

## BAQ'AH VALLEY PROJECT SYMPOSIUM

by  
Patrick McGovern

A Baqa'ah Valley Project Symposium was held the weekend of October 23-24, 1982 at the University Museum, University of Pennsylvania, Philadelphia, PA, U.S.A. The conference was sponsored by the Museum Applied Science Centre for Archaeology (MASCA) and the Near Eastern Section of the Museum through a grant from the University's Humanities Coordinating Committee.

The six public lectures on the Saturday program (*The Archaeology of Jordan: An Interdisciplinary Perspective*) were designed to give both the educated layman and the professional an overview of current archaeological work in Jordan, especially with regard to its increasingly scientific character. Given the necessary limitations of a one-day seminar, the sites and areas discussed, including some of the most intensively explored in Transjordan, covered a broad time span (Early Bronze Age up to the present) in considerable detail for different regions of the country (Jordan Rift Valley; central and southern plateau). Several of the following abstracts are of special interest, because they incorporate previously unpublished material. Full documentation and qualifications of the conclusions presented in a summary fashion here must of course await the final publications. As a final explanatory note, Beth Shan was included in the program because of the Museum's long-standing involvement with this site and its close ties with several of the Jordanian sites.

The choice of sites for the Saturday seminar was largely dictated by ongoing MASCA/Pennsylvania analytical programs and collaborative efforts, which were the focus of a workshop on Sunday (October 24). Presentations were given on Baqa'ah Valley Project research, including metals (V. Pigott, MASCA), ceramics (P. McGovern), neutron activation analysis (G. Harbottle, Brookhaven National Laboratory), proton-induced x-ray emission spectroscopy (C. Swann, Bartol Research Foundation of the Franklin Insti-

tute), scarabs (J. Weinstein, Cornell University), Mycenaean and Cypriot imports (R. Koehl), marine mollusks (D. Reese), geophysical prospecting (B. Bevan), and human skeletal remains (D. Ortner and B. Frohlich, Smithsonian Institution; M. Finnegan, Kansas State University; M. Saul). General discussion followed each talk which was aimed at resolving outstanding problems and setting future research objectives. A summation session in the afternoon then sought to articulate the results of the various archaeometric and archaeological studies into a coherent frame-work of cultural and technological development in the Baqa'ah Valley over a 500 year period (*ca.* 1600-1050 B.C.) For example, a marked shift in the metals and ceramics industries around 1200 B.C. with the appearance of mild steel jewelry and poorly fired, calcite-tempered wares, respectively, must be viewed in the context of the human and natural environment; the geological, human skeletal, faunal, and floral data is now being fully examined for any evidence of climatic deterioration, the incursion of a new ethnic element, etc. that might account for the technological changes. The present plan is to publish the technical reports as a *MASCA Journal* Supplement and the archaeological material as a Museum Monograph.

### **The Archaeology Of Jordan: An Interdisciplinary Perspective; Welcome** (by Khair Yassine)

It is indeed fitting that today's symposium should be held at the University Museum of the University of Pennsylvania, since this institution has long been in the forefront of archaeological research in Jordan. Over the past twenty-five years joint projects of survey and excavation were carried out through the collaborative efforts of the Department of Antiquities, the University of Jordan, and Pennsylvania, which included work at Tell es-Sa'idiyeh, in the

Jordan Valley, and in the Baq'ah. A number of native Jordanian archaeologists also received their academic training at the Museum. I sincerely hope that the proceedings of this conference will continue to encourage the scholarly dialogue and cooperation between American and Jordanian scholars, as already begun by the First Conference on the History and Archaeology of Jordan, held at Oxford in 1980, and the Third Conference on Bilad al-Sham, which took place at the University of Jordan in the same year.

The University of Jordan, young though it may be, has begun to build up research facilities for the recording, analysis, and conservation of archaeological materials. This will provide a central laboratory available to all interested researchers, and the goal is to combine it with an archaeological data bank.

