

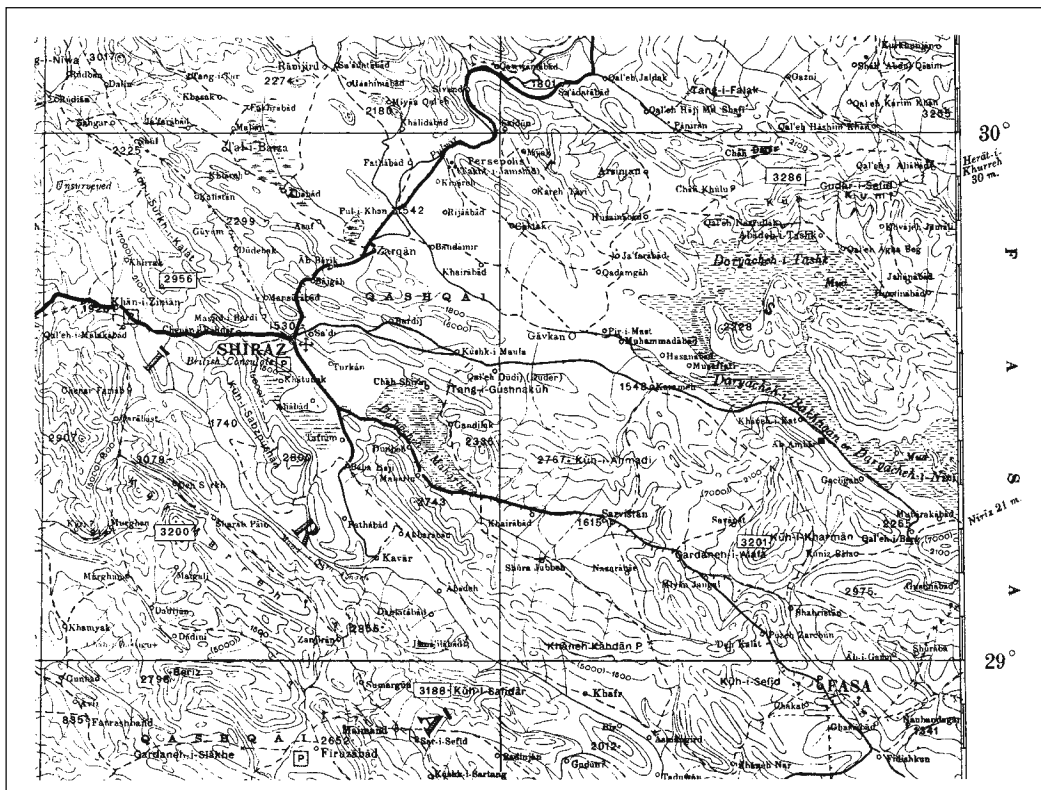


<http://oi.uchicago.edu/research/camel>

### Scott Branting

Several important milestones were reached by CAMEL during 2008–2009. The digital collections, which form the core of CAMEL’s holdings, have now grown to over 10,000 unique maps, aerial photos, and satellite images pertaining to the Near East. It is quite an impressive collection, with particular strengths in many of those areas of data collection that have long been part of the Oriental Institute’s mission. Of these, over 1,400 were provided free of charge during the past year to researchers requesting them from all over the world. This is a marked increase from the first several years of CAMEL’s existence. As word grows of the important geospatial data available through CAMEL, more and more requests continue to be received.

