

# ACOR Newsletter

## أخبار أكور



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25th Anniversary Edition

### The Petra Project

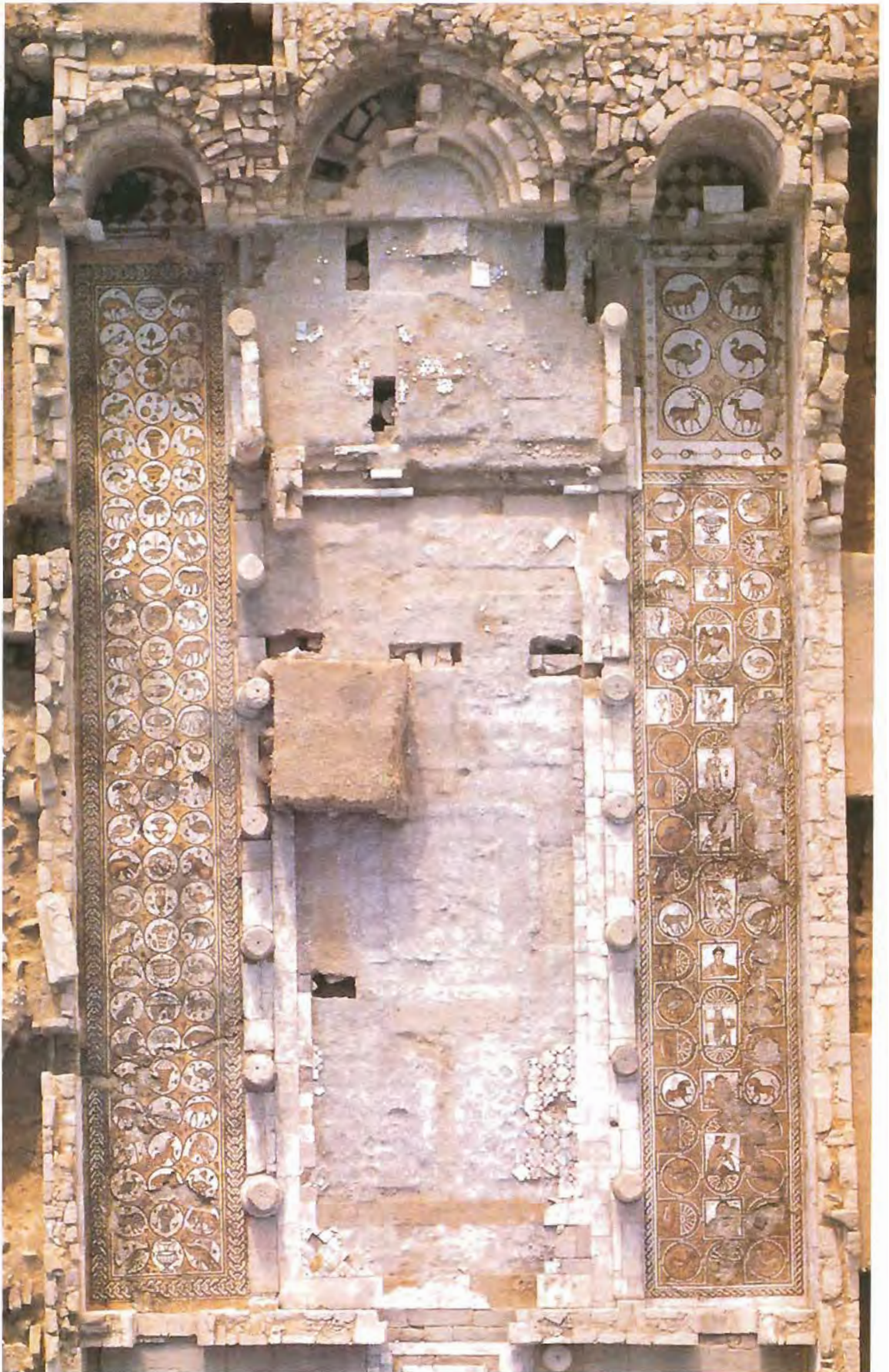
*Zbigniew T. Fiema*

The rose-red city of Petra is famous for its magnificent rock-cut tomb facades of the Nabataean and Roman periods. Regrettably, the later periods in Petra have not received sufficient scholarly attention, so the discovery of a Byzantine church by Kenneth W. Russell in 1990 was a significant breakthrough in our understanding of the Byzantine period in Petra. Following Dr. Russell's death in 1992, the excavation of the church was directed by Pierre Bikai and actual work in the field was led by co-directors Zbigniew Fiema, Robert Schick and Khairieh 'Amr. The project was funded by the United States Agency for International Development (USAID), and supported by the Ministry of Tourism and the Department of Antiquities. Although the excavations ended only in March 1993 and conservation work at the site is still in progress, some observations can be offered.

The church is a tripartite basilica, measuring ca. 26 m (E/W) by 15 m (N/S), with three apses to the east and three entrances to the west. The walls are preserved to 3 m above floor level in places. Much of the material used for the construction of the church, such as the capitals, door jambs, and reliefs, must have come from the already ruined monuments of the Nabataean and Roman periods. While it is clear that the church underwent some modifications after its construction, its final form as an ecclesiastical structure included a synthronon in the central apse with a large chancel platform in front of it. The church complex also included an atrium—a stone-paved courtyard to the west.



Personification of Spring from the southern aisle. Photo by Bronwyn Douglas.



Aerial view of the Petra church with mosaics in both aisles. Photo by J. Wilson Myers and Eleanor Myers. The square in the center of the nave was left unexcavated so that the effects of the fire and earthquake can be seen.



Personification of Summer. Photo by Bronwyn Douglas.

The preserved decoration of the church attests to its original magnificence. Both of the side aisles have mosaic floors of patterns stylistically dated to the early 6th century A.D. In the northern aisle, three parallel rows of roundels depict

native and exotic animals and a variety of vessels and containers, the latter perhaps of symbolic meaning. The eastern part of the southern aisle is similar, while the remaining area of that aisle presents a variety of different motifs. The central panels contain anthropomorphic personifications of the Seasons, Ocean, Earth and Wisdom. These are flanked by birds, animals and fish. The mosaics of the side apses are of bichrome geometric design. The preservation of the marble pavement of the central nave, being a geometric design of an *opus sectile* type, is, unfortunately, very fragmentary, but the marble stylobate for both rows of columns is still *in situ*.

Several marble screens were also found, including the screens for the chancel area and for enclosing both side apses. Thousands of glass tesserae found scattered, some of them gilded, indicate that the upper parts of the walls, the semidome over the central apse, and the arches over the columns' capitals were magnificently decorated with mosaics. The excavation produced numerous small finds. Among them are coins, bronze and iron door fittings, glass, ostraca, fragments of Nabataean and Greek inscriptions on reused stones, an engraved amethyst seal and hundreds of iron nails. Samples of wall plaster, mortar and charred wood fragments

were collected for further study. A large marble vessel decorated with two lionesses which form the handles was reconstructed from more than 100 pieces (below and see the drawing on page 1). The project conservators are Thomas Roby, Noël Siver and Livia Alberti.



