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James J Tattersall* (tat@providence.edu), Department of Mathematics, 549 River Avenue, Providence, RI 02918. *Steiner-Lehmus revisited - again*. Preliminary report.

In 1840 C.L. Lehmus, professor of mathematics at a military engineering school in Berlin wrote to Charles-François Sturm at the *École Polytechnique* in Paris asking him if he could provide a proof the following conjecture: If BOD and COE are equal bisectors of the base angles of triangle ABC , then AB equals AC . Sturm passed the query on and in 1844 Jacob Steiner professor of geometry at the University of Berlin published the first proof of the conjecture. In 1852 J.J. Sylvester produced two more indirect proofs and questioned the existence of a direct proof. By 1940 over sixty (mainly indirect) proofs of the conjecture had appeared in print. We discuss techniques used to establish the result and the complications encountered in constructing a direct proof. (Received September 10, 2012)