

Bulletin of the Anglo-Israel Archaeological Society



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*News and meetings
of the Society
1983-4*

The Anglo-Israel Archaeological Society
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The Society does not
accept responsibility for
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this publication.

On the cover: an 18th-century map of
the Holy Land, by Eman. Bowen.

Chairman's message

Dr R. D. BARNETT, CBE, FBA, FSA

My message of greeting in 1984 to you, our members, is warm and full of enthusiasm. The death of Yigael Yadin, the founding figure of this Society and a charismatic leader of the archaeological community in Israel, is indeed a great blow. He had, however, already stepped back from the forefront of archaeology when he entered politics in 1974 and perhaps wisely allowed others, many of whom he had trained himself, to carry on and show their paces.

Archaeology in Israel today is very broadly based and enjoys wide public support. We still continue to receive a regular flow of scholars who are willing and happy to speak to us about their work in Israel. Nevertheless we are always happy to hear of more who may be coming to England of whose work perhaps we have not heard in person until now.

At long last we are also beginning to find the means to assist students from Britain to go to work in Israel or even to come from Israel to study here. This is due to the careful housekeeping of our Hon. Treasurer, Richard Domb, and to the generosity of some of our members. This has been a long-cherished ambition of the Society and is of great value to the students and to the profession at large.

This year we have again to thank Mr John Day of Auto Wrappers Sales Ltd for generously making possible the publication of this Bulletin.

This Society, founded in its present form in 1961, is now twenty-three years old. It can justly look back with satisfaction and pride on those years of valuable and steady achievement thanks to your support and encouragement. We may all look forward with optimism to many more such years.

Editorial

This is now the third issue of our Bulletin and in it you will find news of much current archaeological research in Israel. Much of this news has come to us during the past very successful season of lectures delivered by scholars actively engaged in the field. We are delighted that we attract so many speakers engaged in work of the highest calibre who are willing to tell us the results of their investigations. We are often the first group outside Israel itself to hear of it. Of this we are very proud - the more so now that the Bulletin disseminates the information far more widely than in the past, not just to our own members but to other institutions and libraries where it has been very well received, especially in Israel itself. This is very gratifying to all of us - and to none more than the Editors for whom the labour of love sometimes seems akin to the labours of Hercules!

Excavations aside, the archaeological highpoint of this year was undoubtedly achieved in Jerusalem last April when the First International Biblical Archaeology Congress was held to mark the seventieth anniversary of the Israel Exploration Society. An account of the Congress will be found elsewhere in the Bulletin, but this is perhaps the place to enlarge a little on its atmosphere. The many scholars who assembled in Jerusalem created between them a feeling of goodwill which transcended academic antagonisms and the unhappy political situation of the region. The warmth and friendship generated in the Hilton conference room by scholars working on both sides of hostile borders was almost palpable (in spite of air conditioning which physically froze many of us!); although this is not to say that academic debate did not rage, for it most certainly did, both publicly during and privately after the sessions of the Congress. Yet the general feeling was that a week had been most usefully and happily spent getting acquainted with the work and current thinking of colleagues from all over the world. It was only a pity that political circumstances prevent the archaeologists of the countries neighbouring Israel from attending such a gathering. Free and universal discussion of the problems of antiquity which confront all of us would be so very fruitful. However, the thirty-two papers presented to the Congress kept all present busy with new data to assimilate, and the impromptu discussions which arose outside the sessions themselves were legion and highly stimulating. We must all hope for early publication of the Congress proceedings, which promise to revolutionize thinking on many aspects of Biblical Archaeology.

A very sad event this year has been the sudden death of one of the Society's first patrons, Professor Yigael Yadin, who seemed so very well during the Congress. He

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read an excellent paper on 'The Archaeological Aspect of Biblical Archaeology Today' during the Festive Opening Session, and took part in much of the debate throughout the Congress, especially, of course, on the afternoon dedicated to the study of the Dead Sea Scrolls. His loss will be much felt by all his friends and colleagues in Israel and abroad. An appreciation of his life and work had been written for us by Dr Richard Barnett, his friend of many year's standing, and will be found elsewhere in this Bulletin.