Marble vase with lioness handles. Roman period but reused in the Byzantine church. Photo by Bronwyn Douglas.

Although the date of the church's construction is still under investigation, it is reasonable to assume that it was built in the later 5th century A.D. The collapse of church's walls and columns, well evidenced during the excavations, can be associated with an earthquake, perhaps that which affected Petra in A.D. 551. Prior to that event, the church suffered a fire which brought down the wooden roof, and was abandoned. The robbing out of the marble floor in the central nave must have preceded the structural collapse as well. Squatter occupation, documented in the atrium and some parts of the abandoned church, could have continued into the early 7th century A.D.



Southern apse as excavated. Photo by Bronwyn Douglas.



Southern apse after restoration. Photo by Bronwyn Douglas.

## ACOR: The First 25 Years

The American Center of Oriental Research was founded in July of 1968 in order to facilitate American participation in the excavation and preservation of Jordan's rich but largely untapped archaeological remains. As part of the anniversary celebration, ACOR has published *ACOR: The First 25 Years*. The following are excerpts from that work.

### The Explorers

Archaeological exploration of the area east of the Jordan River by Americans and others began in the 19th century and the early explorers laid the groundwork for many of ACOR's later projects. In the early 1800s, Ulrich Seetzen (explorer of the ruins of Amman and Jerash) and Johann Burckhardt (discoverer of Petra for the western world) traveled widely. They were followed by American scholars Edward Robinson and Eli Smith in 1838 and again in 1852; they were searching for sites corresponding to those mentioned in the Bible. Many ACOR scholars have continued the work of identification of sites in Jordan.

An American naval lieutenant, William Francis Lynch, conducted the first scientific survey of the Jordan Valley and Dead Sea Rift by boat in 1848. His findings were published in 1852, but in 1849, a member of the expedition, Edward P. Montague, published a *Narrative of the Late Expedition to the Dead Sea from a Diary of One of the Party*. In his preface, Montague said:

With the exception of the United States, no nation can boast of a successful expedition to the shores of the Dead Sea. The boldness with which this novel enterprise was planned and executed, is a favorable indication of the energy and intelligence of our countrymen.

The Lynch expedition was indeed one of the first to the area which was planned and executed as a scientific expedition—from the design of the research and necessary equipment to final publication. Lynch's official reports included information on the climate, geology, ornithology and botany of the area of the Jordan River and Dead Sea, as well as archaeological and anthropological information. ACOR scholars continue this multidisciplinary approach today.

In 1865, influenced greatly by the accomplishments

of Robinson, the Palestine Exploration Fund (PEF) was founded in Britain with the aim of exploring the 'Holy Land' in a scientific and systematic way. Since the primary impetus for these expeditions in the 1800s was the study of biblical sites, attention was concentrated west of the Jordan River. In 1870, the American Palestine Exploration Society was formed to work east of the Jordan and some survey and mapping was accomplished. This and numerous subsequent archaeological surveys of Jordan formed the basis for ACOR's computerized inventory of sites in Jordan.

In 1895, Frederick Jones Bliss documented a number of the churches with mosaics in Madaba, some of them in the area where ACOR is now involved in the Madaba Archaeological Park project. The Princeton University Archaeological Expedition to Syria in 1904-5 recorded architectural remains at Araquel-Emir and Amman. Some of their documentation on structures which no longer exist was used in the ACOR project at the Great Temple of Amman.



William Francis Lynch. Photo courtesy of the Eleanor S. Brockenbrough Library, The Museum of the Confederacy, Richmond, Virginia.

### American Schools of Oriental Research

In 1900, the American School of Oriental Research in Jerusalem was founded to establish a permanent center for American research in the region. In 1919, it was incorporated under a new name, the American Schools of Oriental Research (ASOR), to include the fledgling center in Baghdad. The years prior to World War I witnessed refinements in archaeological methods over those of the previous century, when archaeology had most often been little more than treasure hunting, but World War I put a halt to excavations in the area. The Jerusalem school reopened in 1919 and William Foxwell Albright became director in 1922. He conducted several surveys in what was then called Transjordan. In 1930, excavations at Jerash were conducted as a joint project of ASOR and Yale University. In 1932, Nelson Glueck, began

a series of surveys in Transjordan and he succeeded in locating more than 1500 ancient sites.

Archaeological work in the area was again interrupted by World War II. After the founding of Israel, the Jerusalem school, which had its headquarters in east Jerusalem, found itself unable to communicate directly with archaeologists in the newly-formed state so ASOR excavations on both the West and East Banks of the Jordan River expanded. In the 1950s, excavations were carried out at Dhiban and soundings made at Pella. Paul

Lapp, who directed the Jerusalem school from 1961 to 1965, served as a field advisor to the United States Agency for International Development (USAID) on the West Bank. ASOR also served in an advisory capacity to the Department of Antiquities (DAJ). Thus the groundwork was laid for what were to become two of ACOR's more important functions in the future. In June 1967, the Six-Day War brought archaeological activity to an abrupt end and, when the West Bank was occupied, an "iron curtain" descended in the region, separating the two sides of the Jordan River.

## The Founding of ACOR

In a report to the Board of Trustees in 1967, G. Ernest Wright, president of ASOR, said:

American cultural relations with the Arab world are in a critical stage. We have to move as promptly as possible, extending our resources to the very limit to activate American historical and cultural activities, particularly in those lands where our organization has a primary responsibility: Iraq, Syria, Jordan, Lebanon, Saudi Arabia and other countries at the southern tip of Arabia.

In order to accomplish this goal, it was considered imperative to establish permanent research centers. Wright had received a request from the University of Jordan (U.J.) for ASOR to assist their Department of Archaeology. In response, ASOR appointed Rudolph H. Dornemann as annual professor in Amman for 1968-69. He was housed in a small apartment and used some of the excavation equipment for furniture. In 1969, he rented a house with ample living and work space; it would serve as ACOR's headquarters until 1977.

employment for recent graduates who had been unable to find work because of the restricted opportunities available after the war. In July 1968, the first campaign at Tell Hesban, a major site on the high plateau above the northern end of the Dead Sea, got underway under Siegfried H. Horn of Andrews University. The project would prove to be a landmark excavation in terms of pioneering a multi-disciplinary approach to archaeological research in Jordan.

The total annual budget for the first year of the Amman center was \$21,500, with 84% provided by the United States Information Agency (USIA) and 16% by ASOR. In 1970, "The American Center of Oriental Research in Amman" was incorporated.

