

ANDREWS UNIVERSITY
HESHBON EXPEDITION
THE FIFTH CAMPAIGN AT TELL HESBÂN (1976)
A Preliminary Report

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Tell Heshbân, a site some 25 road kilometers southwest of Amman that has been traditionally identified with Biblical Heshbon and the Greco-Roman Ebus, was excavated in a fifth and presumably final campaign from June 15 to August 11, 1976.¹ Heshbon's history as derived from the literary sources,² and the results of the previous four campaigns of 1968, 1971, 1973, and 1974, have already been covered in previous preliminary reports.³

¹ Brief reports of the 1976 season by L. T. Geraty appeared in *ASOR Newsletter* No. 8 (Jan., 1977): 1-15, and *ADAJ* 21 (1976): 41-53. One submitted to *RB* has not yet been published.

² W. Vyhmeister, *AUSS* 6 (1968): 158-177.

³ For the 1968 season, see R. S. Boraas and S. H. Horn, *et al.*, *Heshbon 1968* (*AUSS* 7 [1969]: 97-239), *AUM*, Vol. 2, 1969; Horn, *ADAJ* 12-13 (1967-68): 51-52; Horn, *ASOR Newsletter* No. 3 (1968-69): 1-5; Horn, *BA* 32 (1969): 26-41; Horn, *RB* 76 (1969): 395-398; E. N. Lugenbeal and J. A. Sauer, "Seventh-Sixth Century B.C. Pottery from Area B at Heshbon," *AUSS* 10 (1972): 21-69; A. Terian, "Coins from the 1968 Excavations at Heshbon," *AUSS* 9 (1971): 147-160.

For the 1971 season, see R. S. Boraas and S. H. Horn, *et al.*, *Heshbon 1971* (*AUSS* 11 [1973]: 1-144), *AUM*, Vol. 6, 1973; Horn, *ADAJ* 17 (1972): 15-22; Horn, *ASOR Newsletter* No. 4 (1971-72): 1-4; Horn, *RB* 79 (1972): 422-426; R. G. Bullard, "Geological Study of the Heshbon Area," *AUSS* 10 (1972): 129-141; J. A. Sauer, *Heshbon Pottery 1971* (*AUM*, Vol. 7, 1973): A. Terian, "Coins from the 1971 Excavations at Heshbon," *AUSS* 12 (1974): 35-46.

For the 1973 season, see R. S. Boraas and S. H. Horn, *et al.*, *Heshbon 1973* (*AUSS* 13 [1975]: 101-247), *AUM*, Vol. 8, 1975; Boraas, *PEQ* 106 (1974): 5-6; Horn *ADAJ* 19 (1974): 151-156; Horn, *ASOR Newsletter* No. 2 (1973-73): 1-4; Horn, *RB* 82 (1975): 100-105; F. M. Cross, "Ammonite Ostraca from Heshbon: Heshbon Ostraca IV-VIII," *AUSS* 13 (1975): 1-20; B. Van Elderen, "A Greek Ostrakon from Heshbon: Heshbon Ostrakon IX," *AUSS* 13 (1975): 21-22; A. Terian, "Coins from the 1973 and 1974 Excavations at Heshbon," *AUSS* 14 (1976): 133-136.

For the 1974 season, see R. S. Boraas and L. T. Geraty, *et al.*, *Heshbon*

This article is intended as an introduction to a full preliminary report in which field supervisors not only give for their respective Area the results of the 1976 season in relation to tentative site-wide strata (designated by Roman numerals) but also incorporate their interpretation of all previously-excavated relevant loci from their respective Area for the preceding four seasons. Thus, in large measure, this last preliminary report can serve as the expedition's final report until those volumes appear.⁴

Sponsorship

Again in 1976 the major sponsor of the expedition in terms of personnel, direction, and financial support, was Andrews University,⁵ in close cooperation with the American Schools of Oriental Research's American Center of Oriental Research (ACOR) in Amman and the Department of Antiquities of Jordan. ACOR, through its Director, James A. Sauer, put its personnel, tools, and excavation equipment at the disposal of the expedition,⁶ and the Department of Antiquities, through its Director-General, Yacoub Oweis, and his associate, Yousef Alami, issued the excavation and survey permit, loaned personnel and certain pieces of equipment and provided assistance and courtesies in numerous

1974 (*AUSS* 14 [1976]: 1-216), *AUM*, Vol. 9, 1976; Geraty, *ADAJ* 20 (1975): 47-56; Geraty, *ASOR Newsletter* No. 5 (Nov., 1974): 1-8; Geraty, *RB* 82 (1975): 576-586; Ø. S. LaBianca, "Pertinence and Procedures for Knowing Bones," *ASOR Newsletter* No. 1 (July, 1975): 1-6.