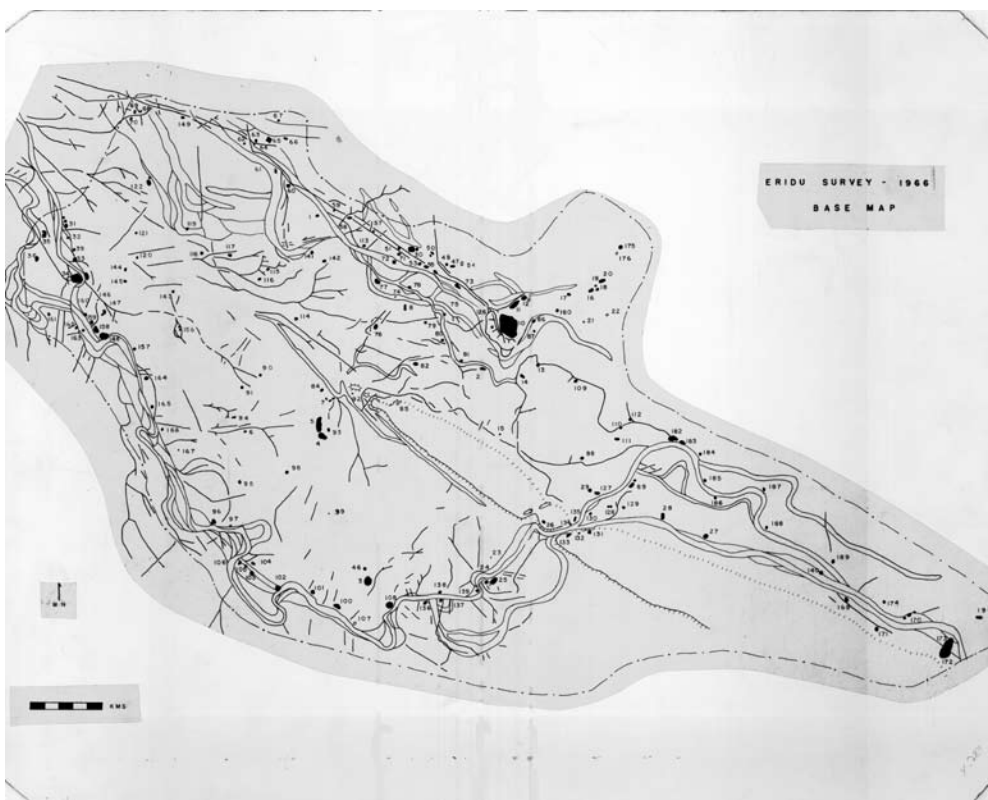
Comprising many of these new additions to the collections were a series of data donations from a dozen scholars in the United States and Europe (fig. 1). Over 3,000 paper and digital items



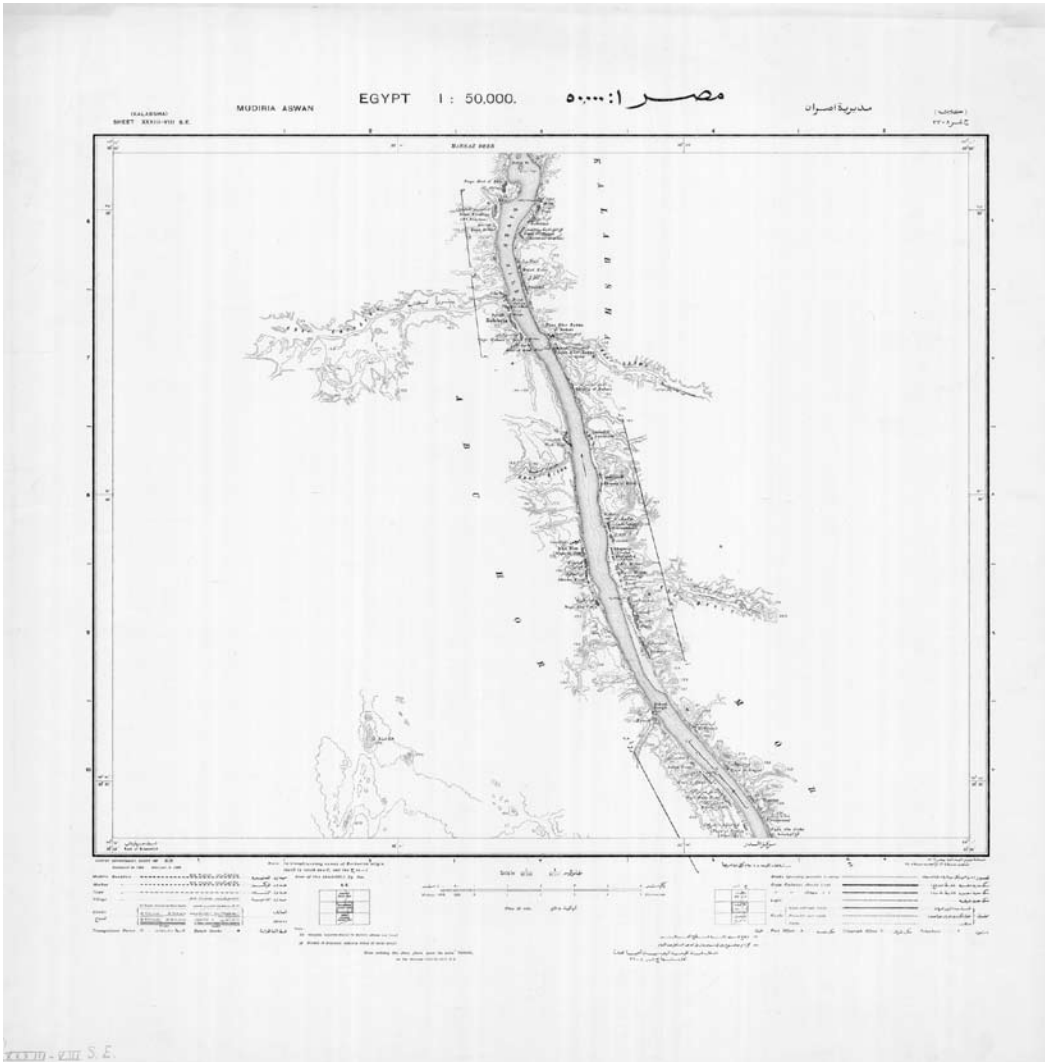
**Figure 1.** This map of Shiraz, Iran, created by the U.S. Army Map Service in 1954, was donated to CAMEL by Abbas Alizadeh. Donations such as his have added over 3,000 maps, satellite images, and aerial photos to CAMEL’s collections during the past year