## 1970-80: The Formative Years

During the early 1970s, excavation and survey in Jordan as a cooperative venture by ACOR, the DAJ, and U.J. continued to expand. Tell Siran was chosen as a perfect location for training of students as it is on the university campus. Excavation began in 1972 under Henry O. Thompson. Tell Siran yielded archaeological material from the Iron Age through Mamluk periods including a tightly-sealed bronze bottle inscribed with an eight-line Ammonite text. As this was the first Ammonite text of any length to be discovered, it is still considered to be of unusual significance.

John H. Marks, president of the ACOR corporation, reported:

The two years since that bold beginning have firmly established the Center in Jordan as a respected and productive scientific institution. Directors Nicol, Horn, Thompson and Van Elderen have made the Center an archaeological focal point in Jordan, from which radiate lines to the Jordan University, the Department of Antiquities, the ministries both of Tourism and Antiquities and of Education, the Friends of Archaeology in Amman, the American Embassy, and several startling and extraordinary archaeological excavations. The potential significance of East Bank exploration for our understanding of Palestine at all periods, if it was ever in any doubt, can be seen from the work undertaken.

Bastiaan Van Elderen was appointed director of ACOR for the term 1972-74 and he continued his investigations of the many early Byzantine mosaics in the area of Madaba, just to the south of Amman. George Mendenhall served as director in the spring of 1975 and was followed in the fall of that year by James Sauer who was to serve as director until 1981. By October 1976, the ACOR building had been completely remodeled and the hostel could now house eight people. Public lectures were held at ACOR and, for the first time, courses in the history and archaeology of Jordan, open to the public, were taught there by Sauer. Thus, the ACOR building, which had functioned primarily as the residence of the director, was now a public center.



Rudolph H. Dornemann lectures at ACOR.

The primary responsibilities of the annual professor were the teaching of courses at U.J. and serving as a consultant to the Director General of Antiquities. During the first year, Dornemann began excavations on the citadel of Amman as a joint project of ASOR, U.J., and the DAJ. This excavation provided training for students and

In June 1977, ACOR was forced to move from the building near the Third Circle. A new two-story building was located between the Fifth and Sixth Circles. When finished, the new building was larger and more comfortable and better suited to its function as a public center. By 1980, ACOR had expanded so rapidly that serious discussion was taking place concerning the need for permanent headquarters.

One of the most significant developments of the final years of the decade was the increase in the number surveys. Projects such as the Roman Limes Survey, the Yarmuk Dam Survey, the Baq'ah Valley Survey, Kerak Plateau Survey, and the Wadi el-Hasa Survey, some of which still continue, were begun at this time. An important effect of these surveys was the gathering of information on the prehistory of Jordan, an area previously neglected. The identification and study of prehistoric sites became one of the priorities of the next decade.

### 1980-1986: Years of Expansion

One contribution to a more efficient system of protecting the archaeological resources of Jordan has been a closer working relationship between ACOR and the United States Agency for International Development (USAID). For many years ASOR and ACOR had been informally assisting and advising USAID on matters relating to development and archaeology in Jordan. In 1980, ACOR was awarded a contract by USAID to assist the DAJ to draw up a Five-Year Plan for archaeological development. This was a positive reflection of USAID's increasing concern for, and sensitivity to, the potential impact of development on historic and archaeological resources in the countries of the Near East, and to the important role of those resources in the economic development of those countries.

In 1979, the National Endowment for the Humanities had begun to award grants to ACOR for post-doctoral research so there were two or three NEH fellows in addition to the director and the annual professor. The ACOR building could accommodate eleven residents and was filled to capacity most of the year. The library collection now held in excess of 2000 books.

Between 1980 and 1983, there was a proliferation of ACOR-affiliated field projects, both survey and excavation. Excavations were carried out at Lejjun, as part of the Limes Arabicus Project, Ain el-Assad, Pella, Bab edh-Dhra, Numeira, 'Ain Ghazal, Tell el-Hayyat, Abila, Khirbet Iskander, Umm el-Jimal and Tell Safut; ACOR also participated in the International Jerash Project, and the numerous surveys continued. In 1981, David McCreery became director; he would serve until 1988.

In 1982, ACOR-related projects involved approximately 300 persons. In addition to the regular projects, ACOR staff and fellows served as volunteers on salvage excavations and surveys. ACOR had clearly grown too large for its current facility. In order to fulfill its true potential as the premier research facility for archaeology



Two statues from 'Ain Ghazal dated to 6770 B.C. Photo courtesy of Gary Rollefson.

and related subjects in the Near East, it was necessary for ACOR to have as a headquarters a building specifically designed to meet its needs; the estimated cost was \$2 million. By March 1983, the government of Jordan had obtained a plot of land, valued at \$200,000, across from U.J., and generously leased it to ACOR for a token sum. Subsequently ACOR was able to purchase the land thanks to the assistance of H.R.H. Crown Prince Hassan and H.R.H. Prince Ra'ad.

In 1983, a grant of \$200,000 toward the cost of designing and building the structure was given by USAID's office of American Schools and Hospitals Abroad (ASHA). That and other major donations saw the building fund grow. In 1982, the Committee for ACOR, under the patronage of H.R.H. Crown Prince Hassan with H.R.H. Prince Ra'ad as chairman, was established. Adnan Hadidi, Director-General of the DAJ, and Mohammed Asfour, a prominent member of the Jordanian business community, played leading roles on the committee.

In spite of the fact that the non-stop fund raising and negotiating necessitated by the construction of the new building was a truly Herculean effort for ACOR's director and staff, ACOR continued to expand during these

years, both as an academic institution and as an active participant in archaeological field research. On August 2, 1983, the *Jordan Times* announced the discovery of "stunning Neolithic human statues" at Ain Ghazal:

The importance of the finds at Ain Ghazal lies in the relatively well preserved state of the statues and the smaller figures, considering that they are 8,000 years old. The sculptured human faces and bodies of the statues may represent the earliest examples anywhere in the world of mankind's first attempts at making human representations of this sort.

## The Center

On July 17, 1986, H.R.H. Prince Mohammed Ibn Talal cut the ribbon to inaugurate the new ACOR building. The center, the culmination of four solid years of fund raising, was a testimony to international cooperation.

The aim of the institution was defined as three-fold: to offer a base for visiting and resident scholars conducting research in Jordan and neighboring countries; to provide technical resources, library facilities and public information programs which bring together Jordanian, American and international scholars on a year-round basis; and to provide a forum for sharing the fruits of archaeological and historical research with a wider audience of scholars, students, official authorities and the public at large.

In accordance with these goals, the five-story building contained: accommodations for up to 30 persons; a library of 3,000 volumes and 350 different periodicals; private offices for resident scholars; facilities for drawing and drafting; a lecture hall with projection facilities; six laboratories and workshops for processing, analyzing artifacts; space for a permanent conservation lab, which awaited funding to be equipped; storage space for excavated artifacts; and a darkroom.