Until very recently archaeologists of Palestine and Jordan were largely preoccupied with pottery and architecture, especially as it related to the biblical tradition. As a result, ecological, demographic, and social processes were ignored. However, a wider perspective is needed, particularly in Jordan where textual material is meager. This symposium should move us further in the direction of integrating the diverse archaeological data into a more coherent picture of environmental conditions, population dynamics, settlement patterns, and technology. Drs. McGovern, Sauer, and Fleming are to be especially thanked for organizing the symposium. The large attendance today is eloquent testimony to the widespread interest in the archaeology of Jordan.

#### **Recent Scientific Approaches in Jordanian Archaeology: The Baq'ah Valley as a Case Study (by Patrick McGovern)**

Four seasons of work in the Baq'ah Valley illustrate how scientific techniques need to be fully integrated into an archaeological project. In addition to being essential for the reconstruction of

technological and cultural processes, scientific instrumentation is valuable in developing a directed, economical field strategy.

The main focus of the Baq'ah Project has been the elucidation of the Late Bronze (LB) and early Iron periods. Nelson Glueck in his pioneering survey of the central and southern Transjordanian plateau had noted a relative absence of LB remains, which led him to hypothesize that the region had been inhabited largely by nomads and 'semi-nomads' before the emergence of national states (Ammon, Moab, and Israel). Yet the appearance of exceptionally well-made LB I (*ca.* 1550-1400 B.C.) pottery on the Amman antiquities market in 1975-76, which was traced back to a partly robbed-out burial cave in the Baq'ah, pointed to a well-established, sedentary community. Subsequently, a trial sounding in this cave produced such impressive archaeological remains that a full-scale program of systematic survey and excavation was planned with the support of the University Museum and its Applied Science Centre (MASCA), the National Geographic Society, and the Jordanian Department of Antiquities.

During the 1978 survey, thirty-three additional partially or fully robbed-out burial caves, nineteen of which dated to various phases of the LB, were located on the lower northwestern slopes of the Baq'ah. The caves, which were formed initially by erosion of limestone and sandstone strata, run in lines at the back of terraces. In time they silted up and a thick soil accumulation sealed off the entrances to most of the tombs. The challenge was to find and employ a method of detection for locating undisturbed caves. Preliminary tests of soil and stone from the Baq'ah indicated that there was a contrast between the more magnetic soil in the caves and the surrounding bedrock. Measurements in the vicinity of the robbed-out caves with a cesium magnetometer led to the isolation of significant magnetic anomalies.

The most interesting of these anomalies, a 7.00 x 11.00 m. magnetic high, proved to be a completely intact Iron IA

(ca. 1200-1050 B.C.) cave with over 225 burials and a unique assemblage of 78 whole vessels, bronze and mild steel jewelry (NB: no weapons), and a wide assortment of small artefacts in glass, faience, semi-precious stones, and bone. Detailed metallographic examination showed that there must have been good control of the metals' production — the bronze has consistently high levels of tin (10-15%), and the mild steel displays a uniform carbon distribution. Glass was limited to 7 beads of very high iron (50%) content, suggesting that they were byproducts of the iron industry. The proximity of iron mines 10-80 kms. to the north, the only known source of iron ore in the Levant, suggests that fuller investigation of central Transjordan is crucial to understanding the transition from the Bronze to Iron Age.

Excavation of another magnetic high in 1981 resulted in the discovery of undisturbed LB II (ca. 1400-1200 B.C.) burial remains, which conveniently filled in the gap between the LB I and Iron IA groups. The LB II cave with its 20 odd burials and over 300 whole vessels provided the all-important link between the earlier and later artefactual and skeletal remains. Neutron activation, petrographic, and fabrication studies of the pottery indicate that the majority of the vessels from all three groups are made of clay from a bed in the wadi immediately below the main LB-Iron Age settlement site of the region, Khirbet Umm ad-Dananir. Although potters continued to use this clay over a 500-year period, less care was taken in tempering and firing the wares as well as in forming and decorating the vessels as one moves from LB I to Iron IA. Imported wares from Cyprus and central mainland Greece (as confirmed by neutron activation analysis) were found only in the LB tombs in which a larger number of vessels and special small finds (scarabs and cylinder seals) attested to a higher standard of living. Glass was the preferred material for jewelry in the LB I group; affinities with the Mesopotamian industry were revealed by pigment studies. Preliminary morphological and palaeopathological investigation of the human skeletal materials suggests

continuity in the human population, and a relatively high incidence of arthritis and dental caries, often characteristic of an agricultural way of life, was noted for the three groups. Carbonized bread wheat from the LB II tomb was the first direct evidence for plant domestication.

