1093-01-130 **Stephanie Dick*** (sadick@fas.harvard.edu), 1 Oxford St., Science Center 371, Department of History of Science, Harvard University, Cambridge, MA 02138. *Reproving Principia: Automated Theorem Proving and the Materials of Mathematics.*

Mathematics is traditionally characterized as a highly abstract craft of the human mind. In fact, it has a very rich material dimension consisting of many tools - calculators, physical models, written symbol systems, etc. - that have equipped the heads and hands of mathematicians through history. The advent of digital computing created many new possibilities for the material representation and exploration of mathematics.

This talk explores an early interaction between mathematics and the media of digital computing - the development of an theorem-proving program called the Logic Theorist (LT). It was developed in the mid-1950s at the RAND Corporation. The LT was designed to prove theorems from Whitehead and Russell's 1910 logical treatise, Principia Mathematica. In Principia, logical propositions and proofs occupy one medium in particular: paper. The architects of the LT instead had to develop ways of representing and manipulating the objects of logic in the digital media of the Johnniac mainframe computer. Logical expressions, for example, had to be reformalized for input by punched card, storage in magnetic core and drum memory, and manipulation by computer operations. This talk explores the history of the LT as a case in this material history of mathematical representation. (Received August 08, 2013)