During the first years in the new building, ACOR-affiliated scholars participated in an increasing number of field projects. ACOR was used by 20 field teams and by 20 resident scholars. The number of residents reached 50 in the summer of 1989, when Tell Nimrin used ACOR as their "dig camp" while seven other projects were in and out of the building. By the end of the decade, due to generous gifts from many individuals, the library collection had grown to 6,000 volumes. A \$300,000 grant from ASHA in 1990 was to provide for the purchase of 4,000 more books and equipment for the library, computers, and equipment for the conservation lab.

## 1986-1993: New Directions

During the 1980s, ACOR-related projects had undergone a perceptual shift in emphasis. Whereas, in the beginning years of ACOR, research in Jordan had tended to focus on the Bronze and Iron Age periods, which were associated in many ways with "biblical archaeology," or on the more spectacular remains of the Nabataean, Roman and Byzantine periods, in the final years of the 1980s, 50% of research projects concentrated on the prehistoric and Islamic periods. A change was also evident in methodology. Research at ACOR had now progressed beyond traditional archaeology to enlist scholars-in-residence from a variety of specialized theoretical disciplines, with anthropologists comprising the largest group. In 1991, Bert de Vries, who had replaced McCreery as ACOR director in 1988, reported:

While the traditional periods inspired by biblical and classical studies are not neglected, this signals a significant broadening of scholarly interest. This broadening represents a commitment by most scholars working in Jordan to deal fairly and objectively with research into the human condition in any period with evidence of the settlement patterns on the ground. ... I believe this broad interest in the understanding of human culture from the Paleolithic to the present will give ACOR its personality and staying power as an academic organization.

The same era had also witnessed a change in the nature of the contribution ACOR was making to the



ACOR. Photo by Jay Guikema.

preservation of Jordan's cultural heritage. ACOR had a tradition of supplying teachers to the archaeology departments of Jordan's universities. By the end of the decade those departments had matured to the extent that ACOR's contribution of faculty became less necessary. However, as the teaching role of ACOR scholars decreased, their involvement in developing practical

solutions to the problems of protecting archaeological sites from destruction increased. In 1986, ACOR received a grant from USAID to establish a pilot program in Cultural Resources Management (CRM) in Jordan, the first of its kind in the Near East. CRM is the commonly used professional term for long-range strategies of conserving and managing archaeological and historical sites threatened by modernization. The destruction of such sites can be minimized if archaeological surveys are incorporated into the planning stages of development programs. The grant provided for an ACOR CRM advisor to the DAJ. The advisor was to supervise archaeological surveys, establish efficient procedures for the recording of field data from endangered areas, and train Jordanian personnel to use the data effectively.

In 1987-88, ACOR CRM Project Director Joseph Greene, together with members of the DAJ, undertook a salvage excavation on the Amman Citadel and a survey of the greater Amman area was initiated in the same



Drawing of the ["Don't Panic!"] mosaic uncovered in the salvage excavation on the Amman Citadel. Photo by Bert de Vries.

year. In 1989-90, the Amman Citadel-'Ain Ghazal Feasibility Study was carried out under the direction of Rudolph Dornemann. The purpose of the study was to design a master plan for the beautification of the Amman Citadel and the development of an archaeological park at 'Ain Ghazal.

A project of a different nature, also funded by USAID, was underway at the important sites of Um Qeis and Pella. This involved the construction of rest houses designed to revive the traditional architecture of Jordan. The concept was to achieve harmony between the architectural style of a late Ottoman village and the functional requirements of a modern tourist facility.

Between 1980 and 1990, ACOR had 23 NEH post-doctoral fellows whose collective bibliography, as of 1991, filled 25 pages. Scholars continued to offer lectures—in 1987-88, 25 lectures were delivered in less than a year. By now, the outstanding debt on the building was nearly paid off and a number of new programs were in the planning stage when events in the area caused a change. In November 1990, Bert de Vries reported that, although the crisis in the Gulf had forced precautions on ACOR, activities continued almost normally. However, as the United Nations' deadline of January 15th for the removal of Iraqi troops from Kuwait drew nearer, further security measures were implemented which resulted in curtailment of almost all ACOR operations. The director left on January 22d to give a lecture in the

U.S. and did not return until March 17th but, by the end of April, ACOR was returning to normal.

In July 1991, Pierre Bikai succeeded Bert de Vries as director and found himself faced with the task of putting ACOR back on its feet, as the Gulf Crisis had caused a severe depletion of ACOR's budget. All fellowships had been suspended because of the crisis and the reluctance of many to come to the area meant that the financial situation was severe. Two things kept the doors open during the summer of 1991: USIA fellowship funds were reallocated by USIA to operations and the Canadians came: excavations continued at Tell Jawa, Humeima and Iraq ed-Dubb, mainly by Canadians.

In the fall of 1991, the first participants in the new Arabic Speaking Academic Immersion Program (ASAIIP) arrived in Jordan. The program, funded by the Mellon Foundation, offers fellowships for the study of advanced Arabic at U.J. while in residence at ACOR. By the end of 1991, ACOR was nearly back to normal.

The rest houses at Pella and Um Qeis were finished in September. It was hoped that this project would serve as a model for employment-generating cultural preservation activities and, as a continuation of that type of work, ACOR received a grant from USAID in July 1991 to work at the site of Madaba. The Roman Street Complex in Madaba includes a well preserved stretch of Roman street, several churches and other buildings with



Pierre Bikai and Bert de Vries. Photo by Jay Guikema.

mosaic floors, two cisterns and a Byzantine crypt. Since their discovery the mosaic floors have been kept covered because it was feared that exposure without proper restoration and sheltering would doom them to destruction. In this project, architect Ammar Khammash is building protective shelters of traditional design over the Church of the Virgin and the Hippolytus Hall and over the Church of the Apostles.

The USAID-funded CRM Project, was becoming increasingly important. Gaetano Palumbo, ACOR's CRM archaeologist, developed a system now in use at the DAJ to register all archaeological sites in Jordan by their map coordinates. The Jordan Antiquities Database and Information System (JADIS) makes it possible for any developer or agency to locate immediately any archaeological sites in the path of a construction project. The goal is to





The Jerash Road Salvage Project. The CRM program is designed to help prevent such last-minute excavations. Photo by Gaetano Palumbo.

register the ca. 20,000 known archaeological sites.

1992-93 has turned out to be ACOR's 'year of the mosaics and drums': At Petra, both side aisles of the church were found to have intact mosaics. The discovery received international press coverage. At Madaba, excavation of the Burnt Palace by Cherie Lenzen and Ghazi Bisheh uncovered several rooms with mosaics and mosaics were also found in the Church of the Prophet Elias. The drums were the sections of the colonnade of the facade of the Great Temple of Amman. One by one the drums went up.

### ACOR: The Present and Future

If we compare the ACOR of today with the institution as it was conceived in 1968, the changes that have occurred, both in facilities and in program, are overwhelming. What started as a single professor at U.J., housed in a tiny apartment and sleeping on a camp cot, has developed into an institution with 14 employees, regular fellowship programs and a multi-million dollar, five-story facility with sophisticated technical equipment. The library now has 20,000 books and periodicals. During the 1993 season, 33 field projects used ACOR's facilities in one way or another.