⁴ The authors wish to acknowledge Julia Neuffer's extensive editorial help with many of the contributions that make up this preliminary report. While the preliminary report is diachronic by Area, the final report (whose preparation is underway) will of course have the advantage of being diachronic site-wide, by archaeological strata and historical periods.

⁵ It is a pleasure for the Director to publicly acknowledge the consistent encouragement and tangible support of Andrews University through the good offices of Presidents Richard Hammill and J. G. Smoot, Vice President V. E. Garber, Seminary Deans S. H. Horn and T. H. Blincoe, College Dean D. L. Ford, and Controller/Treasurer K. E. Hill.

⁶ During July 23-27, the expedition welcomed and benefited from the visit of three key *ASOR* officials: Philip J. King, soon to become President; Edward F. Campbell, Jr., Second Vice-president (for Archaeological Standards and Evaluation); and Melvin K. Lyons, Medical Director.

ways. Other dignitaries to whom the expedition owes a special debt of gratitude include H.R.H. Crown Prince Hassan and H.R.H. Crown Princess Tharwat, Prince Raad Zeid Hussein and Princess Majda Raad, Minister of Tourism and Antiquities Ghaleb Z. Barakat, U.S. Ambassador Thomas R. Pickering, Meteorological Department Director-General Ghazi el-Rifai, the Nabulsi family, and Elizabeth Aimé.

Other institutional sponsors who provided both personnel and generous financial support included Calvin Theological Seminary (Grand Rapids, Michigan), Covenant Theological Seminary (St. Louis, Missouri), Winebrenner Theological Seminary (Findlay, Ohio), Earthwatch (a national effort conceived by the Center for Field Research in Belmont, Massachusetts, to mobilize citizens of all ages in basic field research expeditions), the Kyle-Kelso Archaeological Fund (Holland, Michigan), and the Friends of Archaeology (Riverside, California). Worthington Foods Division of Miles Laboratories, Inc., donated the staff's textured protein requirements for the season.⁷

Major individual sponsorship came from Dr. and Mr. Charles L. Anderson, Mrs. Ruth Kaune Baucom, Eleanor and William Berecz, Jr., Wilber A. Bishop, Sr., Dr. and Mrs. Bernard Brandstater, Dr. and Mrs. Bruce Branson, Dr. Irvin N. Kuhn, Dr. and Mrs. John Wm. Schnepfer, Walter E. Sooy, and John H. Weidner. Numerous private donors provided lesser support.

The expedition tenders its special thanks to all the above institutions and individuals for their generous support which made the fifth season of excavations at Tell Ḥesbân possible.

Organization

For the first time, the expedition's headquarters was located nearer Ḥesbân, in Madaba, at the Elementary Girl's School of the United Nations Relief and Works Agency for Palestine

⁷SAS and Alia Airlines provided complimentary transportation, thanks to the efforts of Nabil Razzouk, Kenneth Fenski, and Iyyad Khalidi.

Refugees.⁸ The facilities there served admirably to house the 100-member staff and were adequate for makeshift bone and geology laboratories, a drafting room, a darkroom, and rooms for the processing of pottery, glass, and small finds. The only recurring problem was lack of adequate water, but the staff learned to take this in stride. The daily program was similar to that already described for the 1968 campaign.

The fulltime resident staff consisted of 13 Jordanians (mostly from the Department of Antiquities and the University of Jordan) and 83 foreigners (mostly professors and graduate students) from the United States, Canada, Australia, Norway, West Germany, Finland, Switzerland, Peru, and Taiwan. Another 11 volunteers were present at various times during the season.

The staff was composed of three groups. The Advisory Group was headed by Siegfried H. Horn of Andrews University who initiated the excavations in 1968 and directed them through the first three seasons, and James A. Sauer, ACOR Director, who gave unselfishly of his time and energy both before and after the excavation season. Other members of this group who aided immeasurably in the smooth running of the organization included the official representative from the Department of Antiquities, Mahmoud Rusan (who outdid himself in service to the expedition and its members in countless ways), Omar Yunis, Arif Abul-Ghannim, and Foreman Muhammad Murshed Khadija who was directly responsible for the oversight of about 140 local workmen, including Khamis, a "Jericho technical man."

