

'Facet Designer' - Newsletter 08

YOU CAN GET FOOLED

THE 'IDEAL STONE'

This is Tolkowsky's diamond again (with 75% pavilion breaks). Fig.1 shows the table-up view in the 'normal' illumination of this software with 34.5° crown mains.

Note the dark areas – the edge wedges and the 'black holes' just beyond the star tips. How can this stone be considered 'ideal'?

Let's see what we can do to improve it

CAN WE MAKE IT BETTER?

Keeping the pavilion main slope constant at 40.75°, we varied the crown height until we got the brightest view – see Fig.2 – at about 30° crown main slope; many folks assume that bright is good. We did this by holding the *Max.Slope* up/down buttons and watching the picture change; *Auto* stayed on, so the radial proportions were not affected.

Is this a better looking stone? How will we know if there is no viewer?

THE VIEWER'S HEAD

In Fig's 3 & 4 we select the custom illumination (blue arrow) with black *Back* and white *Front* with *cos* gradation; this duplicates the illumination in Fig's 1 & 2. Fig.3 shows the first gem (Fig.1). We increased the viewer's *Head Radius* until the stars appeared in the stone because of the viewer's head – at 13° *Head Radius*; this corresponds to obstruction at **both** eyes when viewing at about 9" inches from the gem. If you look at this gem from 12 inches away, one eye will not see the dark areas which form the star (what does the brain see?).

IS THE 'IMPROVED' GEM BETTER ?

Fig.4 shows the second gem (Fig.2) with the same illumination as Fig.3 except, increasing the *Head Radius* gradually, the black stars appeared at only 4°. This means that you would see these dark areas with **both** eyes even if viewing them from 2-1/2 feet away!

If you like it, then it's better; if you don't, it's worse. It does have a prettier star. 'Beauty is in the eye of the beholder'.