Many of the participants in these projects were in residence at ACOR at the same time and, at peak period, 80 persons were housed by ACOR. The building was designed to accommodate only 30 individuals and, even with modifications and the inclusion of the rented apart-

ments nearby, it is now inadequate to handle the numbers generated by the phenomenal growth of its programs. Once again there is talk of expansion.

ACOR was originally conceived as an institute devoted exclusively to archaeological research. During the past two-and-a-half decades that vision has broadened. In the effort to broaden its base beyond strictly archaeological activities, ACOR now provides services to scholars from all disciplines concerned with the past and present human condition in Jordan, but in spite of such diversification, ACOR has retained its commitment to active archaeological field research. Besides the accumulation of new archaeological data, ACOR is actively involved in the interpretation of already existing data and the use of the results to assist in the preservation of the

cultural heritage of Jordan and the development of its tourist industry.

Although ACOR is firmly established at this time as the premier research facility of its kind in the Near East, its future is by no means assured. It has weathered major financial crises in the past, but the situation remains precarious because of ACOR's lack of an endowment. The near disaster caused by the Gulf War has under-



A bull and a lion from the Burnt Palace in Madaba. Photo by Ghazi Bisheh.

scored the need for such an endowment as well as for a loyal constituency of people who share ACOR's vision and are prepared to donate regularly and repeatedly. The indications are that ACOR will be able to prosper and expand and to serve, as it has from the beginning, as a liaison and facilitator of friendship between scholars from the United States, Canada and elsewhere and the government and people of Jordan.

## The Great Temple of Amman

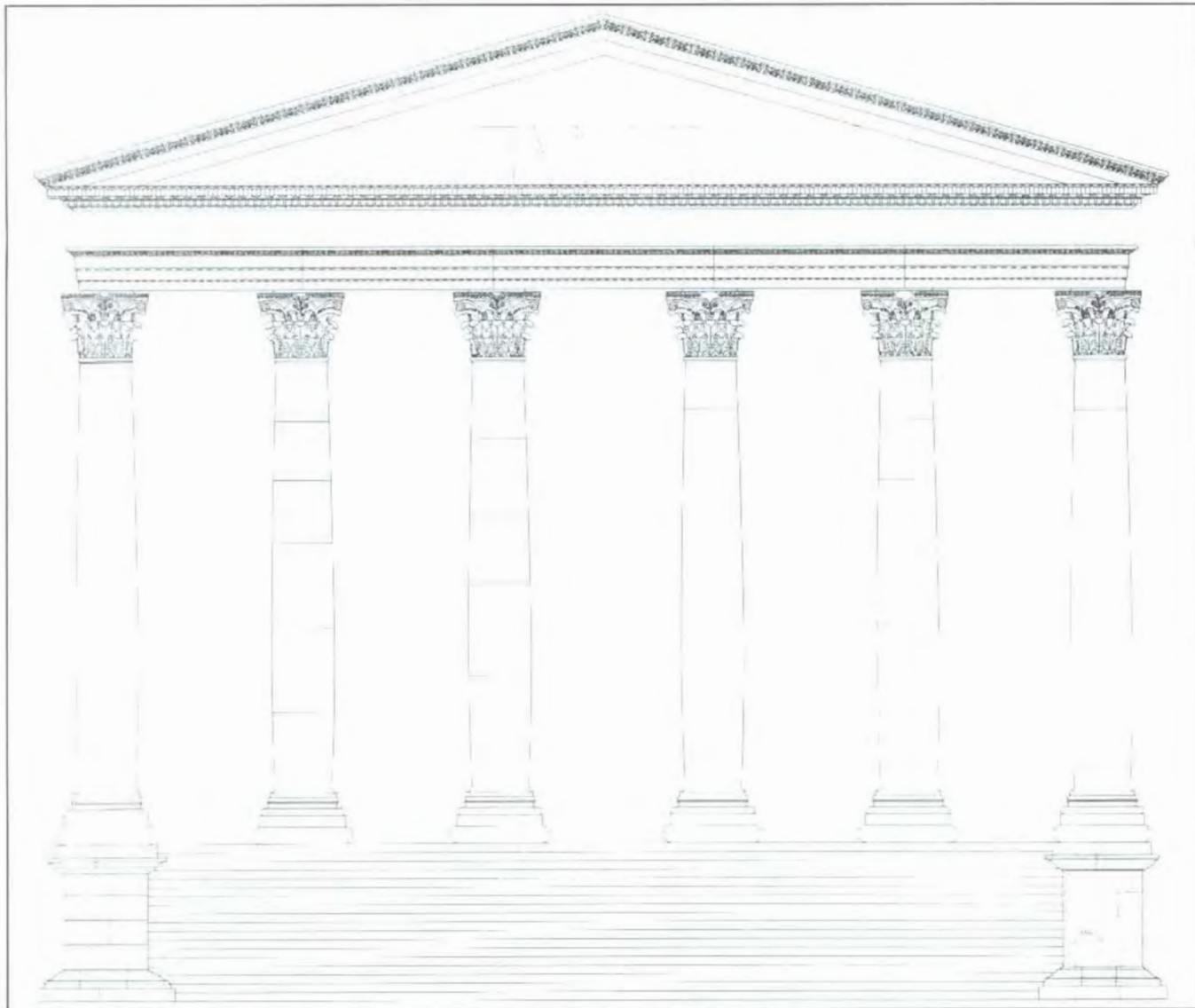
*Chryssanthos Kanellopoulos*

The Roman temple on the Citadel (Jebel el-Qal'a) in Amman is popularly known as the Temple of Hercules. There is no conclusive evidence that it was dedicated to Hercules, but it is securely dated by its dedicatory inscription to the term of the Roman governor Geminus Marcianus, i.e. to A.D. 161-66. The temple is on the middle terrace of the Citadel within a colonnaded temenos or courtyard. It was oriented along an east-west axis with its facade to the east. The temenos was once connected to the Roman city below by a monumental staircase. The temple had a hexastyle (six columns) facade on a podium measuring 43 x 27 m. The height of the columns, including the bases, is 13.5 m. Each column consists of five or six drums, each weighing up to 11 tons.

A major objective of the project was to clarify the ground plan of the temple. This fundamental issue has

been debated for many decades. Some scholars proposed that the temple had four columns at the front; others suggested that the temple had six columns at the front and columns all around but both of these hypotheses were based on insufficient consideration of the physical evidence. This project showed that the temple had six columns at the front. Moreover, detailed analysis of the material remains indicates that, while the temple may originally have been planned to have columns all around, it was probably not actually built that way.