Continuity in the 1976 Excavation Group was evidenced by the fact that 31 of these individuals (more than a third of those who worked fulltime) had already served on the Heshbon team

⁸ Arrangements for use of the facilities were made through the courtesy of John W. Tanner, Director of UNRWA Affairs, Jordan, and his associates, in cooperation with James A. Sauer, ACOR Director. A special word of thanks for services rendered at that time goes to Jordanian Army Col. Nurdin Sadiq, Madaba Area Governor M. O. Jariry, Madaba District Inspector of Antiquities Mahmoud Rusan, and Mr. and Mrs. Issa Hazboun of the Madaba Government Rest House.

during a previous season.⁹ Continuing in key oversight responsibility were Lawrence T. Geraty of Andrews University, Director; Roger S. Boraas of Upsala College, Chief Stratigrapher and Coordinator of Specialists; and James A. Sauer of ACOR, Chief Ceramic Typologist. In the following listing, each excavation group member is mentioned in connection with his or her primary assignment, though in certain cases there were shifts which took place during the season (these are noted in parenthesis). Fulltime Earthwatch volunteers are starred (*).

Area A on the summit of the acropolis was again supervised by Bastiaan Van Elderen of Calvin Theological Seminary. Of the nine Squares previously opened, only Squares 6, 8, and 9 were worked in 1976, and Squares 10 and 11 were begun. Square supervisors were Kim Baker, Douglas Clark, Julia Neuffer, Mahmoud Rusan (Area G), Oscar Schultz, Jr., and Margit Süring (Pottery Registration).

Area B and Square D.4 on a level shelf to the southwest of the acropolis summit was supervised by Larry G. Herr of Harvard University in consultation with James A. Sauer (Area B Supervisor since 1971) who continued to work on his pottery report in camp. Of the eight Squares (including D.4) previously opened, only Squares 2, 4, 7, and D.4 were continued in 1976. Square supervisors were Donald Casebolt, Ronald Geraty, Kenneth Knutsen (Area G), Larry Mitchel (Area G), Peter Soderman (Area F), *Marilyn Stickle (Area F), and Bjornar Storfjell (Area F).

Area C on the *tell's* western slope was expanded eastward to connect up with Area A, so for the first time its supervision was divided up. Continuing as supervisor of the western sector of Area C (Squares 1, 2, 3, 5, and 7) was W. Harold Mare of Covenant Theological Seminary. Of these five previously-opened Squares, only Squares 1, 5, and 7 were worked in 1976. Square

⁹ Another 18 individuals had worked at other sites, so all together more than half the group had excavation experience before the thorough week's pre-dig orientation at Tell Heshbān.

supervisors were *Esther Benton (Bone Lab), Jelmer Groenewold, Jennifer Groot, Myra Mare, Nabil Qadi, Douglas Robertson, Saleh Sari, and Timothy Schultz (Area G).

Area C's eastern sector (Squares 4, 6, 8, 9, and 10) was for the first time supervised by S. Thomas Parker of the University of California at Los Angeles. Of these five Squares, only 4, 6, and 8 were previously opened. Squares 6 and 8 were continued and Squares 9 and 10 were excavated for the first time in 1976. Square supervisors were Miriam Boraas, John Coughenour, Patricia Crawford, Carol Moerman, Michael Toplyn, William Urbrock, Nathaniel Yen, Omar Yunis, and Mary Witt.

Area D, connecting Areas A and B, was again supervised by Larry G. Herr. Of the previously-opened five (excluding D.4) Squares, work was continued in only Squares 2 and 3. Square supervisors were Kerry Brandstater (Area G), Vincent Clark (Area C, eastern sector), and John Lawlor (Area G).

Area F.24-41—all new tombs and caves,¹⁰ on the east side of the Wadi el-Majarr to the west and southwest of the *tell*, and Area K.1, 2—new tombs on the east side of the Wadi el-Marbat due east of the *tell*, were supervised for the first time by John J. Davis of Grace Theological Seminary. His assistants were Sheila Geraty (Area G), Scott Longacre, *Frank Lounsberry, Patricia Schmidt, and Marilyn Tanis.

Area G was the collective designation for several scattered soundings in the vicinity of the *tell*. Squares G.1-10 were excavated in 1973 and 1974. Square G.4, a cave-cistern complex near the village south of the acropolis, was continued in 1976; probed for the first time were G.13 and 15 nearby—all supervised by Donald H. Wimmer of Seton Hall University. Robin M. Brown of the University of Michigan supervised G.11, 16, 17, and 18—all test trenches on the north and east slopes of the *tell* except for G.18 which was in the village to the south. B. Michael Blaine of Glendale, California, supervised sounding G.12 on the saddle

¹⁰ Area E.1-6 and Area F.1-23 were excavated between 1971-1974.

southwest of the acropolis, and John I. Lawlor of Baptist Bible College (Clark's Summit, Pennsylvania) supervised G.14, the remains of a Byzantine church due north of the acropolis. The initial Area G Square supervisors were *Raymond Bankes (Area F), Murray Moerman, and Sheri Paauw.