were received by CAMEL, including a very special donation from Robert McC. Adams (fig. 2). Work has begun on digitizing those that can be digitized as well as georectifying those that can be georectified. Georectification, a process that encodes the image's precise location on the surface of the Earth within the digital data files, makes these datasets immediately available to scholars using Global Positioning Systems (GPS) devices or Geographic Information Systems (GIS) software. With those items for which the copyright is not held by the donor or is not in the public domain, CAMEL is in the process of contacting the copyright owner in order to try and secure permission to digitize and make their important data more widely available. CAMEL is always open to accepting new donations from individuals and scholars in order to make geospatial data of the Near East more accessible to others around the world.

Alongside these new donations, work was completed on the georectification of the thousands of maps that were digitized from the map collections of the Research Archives (fig. 3). This was a major three-year project started in 2006 with a grant from the Provost's Program for Academic Technology Innovation (ATI). This grant provided CAMEL with a large-format scanner, a scanner that can scan up to three-foot-wide maps in one pass, as well as thirty high-resolution Digital Globe QuickBird satellite images used to help georectify some of the maps once they have been scanned (figs. 4–5). Both the scanner and the satellite images remain with CAMEL and have continued to be used by other projects as well as for digitizing donated material throughout the year.

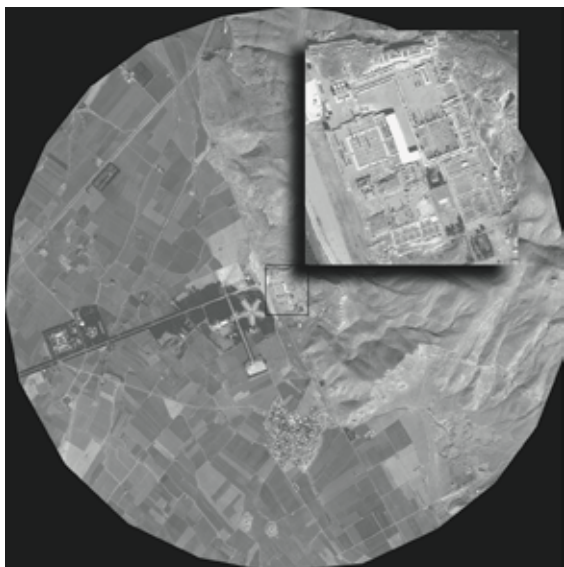


**Figure 2.** This map was created by Robert McC. Adams for the 1966 survey of Eridu, Mesopotamia. It and many other maps and records from Adams' work in Iraq were added to CAMEL's collections following their generous donation in 2008



**Figure 3.** During 2008–2009 CAMEL finished digitizing and georectifying thousands of maps from the map collection in the Research Archives. This 1909 map, created by the Survey of Egypt, shows the area of Egypt south of the Aswan Dam investigated by the Oriental Institute during the Nubian Salvage Campaign, including the temple of Beit el-Wali

