

## **Center for Archaeological Materials/Center for Materials Research in Archaeology and Ethnology**

The mission of the Center for Materials Research in Archaeology and Ethnology (CMRAE), a consortium of eight Boston-area educational and cultural institutions, is to advance our understanding of prehistoric and nonindustrial societies through analysis of the structure and properties of materials associated with human activity. Plant and animal food remains and human skeletal material, as well as metal, ceramic, stone, bone, and fiber artifacts, are the objects of study, along with the environments within which these materials were produced and used. At the Center for Archaeological Materials (CAM) at MIT, investigators concentrate on the materials-processing technologies that transform natural materials into cultural objects.

At MIT, CAM is administered by the Office of the Provost. In 1998–1999, the Department of Materials Science and Engineering (DMSE) established a new undergraduate major in archaeology and materials, Course 3-C, as well as an interdisciplinary doctoral degree program in archaeological materials. These are the only academic degree programs of their kind in the United States. The graduate students enrolled in the PhD program and the undergraduate Course 3-C majors all carry out their Undergraduate Research Opportunities Program activities and dissertation research in the CMRAE laboratory facilities.

By June 2008, eight students had graduated from the 3-C program. All eight students received the DMSE award for Outstanding Senior Thesis. DMSE awarded its first PhD to a student enrolled in the graduate degree program in archaeological materials. By June 2009 DMSE/CMRAE recruited two new students: one who entered the PhD program in archaeological materials and the other as a Course 3-C major.

In AY2009 CMRAE's annual two-term graduate subject was 3.984 Materials in Ancient Societies: Ceramics. Students enrolled from Harvard and Brandeis Universities. The fall term was devoted to study of ceramic materials, with emphasis on the properties of ceramics most frequently managed by early societies. Both Brandeis University and the Peabody Museum of Archaeology and Ethnology at Harvard University contributed archaeological artifacts of ceramics that students analyzed by petrographic techniques in order to reconstruct their fabrication histories.

Archaeological Science, the CMRAE/CAM undergraduate subject introduced during AY1996 and offered jointly by DMSE, the Department of Chemistry, and the Department of Earth, Atmospheric, and Planetary Sciences, continues to be highly popular among students from CMRAE institutions. Of the 34 students enrolled, 28 were from MIT, one was from Harvard University, one was from the University of Massachusetts, Boston, and four were from Wellesley College; 12 faculty members from four CMRAE institutions lectured in the subject.

During the spring 2009 term, 30 undergraduate students in subject 3.094 Materials in Human Experience undertook a class engineering project supported jointly by CMRAE and DMSE. They built a full-size reproduction of an ancient Ecuadorian balsa wood

sailing raft, constructed with balsa logs donated from Ecuador, that they launched at term's end and sailed on the Charles River. Such maritime rafts made of balsa logs and cotton sails were known to have voyaged along the Pacific Ocean from Ecuador to west Mexico as early as the 7th century of the common era. Professor Dorothy Hosler, who directed the 3.094 raft project, has shown that metallurgical technologies were introduced to west Mexican societies, that lacked metallurgy, by Ecuadorian voyagers aboard these rafts.

CMRAE entered into discussions with the Cyprus Institute's Science and Technology in Archaeology Center (STARC) concerning establishment of a series of undergraduate summer courses that CMRAE will offer at STARC on the materials science and engineering of archaeological objects. The first of these courses is scheduled for June 2011. CMRAE is working closely with STARC in designing a state-of-the-art materials research and teaching laboratory for the Cyprus Institute.

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*More information about the Center for Archaeological Materials/Center for Materials Research in Archaeology and Ethnology can be found at <http://web.mit.edu/cmrae/>.*