Remie and Mary Fenske were parttime volunteers from Amman who willingly fitted into various Areas as needed.

The regional archaeological survey continued under Robert D. Ibach, Jr., of Grace Theological Seminary, extending its coverage to the triangular region between the Amman-Na'ur Road and the Amman-Madaba Road. His assistants were Arif Abul-Ghannim and *Carl Wheat.

Surveying and architectural drafting were again in the charge of Bert DeVries of Calvin College; his assistants were Merling Alomía, Henry Kuhlman, David Piper, Daniel Salzmann, and Anita Van Elderen.

Paul H. Denton of Andrews University again supervised all photography; his assistants were Kaye Barton, Loren Calvert, Anna Eaton, Andrew Kramer, Scott Rolston, and Mitchell Tyner.

The zooarchaeology and ethnography team was again headed by Øystein S. LaBianca. His assistants were Pamela Butterworth, Mary Ann Casebolt, Adelma Downing, Theresa Fuentes, Samir Ghishan, Asta S. LaBianca, and Patricia Tyner. During portions of the season the team was joined by the following Earthwatch volunteers: Sissy May (June 20-July 9), Helen Shafer and Paul Vance (July 11-30). During a post season (August 8-27) "bone lab" headquartered at the Seventh-day Adventist Secondary School on Jebel Amman, Earthwatch volunteers Elizabeth Horner, Lori LaValley, Julia Middleton, and Merryanna Swartz assisted the LaBiancas, C.9 "test square" supervisors Crawford and Toplyn, and the following consultant specialists: Paul W. Perkins of the Institute for Informatics Research and Computer Design, and Joachim Boessneck and Angela von den Driesch of the Institut für Palaeoanatomie, Domestikationsforschung, und

Geschichte der Tiermedizin der Universität München.

Other specialists included Physical Anthropologists James H. Stirling of Loma Linda University, who was responsible for the human skeletal remains from the cemeteries, Robert M. Little of Berrien Springs, Michigan, who took care of the human skeletal remains from the *tell*, and Geologist P. Edgar Hare of the Carnegie Geophysical Institute whose assistant was Robin Cox.

Siegfried H. Horn again served also as object registrar assisted by Abraham Terian of Andrews University who promptly identified all coin finds. Hester Thomsen of Greater New York Academy was once again in charge of all pottery washing, drying, sorting, and registering; Diane Groenewold (Area A) assisted her.

The Support Group for the staff was headed by Robert A. Coughenour of Western Theological Seminary who served as director of education (coordinating orientation, lectures, and tours) in addition to his assignment in Area A. Ronald D. Geraty, camp physician, and Mary Ann Casebolt, camp nurse, demonstrated their importance to the team by the fact that despite the large staff and difficult conditions, there were no hospitalizations or serious illnesses or accidents during the two-month expedition. Lorrie Knutsen served as camp receptionist-secretary-storekeeper. Muhammad Adawi, ACOR's major-domo, was once again chief cook; his assistants were Ishaq Adawi, Issa Muhammad, Walid Hussein, and Azme Ahmad, with the parttime assistance of Will Kidwell on the *tell*. Joyce Rochat of Andrews University was a guest of the expedition while she interviewed Siegfried Horn for his biography.

Aims¹¹

The overall aim in the final season of the expedition's current work at Tell Hēsbān was to complete the stratigraphic inquiry

¹¹ The aims were governed by the continuing strategy of cutting along the edges of a "quarter pie" slice of the main *tell*. Completion of this strategy required opening new Squares so as to link Areas C and A along the east-west axis, and the completion of excavation to bedrock in all Squares along the main axes. The excavation and recording methods were extensions of

in the series of Squares laid along the western portion of the east-west axis and along the southern portion of the north-south axis. The intent was to complete a stratigraphic cut from the west perimeter to the center of the acropolis and south to the edge of the *tell* proper. The purpose was to sample the stratigraphy in detail by means of a continuous section running from the center of the acropolis to two edges of the *tell*, each portion serving to check and correct the reading of the other. By such a bi-focal stratigraphic sample it was hoped to derive a reasonably certain sequence of occupation history for the main site.