Complementing this year’s work with maps and the digitization of paper materials has been the acquisition of additional contemporary Digital Globe satellite imagery and the georectification of the historic U.S. Declassified Spy Satellite (CORONA) images. The CORONA images are an important part of the CAMEL collections, offering historical views of the Near Eastern landscape from the 1960s and 1970s and revealing many features and sites that have since been damaged or destroyed (fig. 6). Unfortunately, these images can’t be acquired from the U.S. Geological Service already georectified, and so beginning last year CAMEL started the process of georectifying all 1,100 images in our possession. This project entered a new phase this year through a partnership with Jesse Casana, a former member of CAMEL who is now an Assistant Professor at the Department of Anthropology of the University of Arkansas, Fayetteville. Jesse received an American Council of Learned Societies Digital Innovation Fellowship and a National



**Figure 4.** CAMEL ordered thirty high-resolution QuickBird-2 images from DigitalGlobe as part of the Provost's Program for Academic Technology Innovation (ATI) grant. The portion of a QuickBird image taken in 2002 shown here provides a glimpse of the excavated site of Persepolis in Iran and its surrounding landscape. QuickBird-2 images have a 60 cm spatial resolution, allowing individual architectural elements to be discerned, as the close-up of the main Achaemenid palace shows



**Figure 5.** This 2009 QuickBird-2 image of Umma, Iraq, was ordered by CAMEL for McGuire Gibson in order to monitor looting and destruction at that site. The site itself is in the center of the image with agricultural field and canals visible in the upper right corner and desert dunes in lower left. By capturing the surrounding landscape this image allows us to place the site of Umma in its geographic and ecological context and allows us to see surrounding archaeological and historical features of less prominence. CAMEL continues to order many images such as this for researchers around the world investigating both the modern and ancient landscape

