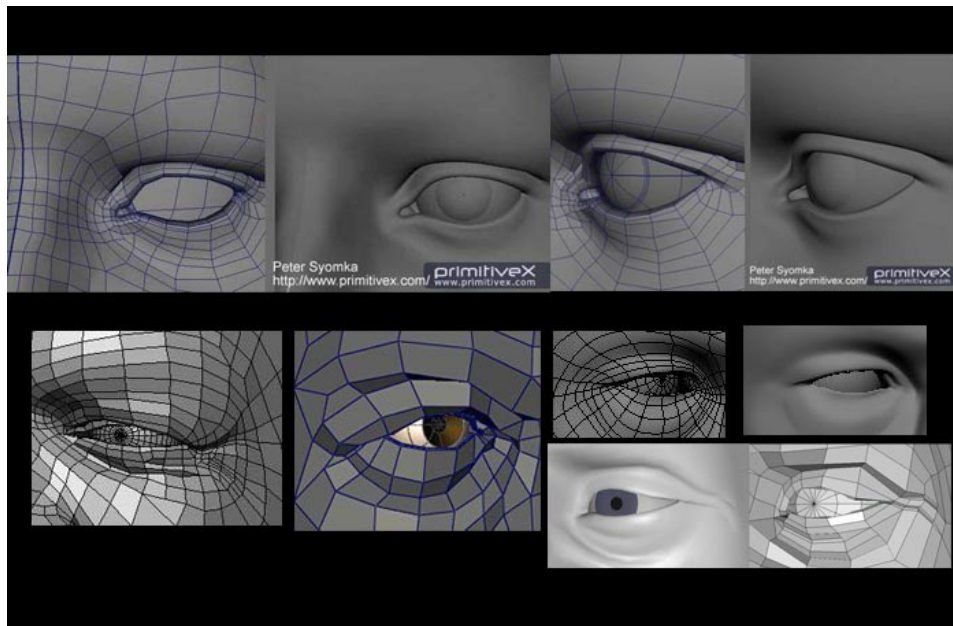
7. **The little wrinkle at the corner of the mouth** - sometimes overlooked. In many old people it does seem to cross the nasolabial fold.(pic6)



