Aquila peers into the past

HERE’S LOOKING AT EUCLID

Euclid of Alexandria was an Ancient Greek mathematician who is sometimes called the ‘Father of Geometry’. He lived around 300 BC (that’s about 2,317 years ago) in the Egyptian city of Alexandria, where all the big names in philosophy, mathematics and astronomy hung out. Or did he?

ANCIENT MATHEMATICAL MAN OF MYSTERY

Here’s the thing… No one really knows if Euclid of Alexandria ever existed! He is an ancient mathematical man of mystery. To unravel it, we have to look at the evidence.

Evidence for the existence of Euclid

Clue 1: Over nine major mathematical works are attributed to Euclid BUT…

Evidence against the existence of Euclid

Clue 2: No one knows where, when or to whom he was born (no records).

Clue 3: No one knows when, where or how he died (no known tomb).

Clue 4: No one knows what he looked like, or who his family and friends were (no records).

Clue 5: No one claimed Euclid as a student or as their teacher (no contemporary biographies).

Clue 6: Later biographies were written as much as 800 years after his life (oooh-err).

Clue 7: The name Euclid comes from Ancient Greek Ἑυκλείδης, Ἑ (Eu), meaning ‘good’ or ‘well’ and κλεος (Kleos) ‘glory’ or ‘renown’. Is this a secret name for a group of mathematicians.

Which theory do you think best fits the facts?

Whether or not Euclid was an actual man, there are a whole lot of clever mathematical ideas attributed to him. The famous Elements books and the Golden Ratio, among other works, are thought to have come from the pen of Euclid.

THE ELEMENTS

The Elements are a series of thirteen books containing all the collected mathematical knowledge of the time, hailed as a ‘masterpiece of mathematical logic’; it brought together ideas and statements about all the things that could be done in two dimensional space with a straight line and a compass, plus some simple facts about lines and angles. Euclidean Geometry is still taught in schools today.

Five Euclidean Geometrical Rules (geometry basics)

1) It is possible to draw a straight line between two dots.
2) A straight line extends both ways to infinity.
3) It is possible to draw a circle, given a centre and a radius.
4) All right angles are equal.
5) Where two straight lines are crossed by another with an interior angle that is less than 180, they will eventually cross (but parallel lines never will).

THE GOLDEN RATIO

Called the ‘extreme and mean ratio’ by Euclid, the golden ratio appears in geometry, art, architecture and nature. Some people later called it the divine ratio, its essence is simple:

A straight line divided into two parts, where the bigger part divided by the smaller part is as the whole line divided by the longer part.

You can draw the Golden Ratio in a rectangle:

You will need

1) Draw a square.
2) Measure halfway along the bottom and add a point.
3) Connect the point to an opposite corner.
4) Use that new line as a radius (half the width of your circle) and your dot as the circle centre.
5) Draw an arc from the end of your new line down to meet an extended horizontal line from the base of your original square.
6) Extend the top horizontal line parallel with the extended bottom line.
7) Complete your golden rectangle by joining up the extended horizontal lines with a straight line from the outer edge of the arc line.

How do you know you’ve drawn the Golden Ratio in a rectangle? Well, to check, just divide the longest side by the shortest. The answer should be around 1.62.

Which theory do you think best fits the facts?

Theory 1: Documents about Euclid’s life were destroyed or lost.

Theory 2: Euclid had another name and just called himself Euclid when he wrote.

Theory 3: Euclid collected work from other mathematicians and published the work anonymously.

Theory 4: Euclid was the collective team name for a group of mathematicians.

PSST . . . PASS IT ON!

Before Elements was written, Pythagoras (the triangle man) and his Pythagoreans (students) had already been working out geometrical truths (as had others before them), and sometime after them, the philosopher Plato wrote down some of the accumulated number wisdom. Then came Euclid, maybe, who collected all their work and wrote it down. Then came everyone who read Elements and were inspired by the number logic, from Ancient Greek mathematician Archimedes (inventor of the water screw) to some much more recent celebrities, including Leonardo of Pisa (Fibonacci sequence), Johannes Kepler (laws of planetary motion) and Albert Einstein (general theory of relativity).

That is how knowledge gets passed down through the years; person to person, book to book. So even if the people who wrote the books get slightly forgotten, the wisdom still remains.

Visit the readers’ page on our website for a full set of visual instructions!