1056-51-863 **Thomas J Osler*** (osler@rowan.edu), Mathematics Department, Rowan Univeristy, Glassboro, NJ 08028. *Another look at Euler's parallel oblique-angled diameters.*

In the paper E83, (On some properties shared between conic sections and infinitely many other curves), Euler was examining properties of the conic sections that could be shared by more general curves. Most of the paper is concerned with "oblique-angle diameters", a concept that seems to have been familiar to his readers in the eighteenth century, but has been ignored today.

Definition: Given a curve, and the line (diameter) ET , with an associated number m. Then the line ET is called an oblique-angled diameter for this curve, if every chord with slope m is bisected by the diameter ET. If the diameter and curve intersect at T where a well defined tangent line exists, then the slope of this tangent line is the number m.

This paper contains six main theorems and one construction. When the same theorems appear in E83, our proofs of these theorems differ widely from those given by Euler. Two of our theorems and the construction are not found in Euler's paper and may be new. Among the proofs is the fact that if a curve has two parallel diameters, then it has infinitely many parallel diameters, all equally spaced. We also prove that the parabola is the only curve in which every line parallel to the axis is an oblique-angled diameter. (Received September 18, 2009)