Three remaining problems of architectural diagnosis also affected the aims of the season. Recognized in 1973 as requiring two additional seasons' work for proper analysis, the three items governed specific excavation plans. To locate the west edge of the Byzantine church on the acropolis had become more problematic with the decision of the Department of Antiquities to preserve the Islamic bath built above the ruined church at its western edges.¹² The procedure still available to us was the removal of the west balk of Squares A.5 and 6 in the hope that sufficient clues might be apparent in such limited space. To clarify the nature of the "defense" building on the west perimeter it was decided to expand the work in C.5 to the main axis balk (the south balk of C.5) though we knew it meant digging through several meters of Byzantine and Mamlük dump before the build-

those employed in previous seasons (see *Heshbon 1968*, pp. 110-117) and specified in the manual of instruction prepared for the staff. In this report the Area is designated by a capital letter, the Square by an Arabic numeral preceded by a period, and the Locus by an Arabic numeral preceded by a colon. A.8 refers to Area A, Square 8, whereas D.4:23 would designate Area D, Square 4, Locus 23.

¹² The period divisions adopted for the expedition follow the pattern reported in Sauer, *Heshbon Pottery 1971*, pp. 1-7. This is adapted in the tentative stratigraphic chart for the correlation of site-wide work given below. All contributors were instructed to employ the tentative site-wide periodization in preparing reports for this issue, but participation has suffered some variation. The site-wide periodization employs Roman numerals for Stratum designations with names used for broader historical period identifications, as indicated in *Heshbon 1968*, pp. 114-115.

ing remains would be reached. The third problem was to try to settle the question whether the large installation on the south shelf was indeed a reservoir as designed, and to get any additional data helpful for a precise dating of its construction, use and abandonment.

While all these aims were focused on the main *tell* stratigraphy and architecture, the fact that this was to be the last season spurred several additional efforts in new as well as continuing directions of work.

Continuing work was done in the search for burials, specifically those of the Iron Age settlements. Evidence from Mt. Nebo affected the decision to pay special attention to various cave installations on all sides of the terrain surrounding the *tell*. Additional work was done by the regional survey crew to fill in zones of sparse coverage remaining from previous seasons, and to experiment with a grid-sampling approach to a major site, Jalūl. Additional work was undertaken to continue the froth-flotation sampling from three Squares on different portions of the site, to examine a sequence from ground-surface to bed-rock in each case, and to allow comparative studies of such data from various portions of the site. Expansion of analyses was attempted in the study of animal bone material under the option of arrangements to bring a portable field terminal for the computerization of the data. Pollen and soil samples for geological analysis were extended and a geological map of the site was to be developed in some detail. Extensive exploration of the occupation history of subterranean features was continued in a cave complex (G.4) on the southwest arm of the *tell* base. The architect-survey staff worked to extend and complete the contour map development.

Among new efforts this season was an attempt at testing precisely the difference in results of data-retrieval by using our conventional methods in one half of a Square (C.9) while applying uniformly a medium screen sifting of all earth removed

from the other half of the Square. Ethnographic studies were extended through the cooperation of various local households and families of the present village population. In a series of Squares excavated as soundings on the north, east, and south sides of the *tell*, the effort was aimed to cross-check the accuracy of our reading of the stratigraphy on the main *tell* and to test the accuracy and adequacy of our site-wide stratigraphic analysis. It was hoped to provide evidence if auxiliary settlements were made in different periods than those evident on the central *tell*. For this purpose, Squares G.11 and 14 were opened on the north shelf and at the base of the *tell* on the north side respectively. Squares G.16 and 17 were opened near the base of the *tell* on the east, and Squares G.12, 13, 15, and 18 were dug on the south and southwest of the *tell*. By special arrangements with the Royal Weather Service, a set of weather observation and recording instruments was installed on the northeast corner of the acropolis to allow a one-month sequence of readings to allow comparisons with the local readings at regular government observation stations. Finally, the completion of the stratigraphic cut from the west perimeter to the acropolis, mentioned above, involved opening a new sub-segment of Area C comprising three Squares (C.8, 9, and 10) and an extension westward of Area A (A.11).

*Accomplishments*¹³

As for the overall aim of completing excavation to bedrock in the main stratigraphic cut on the site, the accomplishment was nearly complete. In only one Square (C.10) along the entire sequence abutting the main east-west and north-south axes did we not reach bedrock by the last day of the season. It can also be reported that the two segments of this stratigraphic sampling

¹³ Since the publication plan for the final preliminary report called for writers to account for the entire sequence of loci excavated in their assigned Areas and to interpret the results through the site-wide periodization chart given below, this introductory summary of accomplishments makes no pretense to deal comprehensively with all new material. The summary will focus on matters most directly relating to the stated aims of the season's work.

