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Dominic Klyve* (klyved@cwu.edu), Dept of Mathematics, 400 E University Way, Ellensburg, WA 98926. *A Guilty Euler Searches for Large Primes.*

Euler's first paper in number theory, written when he was 25 years old, was a *tour de force* of new ideas and connections in the study of primality and factoring. In the paper, he established several new lines of inquiry that he and others would spend centuries following. He also disproved the claim that Fermat numbers, integers of the form $F_n := 2^{2^n} + 1$, are all prime, and thereby removed from the mathematical world what was believed to be the easy possibility of generating arbitrarily large prime numbers. This talk will use Euler's desire to expiate his "guilt" over the factorization of F_5 as a lens to read much of his later work in number theory. (Received September 26, 2017)