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## APL News Story

### Capturing Cuneiform

Fueled by a \$1.55 million grant from the National Science Foundation, APL and three other Hopkins entities will collaborate over the next three years to develop a virtual cuneiform library.

The long-range goal of the Digital Hammurabi Project is to make 3-D images of cuneiform-inscribed tablets available to scholars worldwide over the Internet.

Cuneiform is the oldest known writing. The earliest texts — pictographic, syllabic and alphabetic signs made by pressing sticks into damp clay — appeared in Mesopotamia about 3200 B.C., and the last texts were produced around A.D. 75.

Written in languages of the ancient Near East, including Sumerian, Babylonian, Assyrian and Ugaritic, these well-preserved tablets spell out law codes, mythology, mathematics and even beer recipes and are feast for the scholarly community.

"The problem is that there are thousands of these tablets scattered in museums throughout the world and it's hard for scholars to see them all," says APL's co-investigator on the project. "In fact, only one-tenth of all existing cuneiform texts have been read even once in modern times."

Two-dimensional photos of these texts are inadequate for detailed study because they don't show subtle shapes and indentations made as writers pressed their styli into the clay. And — perhaps running out of room — these ancient scribes often trailed their wedge-shaped characters along the sides and even onto the backs of the tablets.

Along with APL the Hopkins team includes the Krieger School of Arts & Sciences, the University libraries, and the Whiting School of Engineering.

Beginning in October the team will develop a portable, very high resolution (100 lines per millimeter) 3-D scanner that will scan all facets of a cuneiform tablet in under a minute. New software will permit users to rotate, pan, tilt, zoom and relight the resulting virtual tablets in real time. And the team will devise imaging algorithms as they invent a completely new technology: automated 3-D character recognition of cuneiform writing.

"Our aim is to become the leading international library for virtual 3-D cuneiform tablets — the digital equivalent of cuneiform texts held at the Louvre, British Museum, and the Chicago Oriental Institute all rolled into one," says APL's co-investigator.