The LB level at the settlement site of Khirbet Umm ad-Dananir has thus far been exposed in only a very limited area of the 2½ hectare site. A pit, containing large pottery vessels and the burnt bones of a variety of animals (sheep/goat, donkey, cow, and a carnivore), and an associated wall and floor were found 3.00 m. from the surface beneath Early Roman and late Iron Age remains. A wider exposure of the LB and Iron I occupational levels, the latter attested to by surface sherds, is planned in future seasons.

#### **Human Biological History at The Early Bronze Age Site of Bab Edh-Dhra (by Donald J. Ortner and Bruno Frohlich**

Archaeological evidence at Bab edh-Dhrâ' suggests a gradual transition from a nomadic-pastoralist society in EB I (3150-2850 B.C.) toward a more sedentary, urban society highlighted by the construction of defensive city walls in the early stages of EB II (2850-2550 B.C.). The urban society flourished until the end of EB III (2550-2275 B.C.) and appears to be followed by a return to a nomadic-pastoralist society during EB IV (2275-2050 B.C.) at the end of which the site was abandoned. In the cemetery the transition from nomadic-pastoralist to urban society is suggested by the change in burial pattern from primarily secondary interments in underground shaft tombs during EB I to predominately primary interments in mudbrick charnel houses toward the end of EB I and during EB II-III.

Preliminary data suggest that the EB I people were small both in stature and build with subsequent people being taller and more muscular. Whether this difference represents a change within a group or a new group of people taking over the site is not yet resolved. Evidence of probable

traditions are found at the sites of Tell el-Far'ah (N), Samaria, and Hazor, where strata generally assigned to the eighth and seventh centuries B.C. have produced striking parallels to the Tell es-Sa'idiyeh corpus of forms. Thus, the cultural alignment of Tell es-Sa'idiyeh in the late Iron II period would seem to be with the sites across the Jordan on its west bank, rather than with those on the plateau of Transjordan. Lines of contact can be drawn across the Jordan to the hill country on the west and also up the Jordan Valley as far as Hazor.

### **Tell Hesban: 2700 Years of Frontier History (by Lawrence T. Geraty)**

Tell Hesban is a Transjordanian mound at an elevation of 2900 feet, which guards the northern edge of the rolling Moabite plain where a southern tributary to the Wadi Hesban begins to cut down sharply toward the Jordan River, about 15 miles to the west. It is about 35 miles east of Jerusalem, 12 miles southwest of Amman, 4 miles northeast of Mt. Nebo, and 600 feet higher than 'Ain Hesban, the perennial spring with which it is often associated. Because of the spring's distance and the absence of wells, springs, or streams at the tell itself, extensive facilities for storage of rain and runoff water were essential throughout all periods of occupation.

For geographical and linguistic reasons Tell Hesban is identified with Heshbon, mentioned 38 times in the Bible. The earliest literary reference to Heshbon's history is in Num. 21 where mentioned is made of the Israelites taking the city from Sihon the Amorite who had in turn taken it from the Moabites. It became a possession of the tribes of Reuben and Gad, belonged to Solomon's 12th administrative district, and ultimately reverted to Moab and perhaps Ammon. In post-biblical pre-Arab literary sources, the site is commonly called Esbus. It is also known from coins, milestones, and inscriptions.