Excavations were first conducted on the Citadel between 1930 and 1938 by the Missione Italiana in Amman. Further archaeological work was carried out in the 1960s and 1970s by the Department of Antiquities of Jordan and ACOR (R. Dornemann) and also by M. Bennett and A. E. Northedge. In 1990, excavations were resumed by Mohammed Najjar, Khair Yassine and Rudolph Dornemann under the auspices of ACOR and the Ministry of Tourism and Antiquities, funded by a grant from the United States Agency for International Development



Restoration of the facade of the Great Temple. Drawing by Chryssanthos Kanellopoulos.



Part of the Iron Age structure. Photo by Anthi Koutsoukou.

(USAID). In 1991-92, the directors were Mohammed Najjar and the late Kenneth Russell of ACOR.

A final season of excavation in April of 1993 under the direction of Ahmad Moumani, Anthi Koutsoukou and Glen Peterman uncovered part of a large Iron Age structure below the Roman temple. It measures at least 7 m by 21 m and was cut in half by the foundations of the eastern end of the Roman temple. The Iron Age structure, from which were recovered large quantities of pottery but nothing which would indicate its use, was



Aerial view of the temple. Photo by J. Wilson Myers and Eleanor Myers.

constructed of very large stones (up to 2 m long) and had a well-preserved plaster floor.

In 1991, a feasibility study on the restoration was done by A. Papanikolaou, Acropolis of Athens, and the author. Restoration began in 1992 under the direction of the author and engineer Mohammed Tayyem of ACOR, with funds from USAID and assistance from USAID engineer Aied Sweis.

The temple on el-Qal'a is the most poorly preserved Roman temple in the area. Most of the material of the temple was already robbed out before the earthquake of A.D. 746/47, when the remnants of the structure, including the four remaining columns at the front, collapsed. Over the next nine centuries, the building of fortifications on the Citadel resulted in the reuse of more of its material. It would therefore be impossible to restore the whole monument.



Ancient numbering on a column drum, indicating its original placement. Photo by B. Darakjian.

Work focused on the only three areas which were restorable: the portico of the temple, the northwest corner of the platform or podium on which the temple rested, and part of the west temenos colonnade. Fortunately, the temple had a numbering system (above) carved on the drums of the colonnade by the ancient builders; this made it possible to understand the original placement of the drums. Three columns of the temple were found to be preserved and these were restored. One section of the inscribed architrave was restored in its original place as determined from the sequence of the inscription.

The fourth shaft from the south, shaft K, was erected in its original position. Its bottom drum, although preserved, was replaced by a replica. The ancient drum has large cracks, severely flaked edges, and cavities—all caused by the excessive stress during the tilting and oscillation of the shaft in the earthquake. A rough cylin-

der with eight bosses or knobs, to ease lifting (see photo right), was shaped out of a block measuring 1.7 x 1.7 x 3.2 m and weighing 27 tons.

The restoration of the second column from the south (shaft B) to its original position was impossible. The foundation underneath is partly missing, and the remaining part is severely distorted and settled. It was, therefore, restored together with its base in the position of the fifth column from the south. A major crack extends along the entire height of the bottom drum of shaft B,

probably as a result of excessive stress caused by the loads of the roof structure, pediment, entablature and the upper part of the shaft, to which the drum was subjected in its original location. Therefore, the drum was replaced with a replica, as were the top drum of the same column and the second drum of the third column.



Chryssanthos Kanellopoulos. Photo by Patricia Bikai.

The manufacture of the four new drums and their final carving in place is considered one of the major achievements of our restoration project. Most of the material was carved with modern equipment, but one drum was shaped from the rectangular block mainly with chisels and hammers. The drum, with a diameter of 1.6 m and a height of 2.1 m, was roughly shaped from a rectangular block by six stone cutters in 40 days.

The project respected the Charter of Venice, a document outlining permissible restoration of ancient monuments, and it respected the principle of reversibility. Because of the lack of a seismic table in Jordan, a computer earthquake simulation program was used by the engineer of the project, M. Tayyem, to assist in the design of the connections and reinforcements in restored members and foundations.

Aluminum tags with the names of the staff and the date 1993 printed on them and modern coins were inserted inside the ancient lewis holes or slots in the tops of the drums. The date of the restoration is also carved on the surfaces of the new blocks and drums.

The columns of the Great Temple of el-Qal'a, together with the section of the inscribed architrave, now create a focal point for the skyline of Amman. The capital of Jordan, deprived of the plethora of columns that one can see at other sites such as Jerash, now has a



The lifting of the first drum (a newly-cut one). Photo by Anthi Koutsoukou.

reminder of her ancient glory.

The project is in process of being published by ACOR as *The Great Temple of Amman I: The Architecture* by C. Kanellopoulos and *The Great Temple of Amman II: The Excavations* by A. Koutsoukou, M. Najjar, and K. Russell.



The architrave being set in place. Photo by Anthi Koutsoukou.

## Director's Report

*Pierre M. Bikai*

### Current ACOR Projects

The following projects are funded by the United States Agency for International Development (USAID): The Great Temple of Amman, restoration, ACOR/Department of Antiquities, Chryssanthos Kanellopoulos. Petra Church Project, restoration and shelter, ACOR/Department of Antiquities, Pierre Bikai, Zbigniew Fiem, Robert Schick, Khairieh 'Amr. Madaba: Ministry of Tourism and Antiquities/ACOR: Roman Road Project, Ghazi Bisheh; Shelters for the Apostles' Church, the Church of the Virgin and the Hippolytus Hall, Ammar Khamash; Archaeological Park, Pierre Bikai, Tim Harrison, Branwen Denton. Cultural Resources Management (CRM) Program, ACOR/Department of Antiquities, Gaetano Palumbo and Dr. Safwan Tell, Director-General of the DAJ. Balloon Project: ACOR/Ministry of Tourism, J. W. and E. Myers. 'Ain Ghazal, ACOR/Yarmouk University, Zeidan Kefafi and Gary Rollefson.

### ACOR-Affiliated Field Projects

Humeima, U. of Victoria, John Oleson; Tell Jawa, Wilfrid Laurier U., Michèle Daviau; Tell Nimrin, Willemette U., Case Western Reserve U., David McCreery, Jim Flanagan; Tell Handaouq and Jebel el-Jil, Harvard U., Meredith Chesson and Ian Kuijt; Wadi Hasa Paleolithic Project, Arizona State U., Geoffrey A. Clark; Umm el-Jimal, Calvin College, Bert de Vries; Levantine Mousterial Project, U. of Tulsa, Don Henry; Khirbet Salameh, ACOR/U. of Jordan, Pierre M. Bikai; St. George's, Jebel al-Webdeh, ACOR/Shoman Foundation, Pierre M. Bikai; South Temple, Petra, Brown U., Martha Joukowsky.

