1035-01-348 **Reinhard Laubenbacher** (reinhard@vbi.vt.edu), Virginia Bioinformatics Institute, Virginia Polytechnic Institute and State Univ, Blacksburg, VA 24061, and **David Pengelley*** (davidp@nmsu.edu), Mathematical Sciences, New Mexico State University, Las Cruces, NM 88003.

Sophie Germain's manuscripts on Fermat's Last Theorem: A further evaluation of their scope, depth, and original techniques.

Recent discoveries in Sophie Germain's manuscripts from around 1819 reveal much more scope and mathematical sophistication in her unpublished program towards Fermat's Last Theorem than we reported previously.

Germain pursued a multifaceted attack on numerous different results about the Fermat equation (and even other Diophantine equations), of which Legendre's sole published mention of her work reveals hardly anything. Unlike Legendre's attempts at some of the same results, Germain's approaches are characterized by unfailing emphasis on theoretical techniques of broad applicability, and include considerable adumbration of a group-theoretic point of view. Some of her best ideas were rediscovered only many decades later by others.

Germain's papers present a striking image of original ideas focused on ambitious results, but in great isolation and independence, even from Legendre, which left her vulnerable to undetected errors. Her manuscripts suggest that she was polishing her work for submission to the French Academy's prize competition on Fermat's Last Theorem, even though she never made a submission. Her work has likely lain unread for nigh 200 years. We argue for a substantial elevation of her stature as a number theorist. (Received September 04, 2007)