

changed under both transformations  $T_\theta$  and  $S_a$ . The interpretation of this fact possesses geometric interest. When an element is turned, the common conjugate direction moves in a plane whose normal has the direction established by the ratios  $G_x : G_y : G_z$ . When an element is transformed by  $S_a$ , the line of centers of the second osculating circles has this direction.

One final detail may be mentioned. When an element is slid, the characteristic direction turns about a fixed point in the plane of the element. That is, the tangents to the characteristics form a pencil. Denote the vertex of this pencil by  $V$ . Direct the attention upon an element at the point  $P$ . When this element is turned, the line of centers of the first osculating circles will pierce the plane of the element in a point  $W$ . It may be shown without difficulty that  $P$  is the mid-point of  $V$  and  $W$ .

SHEFFIELD SCIENTIFIC SCHOOL  
May, 1917

## ERRATA, VOLUME 18

Page 73. T. H. HILDEBRANDT. *On a theory of linear differential equations in general analysis.*

Page 79, line 25, the expression

$$\sum_{k=1}^n c_{ik} y_{0kj}(x)$$

should be replaced by

$$\sum_{k=1}^n y_{0ik}(x) c_{kj}.$$