### Fellows in Residence

Linda Adams, Baylor U., Political Party Formation in Jordan: An Examination of the Sociopolitical Impact of the State; Nicholas Alexander, U. of Michigan, The Oral Poetry of Jordanian Bedouin: Current Trends; Laurie Brand, U. of Southern California, The Impact of Political and Economic Liberalization on Women in Jordan; Edith A. Dunn, Columbia U., Documentation and Evaluation of Vernacular Jordanian Villages; Brian Fitzgerald, Princeton Theological Seminary, The Christianization of Gerasa; Tim Harrison, U. of Chicago, The Early Bronze Age Survey of the Madaba Plains; Lynn Killean, U. of Chicago, Sociolinguistic Style Variation in Jordan; Eric Lapp, Duke U., "Trade Connections as Determined by Analysis of Ceramic Oil-lamps and Associated Pottery; Michael Neeley, Arizona State U., Levantine Epipaleolithic Lithic Assemblage Variability; Jane Peterson, Arizona State U., Tracking Changes in the Sexual Division of Labor with the Development of Domestication Econo-

mies: Evidence from the Levant; Tom Paradise, U. of Hawaii, Petra Sandstone Weathering Project; John Roberts, U. of Chicago, The Political Economy of Identity: Investment, Community and Cooperation in Jordan; Andrew Smith II, North Carolina State U., Southeast Araba Archaeological Reconnaissance; Peter Warnock, U. of Missouri-Columbia, Olive Domestication and Botanical Dietary Component Collections, as well as a consultancy on a macrobotanical laboratory and study collection.

ASAIP Fellows: Charlene Constable, U. of Washington; Marion Katz, U. of Chicago; Akiko Motoyoshi, Harvard U.; and Timothy Gianotti, U. of Toronto; Lynn Killean, U. of Chicago, served as coordinator. Salman el-Badour of the U. of Jordan is an ASAIP-Mellon Fellow at Princeton U.

Bruce Routledge is the Winnett Fellow; Marie-Jeanne Roche is the Dodge Fellow; and Megan Perry and Janet King are the Jennifer C. Groot Fellows.

Information about ACOR's fellowships can be obtained from ACOR, 3301 North Charles St., Baltimore MD 21218.

### Activities and News

◆ This has been a very exciting period for ACOR. Our largest projects, "Hercules," Petra and Madaba—after a lot of hard work—produced spectacular results. Congratulations to all those who made it happen.

◆ March 14. More mosaics in Madaba. This time, a wonderful head of a Season—unfortunately cut in half by modern construction. Nearby, the cleaning of the recently uncovered mosaics in the Church of the Prophet Elias continues.



Madaba: Personification of a Season.

◆ March 22. ACOR sadly announces the demise of the red truck, the big Chevy purchased by David McCreery for—myth has it—\$50. It served ACOR well.

◆ April 2. Chryss Kanellopoulos—like a thief in the night—sneaks over to the Citadel, and puts up the first column drum (a newly-cut one) of the temple—before the official ceremony! Actually, he wanted to be sure everything would go smoothly for the official lifting of the drum. It turned out to be such a difficult job that it was decided not to do it again.

◆ April 2. I accompany H.R.H. Prince Ra'ad and a delegation from USIA to Petra.

◆ April 3-4. ACOR hosts a seminar for the Depart-

ment of Antiquities of Jordan and the Natural Resources Authority. This is to arrange standard coordination procedures between the two departments. Some 50 geologists and archaeologists attend.

◆ April 3. The base drum of the second column goes up. It is the first ancient part of the colonnade to be restored.

◆ April 12. More mosaics at Madaba as well as a large bronze vessel, a bronze oil lamp and bronze door knockers shaped like lions' heads.

◆ April 14. I accompany H.R.H. Prince Ra'ad to Petra again to meet a delegation from the World Wildlife Fund. This time we go the easy way—in a helicopter.

◆ April 15. A workshop on 'The Siq in Petra,' organized by the National Technical Committee for the Preservation of Petra and the Higher Council for Science and Technology, with the Department of Antiquities and the Petra National Trust, is held at ACOR.

◆ April 21. The ship with the acid-free paper for *The Mosaics of Jordan* finally docks at Aqaba after having been diverted by the allied forces. It will be another six weeks before the paper reaches Amman.

◆ April 29. Another column drum goes up.

◆ May 4. Yet another drum goes up at the temple. The column is now clearly visible from the First Circle.

◆ May 5. Undeterred by wind and rain, Chrissy puts the first capital up. The event is attended by a H.R.H. Prince Ra'ad bin Zeid, Ambassador and Mrs. Roger Harrison, Secretary General of the Ministry of Tourism Nasri Atalla, Thomas Dailey and Aied Sweis of USAID, and Chrissy's mother and parents-in-law. Miraculously, the skies clear just long enough to raise the capital.

◆ May 9. Wil and Ellie Myers cause PANIC for air traffic controllers at the airport. Their balloon rises 500 meters above the Amman Citadel for pictures of the temple and gets into the traffic pattern.

◆ May 24. The carpenters come by and install new shelves on top of the existing shelf units in the library. Librarian Humi Ayoubi estimates that this new space will accommodate the books donated and purchased in recent months which have been sitting in Pat Masri's library storeroom. Two more boxes of books are unpacked an hour later—putting the library at a shelving deficit—again!

◆ May 27. Six Tell Jawa staff members miss their graduation day but there are special cakes and everyone hums "Pomp and Circumstance."

◆ May 29. Two busloads of journalists arrive in Petra for a tour of the church and the mosaics. Over the next weeks, the discovery appears in the *Washington Times*, on CNN, Jordan Television, etc.

◆ June 7. Anthi gets a call from her mother—the Petra mosaics have made the Greek newspapers!

◆ June 8. Landscape architect Mary Mattocks is volunteered to take charge of the design and building of the new patios in the front yard.

◆ June 8. Prince Edward (son of Queen Elizabeth)

pays a visit to the Madaba project and the Petra Church.

◆ June 26. I make another payment on the current mortgage on the building. This puts ACOR financially back where it was when the Gulf Crisis started. Thank you to all those who helped make that possible.

◆ July 7. H.R.H. Prince Ra'ad bin Zeid and I host a



Sami Habayeb, Ambassador and Mrs. Harrison, H.R.H. Princess Majda, H.R.H. Prince Ra'ad bin Zeid, Safwan Tell, and Michel Marto,

luncheon at ACOR for departing U.S. Ambassador Roger Harrison and Mrs. Harrison. The Ambassador is awarded the ACOR Distinguished Service Medal.

## Around the House

\* Kathy Nimri decried the fact that some \$2000 worth of stone purchased for the reconstruction of the Great Temple of Amman was being wastefully "just chipped away." Worse, Chrissanthos was paying the masons who were doing the chipping.

\* Peter Warnock lugged 25 lbs. of brown sugar and 20 lbs. of chocolate chips through the airport. We think he may like Mohammed Adawi's cookies.