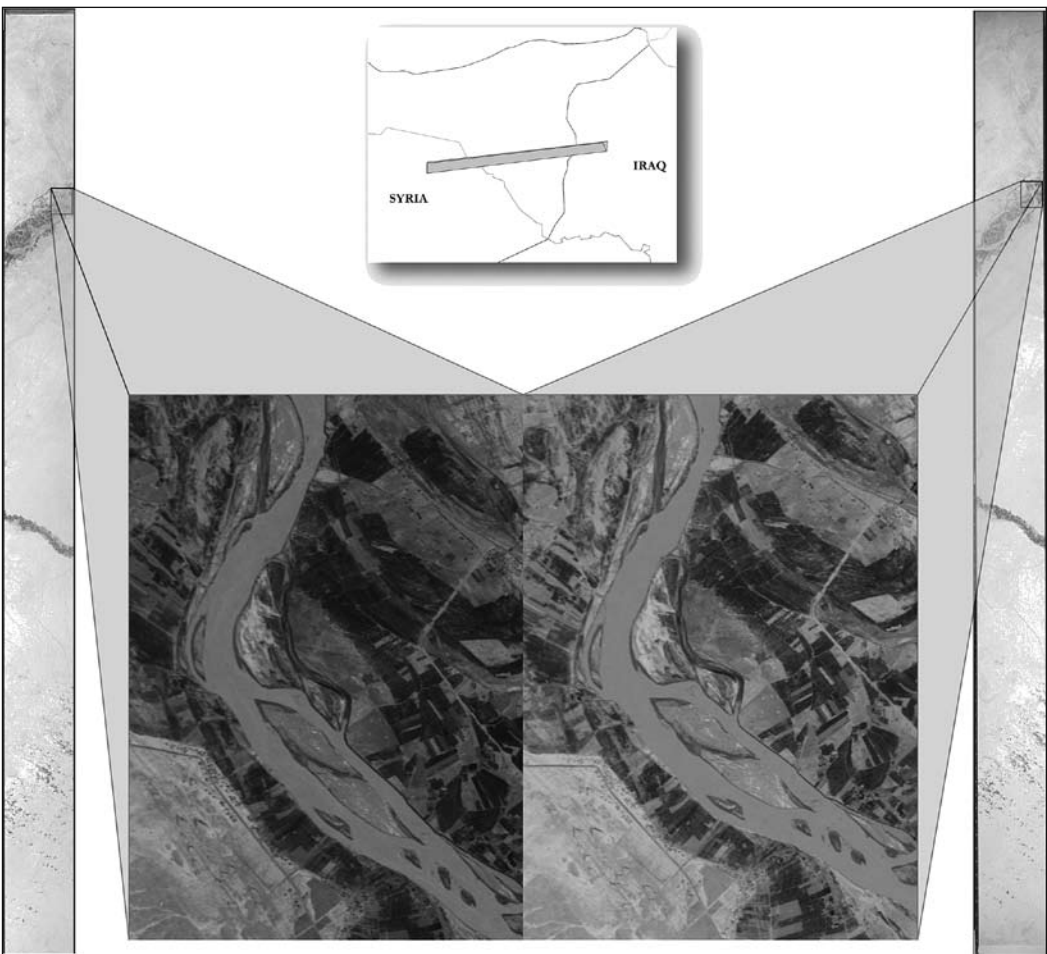


**Figure 6.** The Ptolemaic temple at Kom Ombo in Egypt is visible in this 1969 CORONA satellite image, marked with an arrow, as is the landscape of the Nile Valley around the temple itself. Agricultural and urban development over the last forty years has obscured many features visible on historical images such as this. CAMEL has over 1,100 CORONA images similar to this one, allowing researchers to access information that has long since vanished

## CAMEL

Endowment for the Humanities grant for developing a new way to georectify CORONA images with a very high degree of precision using stereo-pair and orthorectification practices (fig. 7). CAMEL agreed to provide Jesse with 300 of our digitized CORONA images for his project in exchange for receiving back the georectified versions, copies of additional CORONA images acquired through the grants, and Digital Elevation Models (DEM) produced from the CORONAs. Fruitful collaborations such as this, which end up making more geospatial data more easily available to more researchers, are always welcomed by CAMEL.

One such collaboration on the horizon was just recently funded as a part of a U.S. Department of Education, Technological Innovation and Cooperation for Foreign Information Access (TICFIA) grant. CAMEL will be working with several overseas research centers around the Mediterranean over the next four years to digitize and georectify hundreds of the important



**Figure 7.** *These two declassified KH-4B CORONA satellite images form a stereopair set of images from eastern Syria. These two photographs of the same area were taken at slightly different angles at about the same time. When sections of them are taken and laid side by side it is possible to see topographic information and generate high-resolution elevation models. You can see some of this in these images. Try focusing on the large island in the center of both close-ups and crossing your eyes. As the two photographs merge into one you should be able to perceive some 3-D features (note that only approximately 80% of people can do this). An ongoing project at the University of Arkansas is currently using some of the CORONA stereopairs from CAMEL's holdings for creating accurate 3-D Digital Elevation Models*

maps held in their collections. Centers participating with CAMEL in this endeavor include the W. F. Albright Institute of Archaeological Research in Jerusalem, Israel; the Centre d'Études Maghrébines en Algérie in Oran, Algeria; the American Research Center in Cairo, Egypt; and the Chicago House in Luxor, Egypt.

Finally, during 2008–2009 CAMEL continued various forms of local outreach within Chicago. Building on the work started last year with Rebecca Graff's archaeological field school in Jackson Park, CAMEL has continued to use a GPS-enabled tablet computer along with maps and satellite images to locate many of the building footprints from Chicago's 1893 World's Columbian Exposition. A tour of the site using these techniques was even one of the items offered for auction at the recent Oriental Institute Gala. In addition, in partnership with Museum Education, CAMEL has begun to explore the possibilities for outreach through curriculum development or afterschool programs with the Chicago Public Schools. A program is being designed that makes use of existing facilities, like the Kipper Family Archaeology Discovery Center, and combines them with the analytical capabilities of GIS software in order to teach students about both archaeology and geospatial technologies.

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CAMEL is indebted to all those who gave of their time and efforts during the past year. Joshua Trampier served as Associate Director and Robert Tate as Assistant Director of CAMEL. Elise MacArthur and Susan Penacho were our Senior Supervisors. William Kent, Bryan Kraemer, Elena Guobyte, Lori Calabria, and Ndah Somdah were all Student Assistants. Our volunteers for 2008–2009 were Vincent van Exel, Debora Heard, Larry Lissak, Marc Block, Jim Boves, Gaby Cohen, Deborah Freidrich, Alphonse Lembo, Harold Sanders, and Ronald Wideman. We are always happy to have new volunteers work with us. In addition, I would like to thank all those who donated financially or in contributions of data to CAMEL throughout this eventful year.

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