THE SECRET OF THE CIRCLE AND TRISECTION OF ANGLES

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PREFACE.

The most famous geometrical and mathematical problem of the ages is the squaring of the circle.

The problems that have heretofore defied solution by fixed rule or method are:

1st. The construction of a square that shall exactly equal in area any given circle.

2nd. The construction of a circle that shall exactly equal in area any given square.

3rd. The construction of a straight line that shall exactly equal the circumference of any given circle.

4th. The construction of a circle the circumference of which shall exactly equal any given straight line.

The circumference of a circle has been proven by mathematical calculations, and the ratio of its circumference to its diameter has been computed to 400 decimal places.

To reduce a circle to a square or a square to a circle, or to reduce the circumference of a circle to a straight line, or a straight line to the circumference of a circle, has always, in the past, required complicated mathematical calculations, always with chances of making mistakes in figures, and the results at best only "approximate." There may have been many "approximate" solutions of the above problems.

Mathematical calculations serve to prove the length of a straight line, when properly constructed, that shall equal the circumference of a circle, but the calculations do not and cannot make the line.

Let it be conceded that the circumference of a circle may be measured by making a wheel or disc of the same diameter and circumference as the circle, but to do this for every circle to be calculated would be utterly impracticable.

These four problems are all solved by the right-angled triangle A B C, Figure 1.

By mathematical calculations the results are proven "correct to infinity."

The triangle is to be constructed according to the geometrical diagram a b c, Figure 2.

It is to be made of metal or other material, and

may be of any size. For the sake of simplicity I have adopted the following: A C = 10 inches; A B = 8.862269254 + inches; B C = 4.6325138 + inches. Then B A C forms an angle of 27° 36'—. Whatever the size of the triangle may be, the proportions between the parts are always the same. In geometrical problems the proofs must be, not "approximate," but exact. The inch, the foot, the metre and other standards of measurement may not be exactly the same ten thousand years from now as they are today; but mathematical and geometrical truths are the same always, unchangeable and eternal. Therefore the triangle A B C, Figures 1 and 2, as a standard of measurement between circles, squares, straight lines and circumferences may be made of any size, anywhere at any time, and the angle being always the same and the triangle being always similar, is a geometrical truth, "the same yesterday and today and forever."

Let it be conceded:

1st. That it is as easy to construct a circle as it is to construct a straight line.

2nd. That it is as easy to construct a mechanical wheel or disc as it is to construct a mechanical square.

3rd. That a wheel or disc may be revolved along

a plane surface in a straight line, and that a straight line may be constructed and marked equal to the perimeter of the wheel or disc and equal to the circumference of a circle of the same diameter.

4th. That this line may be divided into 4 equal parts.

5th. That the geometrical diagram a b c, Figure 2, may be constructed and used as a standard for constructing similar angles and triangles and the right-angled Triangle A B C, Figure 1, may be constructed with the angle B A C similar to angle b a c in Figure 2. Then with the triangle a square may be constructed equal in area to any given circle; a circle may be constructed equal in area to any given square; a straight line may be constructed equal to the circumference of any given circle; and a circle may be constructed whose circumference equals any given straight line.

Therefore the 4 problems are solved.

Another celebrated problem is the trisection of angles by elementary geometry (straight lines and circles). It was attempted in the schools of the ancients, and has probably been attempted by most students and professors of geometry. It has, I am informed,