## The 25th Anniversary

The major event of the year took place in July. The celebration began on July 21 when Chrissy Kanellopoulos supervised the lifting of the 16-ton architrave back into place at the temple. He planned the event for two years and said he would try it only once. It took 20



ACOR President Artemis A. W. Joukowsky and H.R.H. Crown Prince Hassan at the celebration. Photo by Bill Lyons.

minutes! In the next few days, ACOR trustees and other guests began to arrive and tours to Um Qais, Jerash, Madaba and Petra were organized for them. On July 27th, the commemoration of the anniversary took place under the patronage of H.R.H. Crown Prince Hassan. He spoke as did the Minister of Tourism and Antiquities Yanal Hikmat, Trustees Artemis Joukowsky, Lawrence T. Geraty, S. Thomas Parker, Randolph B. Old, and the



H.R.H. Prince Abdullah (center) visits the Missione Italiana excavations at the temple in 1930. His grandchildren, H.R.H. Crown Prince Hassan and H.R.H. Princess Basma, were present at the ceremony marking the completion of the restoration project.

Director of Antiquities Safwan Tell. Former Director Bert de Vries presented vignettes of ACOR's directors. ACOR's Distinguished Service Medal was awarded to two trustees, H.R.H. Prince Ra'ad bin Zeid and Mohammed Asfour. U.S. Chargé d'Affaires Douglas Keene presented the new conservation lab and H.R.H. Crown Prince Hassan cut the ribbon to inaugurate it. Guests



Pierre Bikai, Safwan Tell, Nasri Atalla, H.R.H. Prince Ra'ad, Patricia Bikai, H.R.H. Princess Basma, Chryssanthos Kanellopoulos, H.R.H. Crown Prince Hassan, H.E. Yanal Hikmat, Sharifa Hind Nasser and Artemis Joukowsky at the temple. Photo by Bill Lyons.

were then invited to an exhibit in the lower library on ACOR and its projects. A reception attended by 500 of ACOR's friends followed.

On July 28th, there was a trustees meeting attended by 19 of the 23 current trustees—a remarkable turn-out. In the evening, there was a ceremony marking the completion of the Great Temple of Amman project.

## Donors to ACOR

The following friends of ACOR contributed over the last months: M. Bannigan, K. Beebe, T. Berner, R. Boling, R. S. Boraas, R. Brummel, D. and C. Clark, R. Cunningham, M. Davies, J. A. Dearman, B. and S. de Vries, K. Farmer, H. Forshey, G. Foster, N. Frederick, L. T. Geraty, V. Gold, J. Hackett, J. Hargrove, B. Henson, A. Holdsworth, A. Hopper, Joukowsky Foundation, Ø. LaBianca, N. Lapp, S. Lintner, G. Mattingly, L. Maxwell, D. McCreery, P. McGovern, G. Mendenhall, P. Merkel, E. and C. Meyers, C. Miller, D. Miller, P. Miller III, A. Ogilvy, R. Old, J. Oleson, S. T. Parker, Amb. T. Pickering, S. Richard, E. Riddle, M.-J. Roche, N. Rynes, P. Sciortino, J. Seger, I. Shahid, R. Stickle, J. Topham, D. Wimmer, and J. Zimmerman.

There were donations to the Jennifer Groot Fellowship Endowment from: M. Mattocks, S. T. Parker, B. Gould, and K. Old; and to the Kenneth W. Russell

Memorial Trust from: H.M. Queen Noor al-Hussein, K. 'Amr, M. Bannigan, D. Dubay, M. Forrest, D. Jackson, J. Mason, G. Mendenhall, I. Roddis, N. Siver, J. Taylor, and friends of G. Palumbo. Donations to the library were received from: H.R.H. Prince Ra'ad bin Zeid, R. Antoun, N. el-Assad, Z. Ayoubi, P. Brown, R. Brown, P. and P. Bikai, G. Bisheh, J. M. Blazquez, CERMO, G. A. Clark, T. A. Dailey, M. Daviau, A. Dekin, M. Finnegan, B. Fitzgerald, M. Gaston, S. Gitin, B. Gould, S. Gray, J. Greene, B. Gullo, L. Herr, M. Horowitz, F. Jowkar, K. Jreisat, L. Killean, J. Klages, Lavery Library of St. John Fisher College, J. Lee, S. Ma'ani, G. L. Monteagudo, C. Miller, J. W. and E. Myers, W. Overstreet, G. Palumbo, G. L. Peterman, G. O. Peterman, M. Piccirillo, S. Quaintance, W. Rast, J. Roberts, C. Roncoli, I. al-Sadi, D. Sawan, S. Shewehat, R. Schick, P. Warnock, and P. Williams. In March, Meryle Gaston, USIA/ALA librarian at ACOR in 1987-88 appraised the books donated by the estate of Byron Haines. Her help is much appreciated.

## The Conservation Laboratory

Glen L. Peterman

The installation of equipment for the conservation lab is in its final phases. The project was funded by an American Schools and Hospitals Abroad (ASHA) grant, awarded to ACOR in 1990 by USAID. Under the same grant, ACOR's computer resources were upgraded and there were funds for the purchase of books, periodicals and furniture for the library.



USIA Fellow Peter Warnock at the microscope as Glen Peterman looks on.  
Photo by Patricia Bikai.

Conservators Thomas Roby and Noël Siver conducted much of the pre-purchase information gathering in 1992 and made recommendations on which particular types of laboratory equipment were most needed. The original equipment list for the lab was made in 1984 by Kathy Tubb of the Institute of Archaeology (University

of London), who had provided critical emergency conservation for the now famous Neolithic statues from 'Ain Ghazal. Purchasing began in late 1992, with valuable input from Scott Quaintance of Kansas State University, Peter Warnock of the University of Missouri-Columbia, Hans-Joachim Kunkel (conservator for the Feinan Expedition), Friedrich Zinc (conservator for the Yarmouk University Institute of Archaeology), "Cap" Sease of the Field Museum of Chicago, Steven Coob of the Smithsonian Conservation Laboratory and Jerry Podany of the Getty Conservation Laboratory. Their help is appreciated.

In December the laboratory furniture—shelving, wheeled tables, cabinetry and countertops—was installed and equipment began arriving from the U.S. The first item to arrive was the Wild M3Z binocular microscope, which was immediately put to use by Fatma Marii, assistant conservator of the Petra Project, who was cleaning fragments of wall mosaics.

By the end of May, all the equipment had arrived—the last pieces being a fume hood, chemical and solvent cabinets—which came by sea through the port of Aqaba. The fume hood and fume extraction systems were installed by Peter Warnock who is also setting up a macrobotanical lab and reference collection in a corner of the "clean-room."

The ACOR conservation laboratory now has the basic equipment required for most artifact conservation processes. In addition to what is described above, the lab is equipped with an air-abrasive unit (a miniature sandblaster) for cleaning of metals; a Wild-Lietz M8 microscope with 35 mm photoautomat and fiber-optic lighting; a dentist's type drill for cleaning artifacts; digital conductivity meter; PH and thermohygrometers; ultrasonic cleaning tanks; laboratory ovens; special lighting; and a variety of glassware, tools and other items needed in a modern lab.

### ACOR and its Newsletter

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