indicated a consistent pattern of occupation history from Iron I_A through Mamlūk times. It can further be reported that the data from all the soundings around the perimeter of the *tell* show the same pattern of occupation history. No new periods were evident, but several new architectural features were encountered in these soundings. Primary in this regard was evidence of two additional Byzantine period churches. G.17, on the northeast perimeter of the base of the *tell*, was initiated on the basis of a local land-owner's report that mosaic material had appeared during his house construction. The small sounding did expose a mosaic medallion of the sort found in an aisle of a church floor of the Byzantine period. Indications were sufficiently substantial to draw preliminary plans for further excavation by the Department of Antiquities. The placement of sounding G.14 on the north perimeter of the base of the *tell* was governed by ground surface indications of architectural fragments, some apparently *in situ*, suggesting some building using classical design features. Excavation indicated an eastern apsidal feature with at least two stages of mosaic floor development, supported by surrounding architectural clues indicating a third Byzantine period church as likely. Currently plans are underway for further exploration of that feature by an American archaeological team.

As for the three major architectural problems remaining from the previous seasons' works, success was somewhat mixed. Most clearly settled was the matter of the "reservoir" on the south shelf of the site. Excavation in Area B showed a clear sealed join of the cement layered floor first encountered in B.1 to the layered plastered side exposed in B.2 and 4. Tracking the east wall of the installation to both its northeast and southeast corners and the observation of the directions and angles of the tip-lines in the fill after it was abandoned allowed the conclusion that its shape was probably square. Its capacity, estimated on the dimensions exposed, was probably ca. 1,200,000 liters. As such it is the largest such installation from the Iron II period thus far found on the

east bank of the Jordan. The mode of its destruction was probably weakness due to nearby caves or the trauma of earthquake. Collapse was most evident adjacent to a cave very close to the southeast corner.

Concerning the west perimeter "defense" building, the successful removal of large dump accumulations still covering the installation in the south half of Square C.5 indicated an Early Roman tower with internal modifications built during the Byzantine occupation. Most problematic for its defensive function was the location of the small doorway and aisle leading down to the west from the west exterior of the building. It suggests a building convertible from peacetime use for guard duty or toll collection to defense use in wartime. Presumably the west doorway might have been blocked rather quickly if wartime conditions had threatened. The substantial nature of the walls and the founding of the building on bedrock support the theory of a defensive use as the intent of the structure. Additional exploration of the Iron II "defense" wall in C.7 brought to view a Roman and Byzantine modification of the structure to allow use of underground cave facilities, probably for domestic use.

The search for the west edge of the Byzantine basilica on the acropolis was limited to the removal of the west balks of Squares A.5 and 6. That balk removal did expose a west wall for the nave of the later of the two main phases of the building, but the remains of the Islamic bath prevented clear exposure of any entrance facilities or the pursuit of the location of the western edge of the earliest phase of the building in this operation.

In other efforts, the location of Iron Age burials still eluded us. The exploration did locate and excavate several additional tombs of the Roman and Byzantine periods, some utilization of caves for both living and burial quarters, but no clear Iron Age burial evidence was found. With the exception of a zone in which military security limited the access of our team, the 10 km.-radius regional survey was completed. The location and recording of 30 additional occupation sites bring this archeological survey to

a responsible degree of completion. The results of the experimental grid-survey treatment of a major site were also gratifying. The combination of froth-flotation sampling and regular soil sampling has now put at the disposal of the palynologists and seed analysts a complete sequence of the seed and pollen patterns in the ancient deposits from ground surface to bedrock. We anticipate additional analyses of shell and some micro-organism deposits from the same sample range. Given use of the three Squares, the overlapping and complementary nature of the stratigraphic sequence should allow comparative studies for every period in the occupation history of the site. It may serve in the future as a data base for comparative studies with other sites excavated in the country.

The expanded sampling of animal bone material was conducted in the field, and there were intense analytical studies of the previously gathered animal bone collection. However, difficulties prevented the arrival of the field computer terminal, so such analyses were recorded for subsequent processing. The recording of observations of the geology staff allowed the production of a detailed geological map of the site and its immediate environs. The weather station observations were similarly made for future analysis, and the report was submitted to the Royal Weather Service. The contour map extension and completion by the architect-survey staff was finished in addition to the routine production of floor-plans, elevations and sections of architecture exposed in the excavations.

The effort to test the relative results in different procedures of data retrieval from waste soil met with mixed results. The material was largely restricted to the Mamlük period, so the question of adequate representation of the variety of materials involved must be held open. The primary benefit in the experimental retrieval technique applied seemed to be the quantity of small bone material recovered. Larger amounts of bird, fish, and small mammal bone evidence were recovered.