One lecture during this past season, as in the last, was held jointly with the Palestine Exploration Fund. This was the report on the excavations at the City of David between 1981-3, given by their Director, Dr Yigal Shiloh, who is the head of the Institute of Archaeology of the Hebrew University of Jerusalem. This was, in addition to the value of the information itself, a most pleasant social occasion and we hope to be able to arrange others like it in the future.

A new archaeological publication is now available in English which we feel sure our members would like to know about and which we know will prove of inestimable value in the years ahead. This is a translation of *Hadashot Arkheologiyot*, the archaeological newsletter of the Israel Department of Antiquities and Museums, which contains a complete list of reports of digs, surveys and other work carried out each year in Israel. This mammoth task has been undertaken on an annual basis by the W. F. Albright Institute of Archaeological Research, the Nelson Glueck School of Biblical Archaeology, the Israel Department of Antiquities and Museums and the Israel Exploration Society. The first volume, which appeared in March 1984, summarizes all the work done in 1982. The importance of this publication to everyone engaged in the archaeology of all periods of Israel is incalculable. To the editors and translators we offer our congratulations, support and best wishes for the future.

Our last note concerns the future of the Bulletin itself. With costs continuing to rise, it may, unhappily, prove impossible to continue publishing the Bulletin in its present format. We do not wish to impose an added burden on members of the Society and we feel most strongly that as much of our limited financial means as possible should go towards helping British students of archaeology to gain experience of fieldwork in Israel and helping Israelis to study here. We know that this is your wish too, and so, while we promise faithfully that the Bulletin will continue to appear annually, we have no doubt that you will understand if the Committee are forced to decide on a less expensive format for the future. Meanwhile let us all join together to thank Mr John Day of Auto Wrappers Sales Ltd for his support of our Bulletin. Without him the Bulletin would still be a dream impossible to attain. With him these three issues have been a source of great pride to us all. His kindness will make us redouble our efforts for the future.

*Roberta L Harris
Jeremy Schonfeld
(Editors)*

The Institute of Archaeology of the Hebrew University of Jerusalem

The late Professor E. L. Sukenik founded the Department of Archaeology in the Mount Scopus buildings of the Hebrew University before the Second World War. It was transferred to the Givat Ram campus after 1948 when Mount Scopus became inaccessible to Israelis, and in 1969 became the Institute of Archaeology with the late Professor Yigael Yadin as its first Director. In 1975 the Institute returned to Mount Scopus, to a large new building which contains, in addition to lecture rooms, workrooms and offices, a departmental library of some 50,000 volumes, conference rooms, laboratories, photography and map-drawing facilities, storage areas and a small display section.

The present Director of the Institute is Professor Yigal Shiloh, who presides over five separate departments each with its own head: these are Prehistory, Biblical Archaeology, Classical Archaeology, Islamic Archaeology and Archaeometry. This latter was founded in 1973 and specializes in neutron activation analysis of the pottery of Israel and the Mediterranean. Research is also carried out in chemical trace-analysis of obsidian objects in order to identify their source - a technique useful in determining ancient trade patterns.

The series called 'Qedem monographs of the Institute of Archaeology' is regularly published and is devoted to the research of members of the Institute. In addition to the staff there is a large body of undergraduate and postgraduate members, all of whom contribute to the work of the Institute, principally the excavation and publication of sites dating from all periods in Israel. These projects are sometimes undertaken in conjunction with other Israeli and foreign institutions. Among current or recent work we may mention the *Middle Palaeolithic* excavations at Biq'at Quneitra under N. Goren (last year a grant was made by the Anglo-Israel Archaeological Society to a student who participated in that dig: see *BA/AS* 1982-3 p. 16); the *Neolithic* site of Netiv Ha-Gdud in the Jordan Valley which was dug by O. Bar Yosef; the long-standing excavations of *Chalcolithic and Early Bronze* Arad which continue under Ruth Amiran, and the *Early Bronze* city of Tell Yarmouth which is a joint expedition mounted by the Institute and the Centre de Recherche Francaise de Jerusalem under the Directorship of P. de Miroschedji of that centre. Of the later periods, G. Kelm and A. Mazar are engaged at Tell Batash (ancient Timnah) dating to the *Late Bronze and Iron Age*. This is a joint venture with the Southwestern Baptist Theological Seminary. Of roughly the same date the cemetery and site at Deir el Balah in the Gaza strip, the source of the famous anthropoid