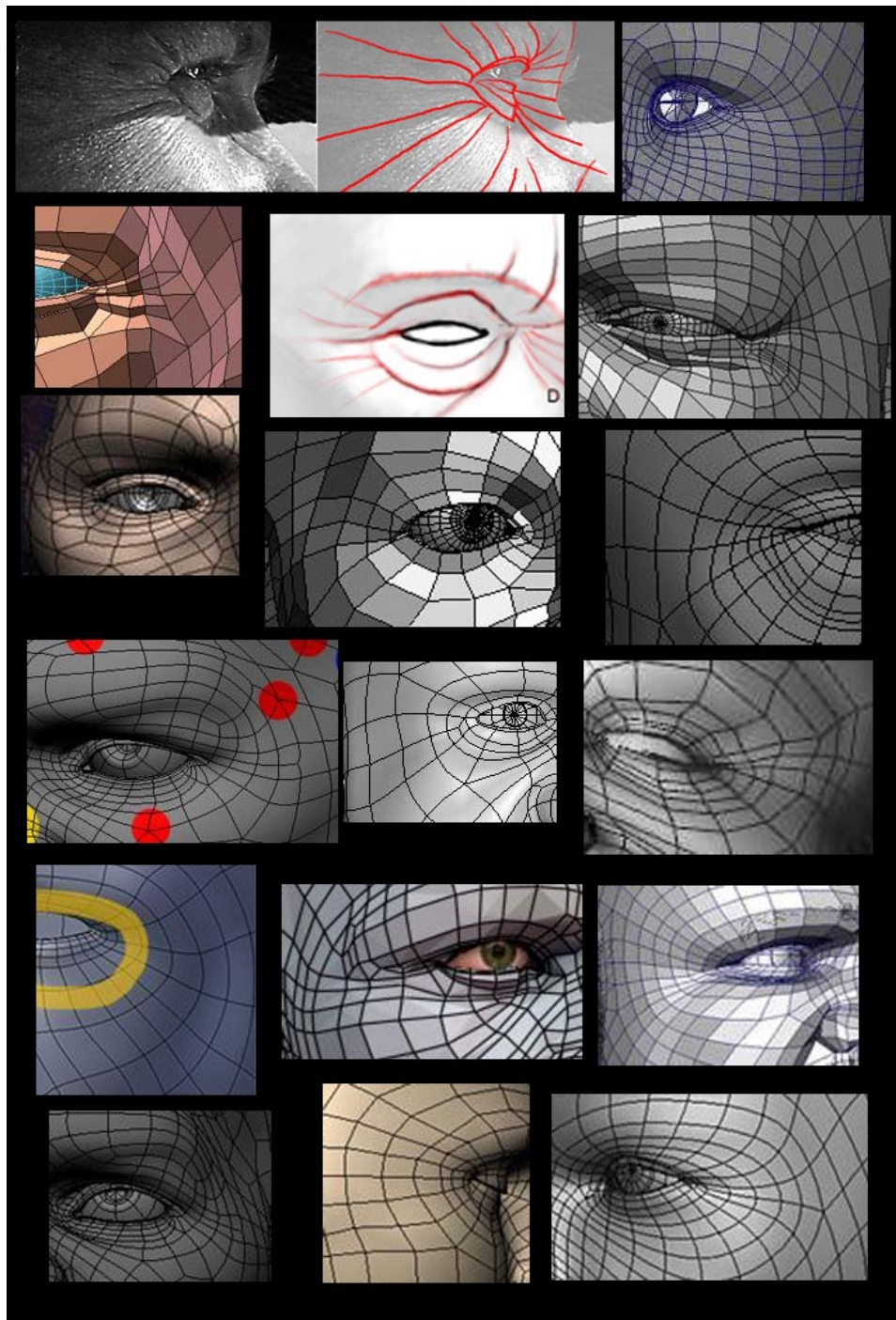
2. **The number of subdivisions of the upper and lower lips and eyelids** should be the same to avoid problems with animation.(pic7)