An Andrews University expedition completed five seasons of excavation

(1968, 1971, 1973, 1974, and 1976) at this once vital commercial and military centre at the intersection of two important ancient trade routes. A series of 32 squares were cut to bedrock along major north-south and east-west axes centered in the acropolis. This was supplemented by tomb research and soundings scattered around the perimeter of the site in most seasons as well as the continued excavation of one of the Byzantine churches in 1978. This work identified a series of nineteen distinguishable superimposed strata covering a period from about 1200 B.C. to A.D. 1500 (4 strata of the Iron Age, 5 strata of the Hellenistic and Roman periods, 6 strata of the Byzantine and Early Arab periods, 3 strata of the Ayyubid/Mamluk period, and a final Ottoman/Modern stratum). There seem to be two primary gaps in settled occupation (about 500-250 B.C. and A.D. 1500-1870).

Excavation on the tell yielded the following: Iron I--a reservoir, major wall, deep fills; Iron II/Persian--reservoir, soil layers, Ammonite ostraca. Throughout the Iron Age the town was relatively small and characterized by domestic facilities, possibly including a cottage textile industry. There was no apparent trade. A carburized blade-point and arrowhead of the seventh/sixth century indicate that local smiths had a working knowledge of ferrous metallurgy. A mixed economy of farming and cattle herding prevailed. Hellenistic--two defense walls, rock-cut caverns. In the small fortified settlement luxury trade items of alabaster and ivory were found for the first time. Early Roman--domestic caves, a sequence of plazas, tower; Late Roman--monumental stairway to acropolis, possible temple, domestic complex. The Roman town was relatively large with evidence for mercantile activities, trade, and elaborate public architecture. Skeletal remains suggest a stressed population. Farming, cattle herding, and viticulture were the main economic activities. Fish remains pointed to east-west movement. Early Byzantine--tower rebuild, basilica-type Christian church, lime kiln, "Prometheus Bound" carving; Late Byzantine--three churches (one an expansion), stone

stairway. The Byzantine community was well-established with elaborately decorated buildings and evidence for foreign trade. It was surrounded by numerous contemporary sites and elaborate water-management works. There was intensive food production with the consumption of poultry, pigs, and fish. Sheep/goat remains were relatively scarce, probably because pastures had been turned into croplands by employing horses and donkeys as draft animals. Umayyad-flagstone floor, ceramic oven, and imported marble; Abbasid--stone-lined pit; Ayyubid/Mamluk--vaulted rooms associated with caravan "motel," series of cisterns, domestic caves, domestic building complex, bathhouse, and possible mosque. The Arab period begins with a mixed-farming community which gradually declines until its medieval revival when a relatively large, important settlement emerges with intensive food production. The fish remains evidence of north-south movement.

Further expedition goals and results included soundings—eighteen of which added important complementary data and confirmed the accuracy and completeness of the more extensive acropolis stratigraphical operation; cemeteries—all the tombs of which were either Roman or Byzantine (192 skeletons studies) despite a thorough search for Iron Age burials; regional archaeological survey—155 sites were mapped with a 10 km. radius of the tell including two impressive tells, Tell el-Umeiri and Tell Jalul; related scientific data—such as environmental and ethnographic fieldwork (floral changes at Hesban indicate a succession of plant communities through time but no evidence for desertification), zooarchaeological data gathering (50,000 animal bones were processed yielding some 120 species of which 42 were wild birds, 32 hunted mammals, and 14 domestic mammals), and investigations aimed at discovering the depositional, post-depositional, and excavation factors which affect our understanding of the material excavated (bones, sherds, glass, scientific samples, small finds etc.)—all now undergoing study for final publication.

## **Pella of the Decapolis** (by Robert Houston Smith)

Since major archaeological work began at Pella in 1967, a great deal has been learned about the history of the city and its relationship to its larger region. The reconstruction of Pella's past has involved the study of ancient texts, environmental factors (geography, weather, hydrology, etc.), excavation, and specialized geological, zoological, botanical and anthropological studies.

It is now known that occupation of the site began as early as 5000 B.C. (not to mention nearby Palaeolithic occupation) and continued with the little interruption until the city was destroyed by earthquake in A.D. 746/747. Middle Bronze II B.C., Late Hellenistic, Byzantine and Umayyad remains are especially abundant, but there is also increasing attestation for Middle-Late Chalcolithic, Late Bronze I-II, Iron I and Iron II, and Roman occupation. As excavation reaches deeper levels in the central mound, additional evidence of Pella's early periods will probably be found.

