

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 the understanding of prehistoric and nonindustrial societies through analysis of the structure and properties of materials associated with human activity. The objects of study include plant and animal food remains and human skeletal material—as well as metal, ceramic, stone, bone, and fiber artifacts—along with the environments in 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.

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

Archaeological Science, the CMRAE/CAM undergraduate subject offered jointly by DMSE, the Department of Chemistry, and the Department of Earth, Atmospheric, and Planetary Sciences, continues to enjoy high popularity among students from CMRAE institutions. This year, 78 of the 82 students enrolled were from MIT. The others were from Brandeis University, Harvard University, and the University of Massachusetts, Boston. Eleven faculty members from six CMRAE institutions lectured in the subject.

During the spring term, 40 first-year undergraduate students in 3.094 Materials in Human Experience were engaged in lecture and laboratory sessions that explored the development of metallurgy among ancient Andean societies and the processing and use of lime plaster and natural pigments by the Romans for *buon fresco* architectural enhancement. The laboratory project assigned for the ancient fresco unit focused on the reproduction of scenes from a variety of Roman wall paintings. Each student reproduction was executed in the *buon fresco* technique, in which the painting is executed on the plastered ground while the plaster is still wet. Students processed the lime, prepared a suitable wall backing for the plaster, gridded the plaster ground to produce a scaled charcoal drawing of the fresco image, and then painted the image using the same pigments the Romans used—identified through laboratory analysis by the conservation scientists at the Cotsen Institute of Archaeology at the University of California, Los Angeles. The 3.094 students carried out both the Andean metallurgy and the Roman fresco activities in the Merton C. Flemings Material Processing Laboratory.

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