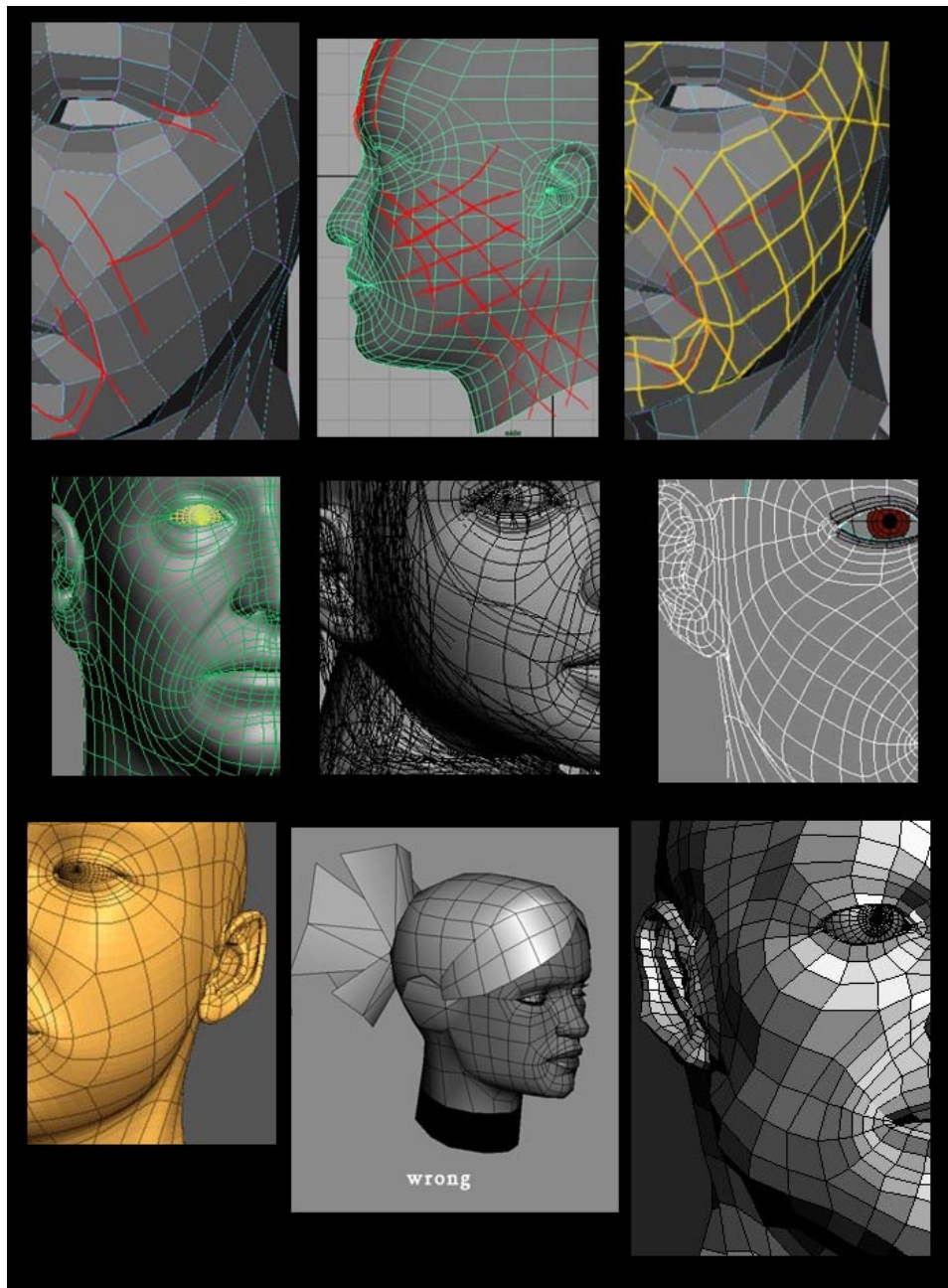
3. **The corners of eyes have a special fold** - the upper lid goes above the lower. (pic8)



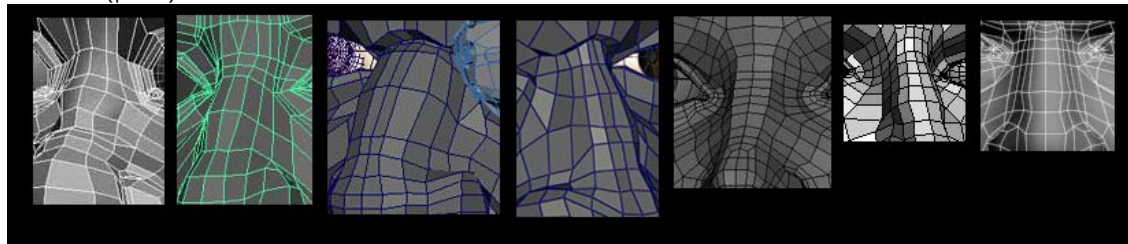
4. **The wrinkles at the corner of the eyes** - very hard to get right if the topology is wrong. I think it's a good idea to add them a a local detail not to make the mesh to dense. I'm not sure whether the circular topology is more logical there to the lines going to the skull base.(pic9)



5. **The contour of the cheekbone** must be defined by the direction of edges - runs from the temple to just below the nostrils (not all the way to them but in that direction).(pic10)