coffins, has been dug by T. Dothan, who, with S. Gitin of the Albright Institute for Archaeological Research, is at present digging at Tell Miqneh, possibly ancient *Philistine* Ekron. Another important Philistine site is Tell Qasileh, excavated by A. Mazar in conjunction with the Israel Exploration Society (as are many of the excavations mentioned here) and the Museum Ha-Aretz of Tel Aviv, within whose grounds the site is located. Among *Hellenistic* and *Herodian* sites excavated we should mention those at Herodium and the winter palaces of the Hasmonaean kings and of Herod the Great himself at Jericho, under the direction of E. Netzer; while A. Negev is engaged in *Nabataean* research connected with the excavations of Avdat, Mamphis, Kurnub and Halusa, where a Nabataean theatre was dug in 1982 with the cooperation of the Israel Exploration Society and Mississippi University. *Roman* and *Byzantine* areas of Beth Shean have been dug by G. Foerster, Y. Tsafrir and E. Netzer, while the remarkable complex of baths at Hamat Gader, southeast of the Sea of Galilee dating to these and *Arab* periods have been dug and expertly restored by J. Hirschfeld and G. Solar. A Galilean synagogue of the 3rd-4th centuries CE at Chorvat Ha-Amudim was investigated by L. Levine.

The above is just a selection of recent fieldwork undertaken by the Institute of Archaeology of the Hebrew University. To list all their projects would be impossible here, but perhaps honorable mention should be made of two excavations of the utmost importance. The first is that of E. Stern at Tell Dar, a fascinating coastal city of Hellenistic date (see *BAIAS* 1982 p. 17 for Dr Stern's lecture to the Society and *idem* p. 8). This excavation is carried out with the Israel Exploration Society, Boston University, New York University and California State University at Sacramento. The second project which has attracted much international academic and public interest is that of the Director of the Institute, Professor Yigal Shiloh at the City of David, Jerusalem (see below p. 26 for a synopsis of Professor Shiloh's lecture to the Society on the results of the 1983 season and a list of the participating institutions). Some members of our Society have taken part in this dig and the Society was also able to provide a grant to a student for this purpose last year (see *BAIAS* 1982-3 p. 12).

We should like to extend our congratulations to the members of the Institute for all the sterling work they have achieved since their inception and to wish them well in the years to come. We look forward to hearing the results of their future researches—some of it, we hope, given to us in person at one of our lecture meetings.

The International Congress on Biblical Archaeology, Jerusalem

This, the first Congress of its kind, was held in Israel from 1 to 10 April 1984, to mark the seventieth anniversary of the Israel Exploration Society, under the joint auspices of the Israel Academy of Sciences and Humanities and the Israel Exploration Society, with the support and sponsorship of important academic institutions in Israel and worldwide. A large number of the world's leading scholars in the field were present and many gave papers to a huge audience of professional and non-professional participants. The Plenary Sessions were held in the Jerusalem Hilton in an atmosphere of great enthusiasm and were thoroughly enjoyed by all present. Apart from Israel, countries represented included the United States of America, Canada, France, West Germany, Denmark, Holland, Japan and many others. Among the contingent from Great Britain were Dr Richard Barnett, the Chairman of our Society, who chaired one session of the Congress, Dr Alan Millard of Liverpool University who read a paper on writing in ancient Israel, Dr Roger Moorey of the Ashmolean Museum and Professor David Stronach of Berkeley, California. Our Society also had two members of the committee present, Roberta Harris and Carole Mendleson, and was able to help a graduate student, Anthony Frendo, SJ, of the Institute of Archaeology, London to attend. His report is to be found elsewhere in this Bulletin.