The collections of modern flora, ornithological observations,

and the ethnographic observations will supplement the comparative data for subsequent ecological analyses. In view of these expanded special efforts and results one ought not to understate the routine accomplishments of the ceramic analysis, numismatic studies, human skeletal classification and pathology identifications, or small find studies done in the field. These continued to add large quantities of information to previously processed materials. Especially impressive were a small carved plaque of "Prometheus Bound," an Umayyad coin with the figure of the caliph represented, a gold cameo earring, and ceramic refinements in several subdivisions of the various periods.

Of some gratification was the location of dump or erosion layers from the earliest period of occupation, Iron I_A, in new portions of Area C.1 and 5, as well as in D.4. While it was disappointing not to have more intact occupation remains recoverable, especially architectural fragments or buildings, these additional materials confirmed more fully the previous observation that the main *tell* was first occupied in that period.

Finally, it was an accomplishment of the architect-survey team that a general plan for the proposed tourist development of the site was produced. Suggestions for preservation and reconstruction of architecture and other features were supplemented by development of a tour route which would allow the visitor the fullest exposure to the various period evidences available. Suggested accommodations for traversing the site as well as for a local museum facility were described and accepted by the Department of Antiquities.

Tentative Periodization¹⁴

<i>Stratum</i>	<i>Period</i>	<i>Approximate Dates</i>
I	Late Ottoman/Modern	A.D. ca. 1870-

¹⁴ It became apparent as early as 1973 that the most helpful sector of the excavation to provide the skeleton of an overall stratigraphic sequence for the site would be Area B on the south shelf of the *tell*. It further became evident that the most helpful supplemental sector to Area B for the development of

Post II Gap	Ottoman	A.D. ca. 1456-1870
II	Late Mamlūk	A.D. ca. 1400-1456
III	Early Mamlūk	A.D. ca. 1260-1400
IV	Ayyūbid	A.D. ca. 1200-1260
V _A		A.D. ca. 969-1200 ¹⁵
V _B	'Abbāsīd	A.D. ca. 750-969
VI	Umayyad	A.D. ca. 661-750
VII	Late Byzantine-Pre-Umayyad	A.D. ca. 614-661
VIII	Early Byzantine IV- Late Byzantine III	A.D. ca. 450-614
IX	Early Byzantine III- Early Byzantine IV	A.D. ca. 400-450
X	Early Byzantine II	A.D. ca. 365-400
XI	Early Byzantine II	A.D. ca. 365 (earthquake)
XII	Early Byzantine I	A.D. ca. 350-365
XIII	Early Byzantine I	A.D. ca. 340-350
XIV	Early Byzantine I	A.D. ca. 324-340
XV	Late Roman II-IV	A.D. ca. 193-324
XVI	Late Roman I	A.D. ca. 135-193
XVII	Early Roman IV	A.D. ca. 70-135
XVIII	Early Roman II-III	ca. 31 B.C. - A.D. 70
XIX	Early Roman I	ca. 63-31 B.C.
XX	Late Hellenistic	ca. 198-63 B.C.
XXI	Early Hellenistic	ca. 250-198 B.C.
Post XXII Gap	Late Persian	ca. 500-250 B.C.
XXII	Iron II-Persian	ca. 850-500 B.C.
XXIII	Iron I _B -II _A	ca. 1100-850 B.C.
XXIV	Iron I _A	ca. 1200-1100 B.C.

Concluding Comment

It is apparent, we trust, that the effort at preliminary judg-

such a sequence would be the contiguous Area D which extended up the south slope to the acropolis and its interior. From these observations, it was requested of the respective Area Supervisors, James Sauer and Larry Herr, that they work out a tentative framework of Strata and periods to test whether the remaining material from other Areas might fit or require modification of such a framework. This they did in mid-season, 1976, with the result that conversations became possible with the remaining staff to detect problems or necessary changes. Out of these conversations and subsequent discussions by the end of the season, the framework here provided was refined. It should be very clear that both the Strata sequence and the periodizations assigned are yet tentative and may well be subject to revision in the final publication. They are our best considered judgment at this stage of the studies.

¹⁵ Precise assignment to a period must await further analysis. Material in this category was previously published as 'Abbāsīd (Pit in B.5 as found in *Heshbon 1973*), but studies currently under way may require revising that judgment.