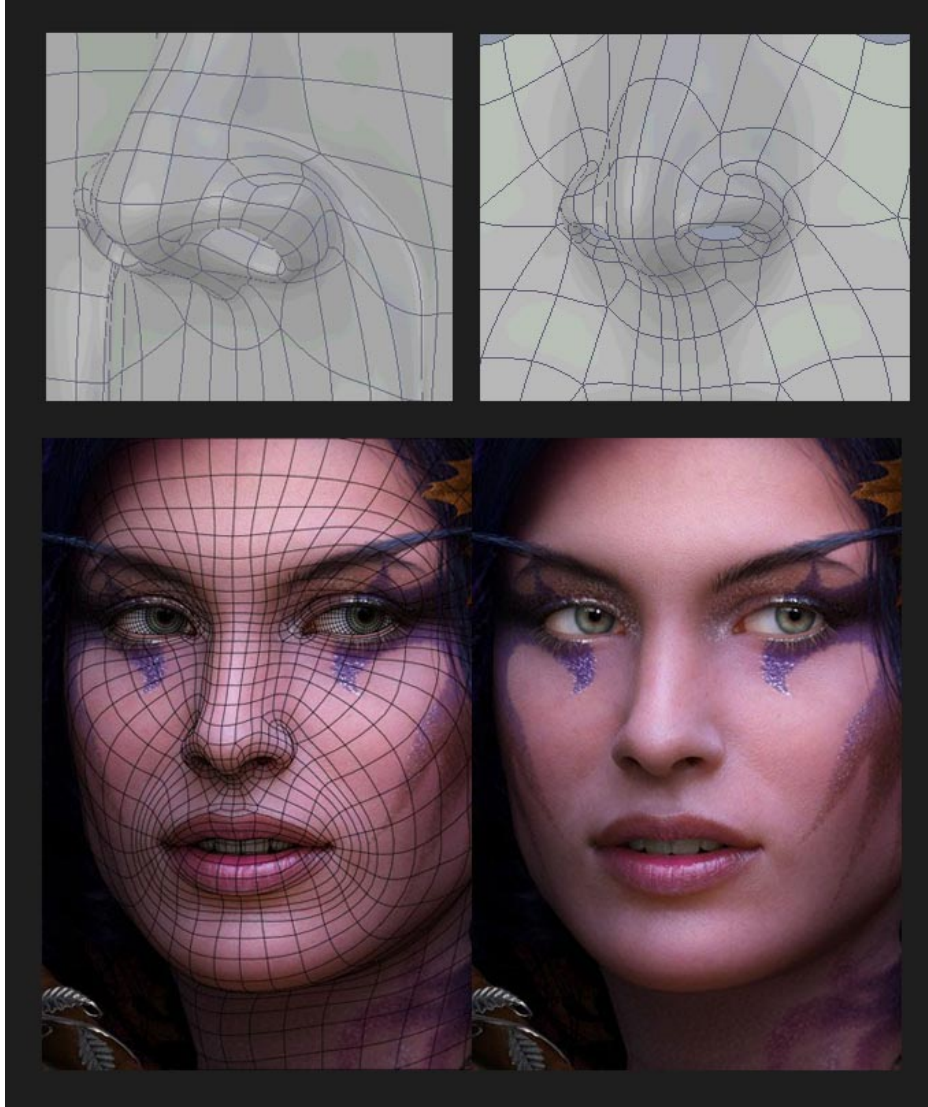


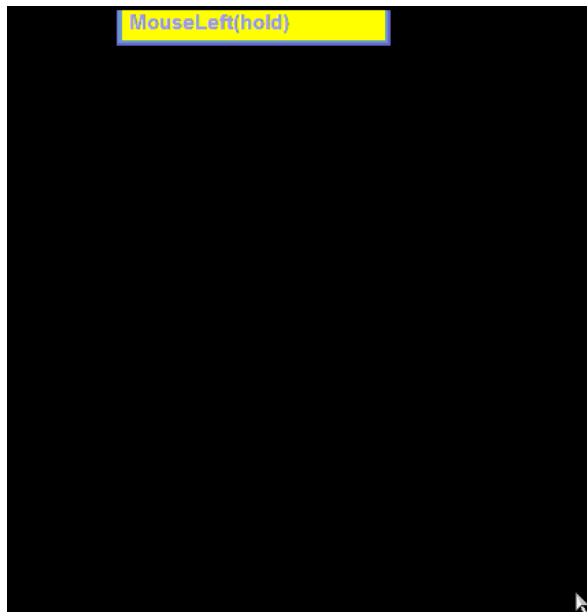
6. **The nose-ridge** - the bridge of the nose displays this surface shape in some people, and I believe we all have the same structure there, just many of us (like asians) don't show it. I guess that all that is needed is a little bend indicating the bone.(pic11)