Thus far excavation has been carried out in more than a dozen areas, including the central mound, Tell el Husn (a large natural hill south of the tell with occupational remains and numerous tombs), the Wadi Jirm, and several outlying locations.

With the help of the Department of Antiquities, which has provided generous support for the Joint Expedition in a number of ways, some of the columns of Byzantine ruins at the site have been restored to their original positions. The expedition has had financial support from the National Geographic Society, the National Endowment for the Humanities, and the Australian Grants Committee, among others, and, pending the continuation of such funding, the Expedition anticipates being in the field for a number of future seasons.

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## IN MEMORIUM

Ernest Walter Krueger

Oberregierungsbaurat a.D. Ernst W. Krueger was born in Stettin in Eastern Germany (now Poland) on July 16th, 1902. He became an architect and entered government-service. At the outbreak of World War II he was in Persia to build the German embassy in Tehran. After the war he lived for some years in Australia, before he re-entered German service as "Oberregierungsbaurat" (senior government architect). In this period of his life he built, among other important buildings, the stock exchange at Berlin and the German embassy at Addis Ababa, Ethiopia.

The most important period of his life, however, began when he retired from service and came to Jerusalem, where he worked for several German protestant institutions. He restored the Lutheran Church of the Redeemer in the Old City of Jerusalem and the Lutheran compound. From 1976-1978 he built the German

Protestant Institute for Archaeology in Amman, and from 1981-1982 he restored the institute's building in Jerusalem, formerly the house of Dr. Taufiq Canaan, medical director of Auguste-Victoria Hospital.

From 1974, he worked with the Umm Qeis excavations as architect and supervised the restoration work at the site. Most of his time in the last few years he spent in Amman taking care of the institute which he had built, as long as there was no staff appointed to it. In the summer of 1982 he went back to Germany because of ill health. He died at Liestal (Switzerland) March 6th, 1983.

He was conferred the "Bundesverdienstkreuz" (order of merits of the Federal Republic of Germany) and honorary membership in the "Deutscher Verein zur Erforschung Palästinas" (German Society for the Exploration of Palestine).

NOTE ON AN ARCHAEOLOGICAL  
OCCURRENCE ON THE CENTRAL  
PLATEAU OF JORDAN

by  
Anna L. Garner

On the central plateau of Jordan, there is a small chain of low mountains extending from Wadi al Hammam in the north to the basin in which the Qatranah River meanders in the south. The named peak in this short mountain chain is Jabal al Khurayyim. At the very southern tip of these low mountains, where they are eroding onto a sandy desert plateau with patches of pebble desert, extensive paleolithic remains were found.

A relatively shallow *wadi* cuts its way from its head in the southern terminus of these low mountains and runs southwest toward the Wadi al Hafiyah. Densely strewn along the banks of the shallow wadi are handaxes, flakes, blades, cores and spheroids worked in various materials. Many artefacts were manufactured from a hard rose-colored stone (jasper?). A softer brown chert furnished the material for handaxes worked in a delicate technique. Gray chert was also used. Boulders and outcrops of these various materials are located in the mountains nearby. The implements all revealed a high degree of desert polish, as if they had been exposed

a long time.

The lithic remains extend from a concentration of flint implements characteristic of a "blade culture" southwest along the *wadi*, where the mode of the implements changes to a preponderance of large flakes and flake cores, as well as beautifully-made handaxes and backed knives.

To find the location, take the desert highway from Amman toward Qatranah. Five kilometres before reaching Qatranah, turn left onto a paved road which leads eastward into the desert. Pass an emergency landing field fourteen kilometres from the highway. Go one kilometre past the landing field (a widened asphalt strip). Walk from the road to the foot of the mountains on your left; then follow the wadi leading from them to the southwest. The flint scatter becomes sparser at a point one mile to the southwest of the foot of the mountains.

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