

PREFACE.

THE title to the following pages, must indicate that the mind of the writer is actuated either by the most vain presumption or by the strongest conviction,—for that which is here now assumed to be discovered, remained through all preceding ages undiscovered.

The Problem of the Quadrature of the Circle passed under the view of Newton, Playfair and Leslie of Great Britain, and of Euler, Lagrange, Legendre and Laplace of the European Continent, whose discoveries and applications of Mathematical Science, have opened up, even to familiarity, the most profound laws of nature.—Nevertheless, they, and all others before them, have left without any finite solution, the ancient Problems—namely, the Quadrature of the Circle, the Trisection of the Angle, and the Duplication of the Cube.—Therefore, it must appear to be a great boldness in him who would even think of, and still more hope, to accomplish that, which those celebrated men, may be considered to have laid aside, or passed over as a hopeless undertaking.—Yet it may be supposed that the attempts if any made by them, to solve these ancient Problems were very limited, for the solutions of them if attained, would have led to no great or useful result; while time for this, that might have been uselessly spent, was occupied in the advancement of Mathematical Science, and in researches directed towards the more splendid discoveries regarding the Phenomena of the Physical world, and the laws of the universe.—Such have been those discoveries that the Laws of the stability and movements of the heavenly bodies are demonstrated to be only one, and that one universal, which alone regulates their motions and retains them in their orbits. Also, the mutual distances, masses and densities of them have been measured, their periods exactly determined, their anomalies accounted for, and all finally and rigorously demonstrated.

From the above view, it may appear that the modern advancements made in the Mathematical Sciences, may have rather retarded than advanced farther attempts to solve those ancient Problems, and which may be said to have been laid aside by those most proficient in these sciences; for the past had shown only ever failing attempts; while at the same time another and inexhaustible field of discovery and usefulness lay open before them,—hence it is not to be expected that the time, which could be applied to the latter, would be expended in seeking that, which the greatest of improbability made doubtful to be possible.

Legendre, in the fourth Note to his Geometry, has demonstrated that the ratio of the circumference and diameter of a Circle are irrational numbers; and all attempts heretofore made by immense labour of calculation to find that relation in entire or rational numbers, avail nothing, more than obtaining a useful approximation by a decimal of six or seven figures. But that which may be incommensurable by numbers, it is well known may be commensurable in Geometry. Therefore the ancient Problems are still open to investigation by geometry; *for when the length of the circumference of a given Circle can be found or resolved into a straight line, the quadrature of the Circle is accomplished.* It is now the solution of this Problem which the writer presumes to lay before the public.