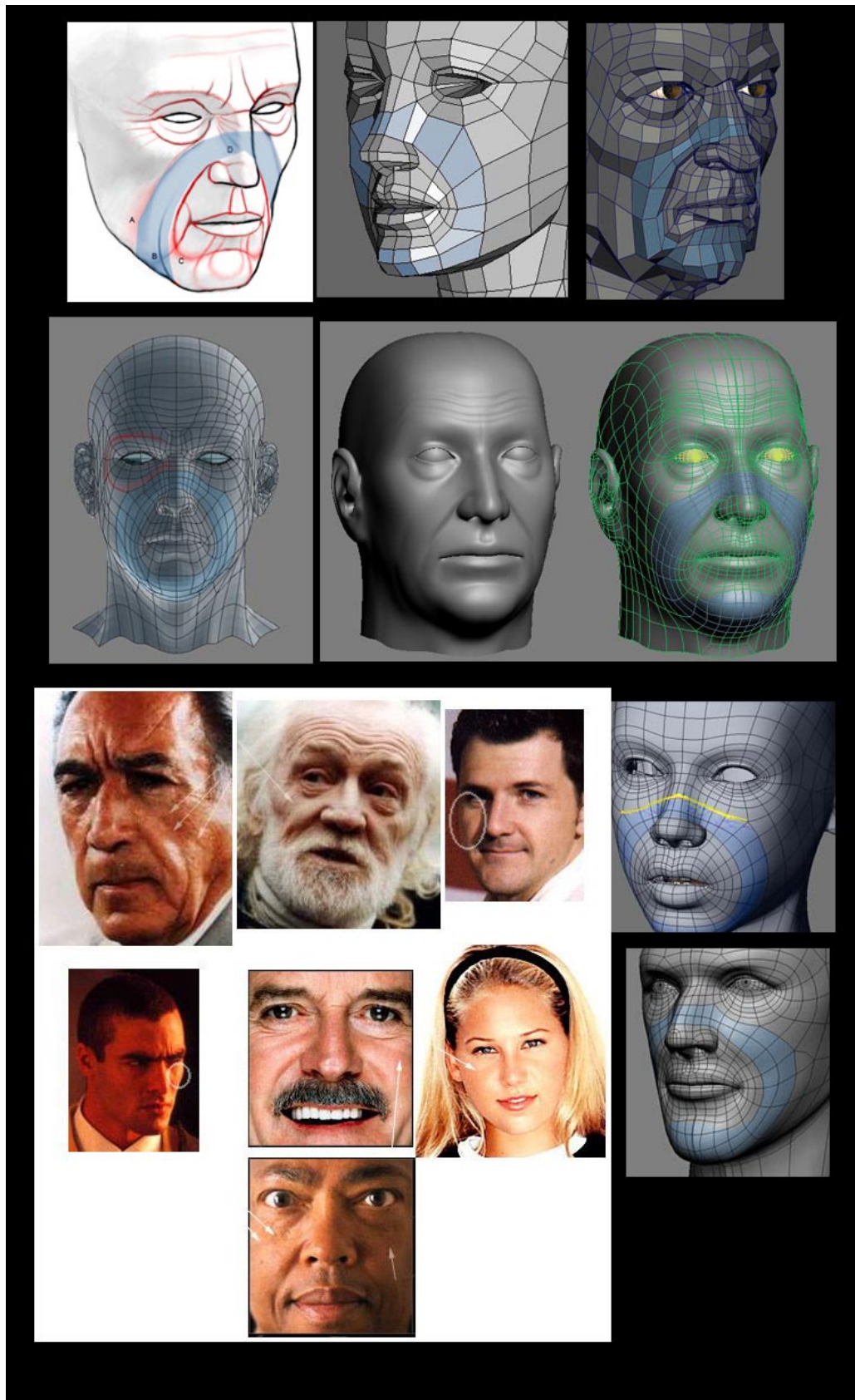
8. **The nasolabial fold** starts inside of the nostril and runs into the chin, together with the next wrinkle parallel to it.