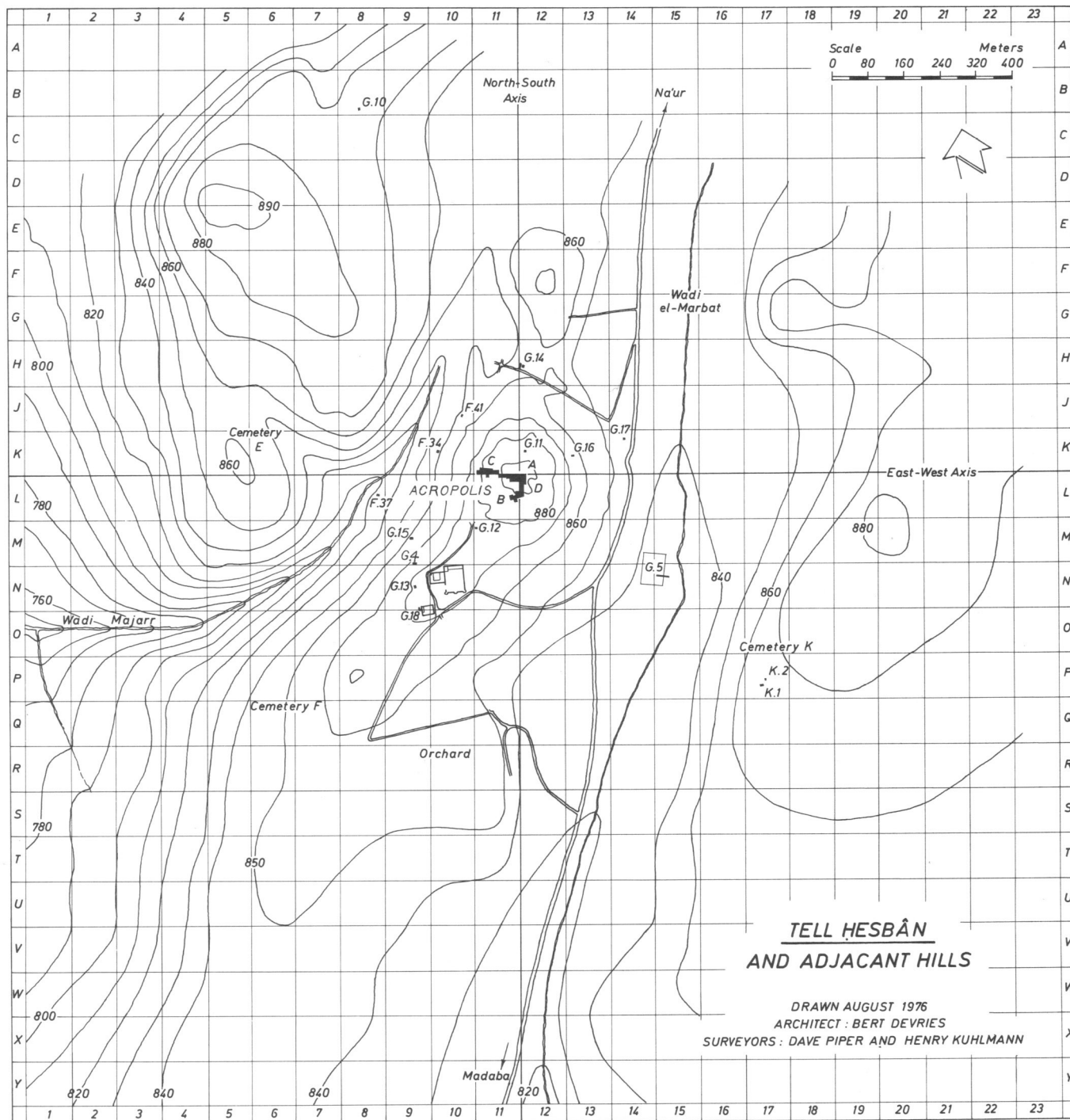


Fig. 1. Contour map of Tell Hesbân including Areas A-D on the acropolis, Cemeteries E and F to the west (the latter including caves as well as tombs), Cemetery K to the southeast, and Area G, soundings scattered around the flanks of the mound (only G.4, 11-18 having been excavated in 1976).

ments of such a site-wide synthesis has benefited from the contributions of many of the staff. As future work is assumed on the site, it is to be hoped that several of the tantalizing aspects of the occupation history which remain, either by the necessities imposed on this series of expeditions by external circumstances such as wars, or the fallible judgments made by the participants, will be illumined and resolved. It is to be wished that similar cooperation and good will as has attended these efforts in the past decade might enhance any such future labor. It is a debt we happily acknowledge to our village workers, government officials, and sponsors as this phase of operations is brought to a close.



A. An aerial view of Tell Heshbân from the west. Notice Area C's long trench leading up to Area A on the acropolis with Areas D and B to the right on the southern slope. Photo: Courtesy of H.R.H. Crown Prince Hassan.



B. The staff of the 1976 Heshbon expedition. Photo: Paul H. Denton.