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LETTER TO THE EDITOR

A NOTE ON THE GEOMETRY OF THE GREAT PYRAMID

The information in James M. Suttenfield, Jr., "A New Series," *The Fibonacci Quarterly* 16, no. 4 (August 1978):335-343, may be misleading to those who have never studied the geometry of the Great Pyramid.

Mr. Suttenfield apparently used information in recent literature to suggest geometry for the Great Pyramid which is different from well-known theories. Mr. Suttenfield's dimensions yield an angle between a face plane and the base plane:

$$\beta = \arctan \frac{\pi}{2\sqrt{\phi}} = 50°59'58.9'' \quad (\phi = \text{golden number})$$

An error analysis using eight sets of angle data from W. M. F. Petrie, *The Pyramids and Temples of Gizeh* (Longon: Field & Tauer, 1883), yields an average of his mean angles of 51°50'03.25''. Considering his uncertainties, the standard deviation (1σ) about the mean is ±02'59.155''. A more narrow window of ±01'29.375'' can be found by taking the averages of his minimum and maximum angles due to the uncertainties.

The theory that the perimeter of the pyramid divided by twice its vertical height is the value of π gives an angle of 51°51'14.3'' which is just inside the upper limit of the more narrow range of uncertainty. The theory that the slant height divided by one-half the basewidth gives the golden number yields an angle of 51°49'38.25'', and this is just short of the average mean angle from Petrie's data. Mr. Suttenfield's theory yields an angle that is short of the mean by 50'04.35'', and this is far outside the range of uncertainties in the survey data.

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