Almost every single person on the planet shows something quite similar. (Although a few have the nasolabial fold hooking up a bit lower on the chin.) Toontje has a good example of nose modeling. <http://blenderartists.org/forum/show...t=93651&page=4> Unfortunately he doesn't explain how he models the nose, but you can see the loops diagram. The best nose I've seen. (pic12, 12b)

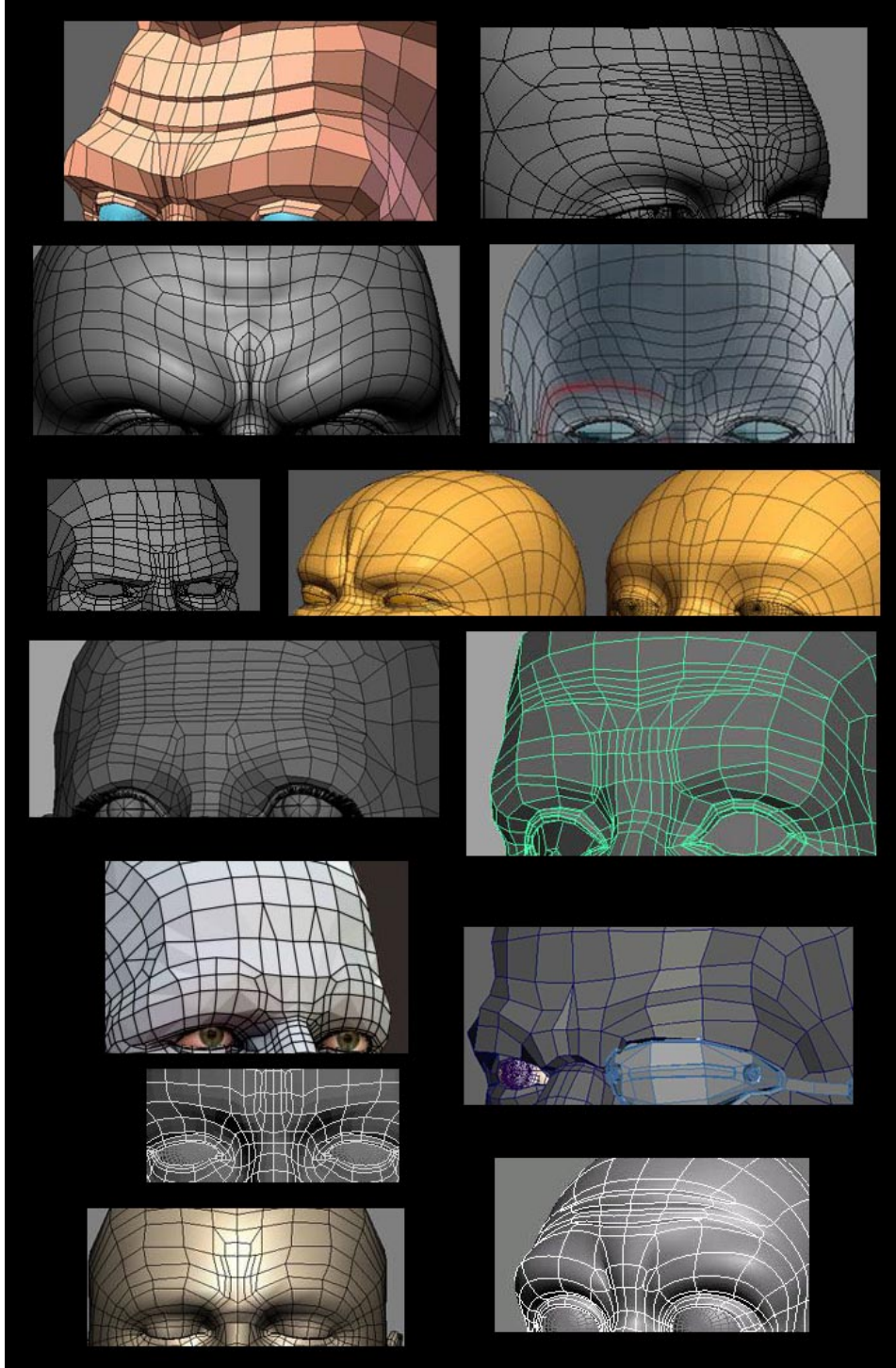




9. **The infraorbital fold** should be present (except in some very young children and very fat people it's hidden.) .(pic3)
(The fatty deposit on the cheek just below it grows and kind of merges with the smaller deposit just under the eye.)
infraorbital fold - edges should run from the inside eye-corner down to the jaw-muscle, not 45 degrees loops to this direction as many do (for an extremely fat person it may differ.)
Notice that this fold defines the eye socket and makes a fold line going from the eye (beak? Where the tears go from, I don't know the correct term in English, help!).
(pic13)



10. **Wrinkles for frowning.** Those are possible variants I've found. I'm sure there are many more. (pic14)

