a circular cone. If the pyramid were glass and you drew each one of these section lines on its surface and then looked from the apex, you would still only see one "image", the square, since all the other ones you have drawn are in line with one another. In order to make a perspective reconstruction, you need to make an assumption about an object, usually that there is a square tiled floor.

Now taking this a step further to solids which spatially have the same properties as a cube, that is they have 8 vertices and 6 faces made of quadrilaterals. By looking at intersections of planes and lines and using the fact that the lines meet in three points (or appear to, as in the case of a cube in three point perspective) they must conform to Reye's configuration (see figure 148 in Hilbert and Cohn Vossen's *Geometry and the Imagination*). This is so for the rhombihedron we are considering which means that all such solids when looked at from the correct point will appear to be a cube. This is why Nick MacKinnon was able to see a cube because he moved his eye until he did so. In addition to this, if you see the original engraving where the solid rests on a square plinth, you will see the central vanishing point for the perspective marked with an eye which agrees with the central vanishing point for the Melencolia.

Yours sincerely,

JOHN SHARP
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DEAR EDITOR,

I have just picked up a copy of the *Gazette* Volume 78, March 1994 and I see the short note (78.7) by R. E. Scraton (pp. 60-63). The problem he is considering is an old one and is now called Shapiro's problem. Shapiro made the conjecture that $S \geqslant n/2$. This is of course false in general as is shown. A history of this problem and the current knowledge is given in the book *Classical and new inequalities in analysis* by Mitrinovic, Pecaric and Fink (Kluwer Academic Publishers, 1993). Your readers might like to know this.

Yours sincerely,

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