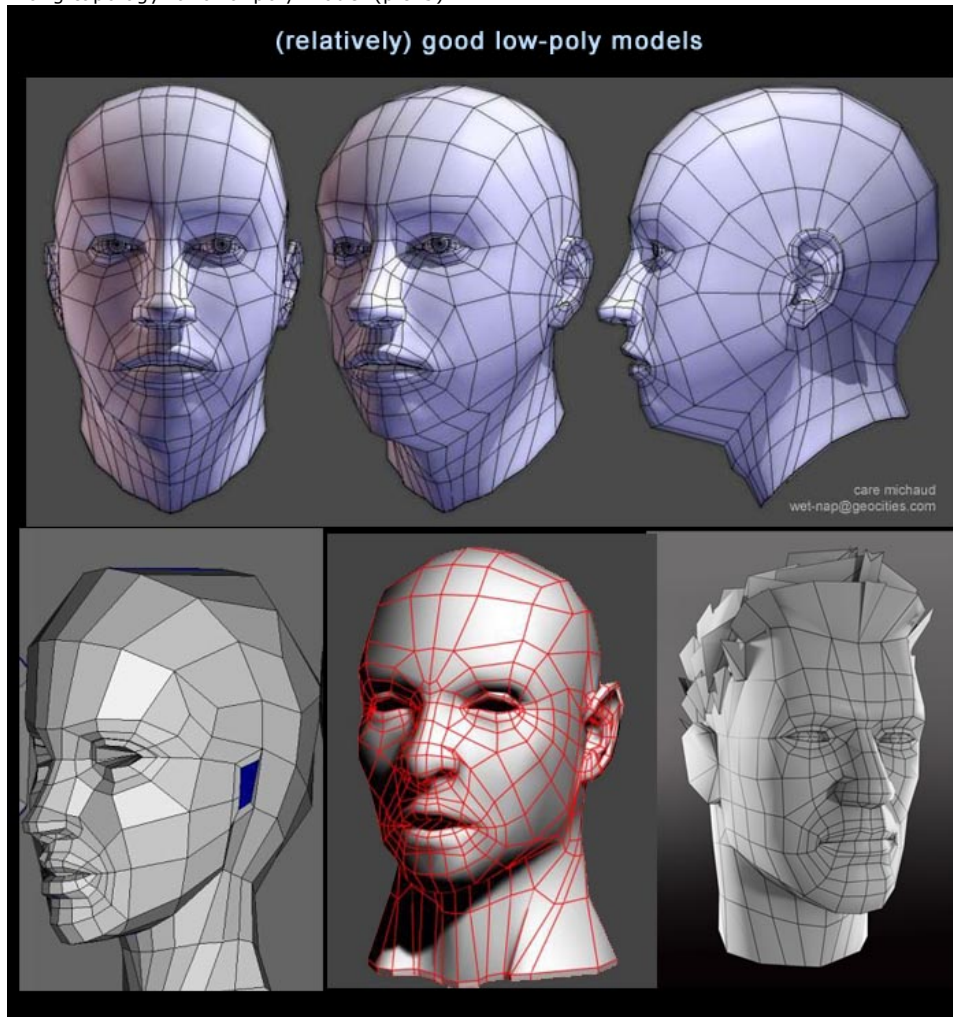


11. The final touch: add some assymetry. The more bad character is, the more you may add. In real life beauty and symmetry are the signs of health, so the more symmetrical face is, the more we like it, but it's rare in real life, so you may add some to make it more believeable. But make it after rigging, blendshapes etc, with a blendshgape of any alternative to make setup easier. Assymetrical characters are a pain to rig and skin. You even can collapre the stack with aplied blandshapes keepinf it rigged and skinned.

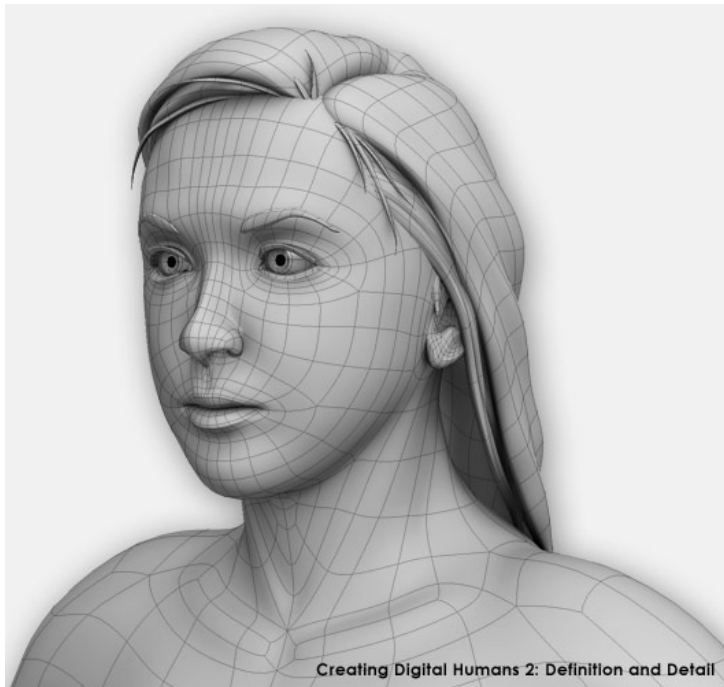
As you see, all these details come from the knowledge of anatomy, and further improvements can be made with

improving the knowledge of anatomy. I guess I will make "topology - body", but I think it's not as critical about animation, as we don't often need muscles of the body deforming to the extent we need facial articulation. But who knows, will wee.

Of course for a lowpoly model the details must be simplified, but the rules are the same. It's not an excuse making a wrong topology for a lowpoly model.(pic15)



And here's an example of topology which, unfortunately, in my opinion, doesn't serve well for animation, though the form is beautiful. (pic16)



Maybe we could now invent a "perfect topology" applying these rules. A low-poly version and sub-d version would be nice. 😊

Last edited by mister3d : 08-16-2008 at 10:52 PM.

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08-12-2008, 07:29 PM

#2

Wasamonkey Nathan Hauck



Join Date: Mar 2006
Posts: 189



nice easy to read collection of information
i'm sure a welcome addition for character artists alike

In the mouth of madness, turds taste like chocolate.
You can test this if you like.

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