The Congress sessions were held entirely in English, being the common language of all the participants. In view of the enormous and longstanding interest in Biblical Archaeology, this seventieth anniversary of the Israel Exploration Society was an appropriate occasion to hold such a conference, and the numbers who attended (over 800 people) bore witness to the fact. Archaeologists who specialize in the lands neighbouring Israel were well to the fore and their papers, amply illustrated by slides, were especially appreciated by their Israeli colleagues to whom, of course and most regrettably, these countries are barred. It was particularly gratifying that a non-political atmosphere of scholarly debate was the order of the day, and in fact questions of modern politics did not even arise in the eager discussion of matters of professional and engrossing interest to us all.

The first meeting took place on the evening of 1 April. This was a Festive Opening in which the participants were addressed by Avraham Biran, Chairman of the Israel Exploration Society, Menahem Savidor, the Acting President of Israel, Ephraim Urbach, President of the Israel Academy of Sciences and Humanities and Teddy Kollek, the Mayor of Jerusalem. A musical interlude followed before the first

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Plenary Session began, in which papers were delivered on 'Biblical Archaeology Today' by Frank Cross, Benjamin Mazar and the now sadly missed Yigael Yadin. The next four days of the Congress can best be described as hectic. Sessions were held on such topics as 'The Israelite Settlement in Cana'an' in which fiercely contradictory views were aired, and 'Israel's Neighbours in the Iron Age', the session chaired by Dr Barnett. The subject was one which provoked much debate, apart from the six formal responses which were themselves miniature papers, each delivered by an expert. These responses were a feature of the Congress, giving participants the opportunity to hear more than the four or five excellent papers which made up each session. After them, discussion was thrown open to the floor and on no occasion was there a shortage of scholars who wished to speak. It is much to the credit of the Chairmen of all the sessions that nearly everyone who wished had the opportunity to air his views, and that furthermore the sessions finished on time! Other sessions were devoted to 'Stratigraphy, Chronology and Terminology', 'Cuneiform Archives from the Lands of the Bible', 'Hebrew and Aramaic Epigraphy', 'The Dead Sea Scrolls' and 'Biblical Jerusalem'. Each presented new information and was stimulating and enjoyable. To list the scholars who gave papers would be impossible here and to single out any for special mention would perhaps be unfair, but suffice it to say that the subject of 'Biblical Jerusalem' attracted the largest audience, following as it did a morning spent in small groups, each with an archaeologist involved in current fieldwork in Jerusalem, visiting sites in the Old City and the City of David on the Ophel.

Each evening events were organized which were themselves part of the Congress. An evening visiting the Israel Museum, especially opened for Congress participants and again with expert guides and archaeologists, was followed by one spent at the Knesset with papers on Sumerology read to us by Thorkild Jacobsen and Samuel Kramer. A reception was held another night at the Maiersdorf Faculty Club on Mount Scopus, hosted by the President of the Hebrew University, and on the final evening the Congress moved to the Jerusalem Theatre where Teddy Kollek addressed us and papers were read by Cyrus Gordon and Ephraim Urbach. The evening - and the Plenary Sessions of the Congress - concluded with an entertainment of dancing and singing by the Hora Jerusalem Dance Group.

Both before and after the Plenary Sessions some members of the Congress took part in organized tours to many sites recently or currently under excavation in Israel. At many places the chief excavators were waiting to greet each party - Ruth Amiran at Arad, David Ussishkin's team at Lachish and so on. Each bus was accompanied by an Israeli archaeologist of considerable knowledge and experience who ensured that all questions were more than adequately answered. The arrangements for the tours were excellent, especially in view of the logistics of the large numbers of people involved, and in fact the professionalism with which all matters from large to small throughout the whole ten days of the Congress were handled was appreciated by all. Our thanks are due to the Congress organizers and in no small measure to their agents, Ophir Tours. Many of the participants came with their spouses and families, and supplementary programmes were arranged especially for them. Everyone was able to visit various exhibitions especially mounted throughout the period at the

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Rockefeller Museum, the Israel Museum, the Citadel and elsewhere. Study collections of sherds and other material from excavations were available at the Museums, at the Hebrew Union College and at the Institute of Archaeology on Mount Scopus.

The ten days of the Congress were so full of event and debate that the fear common to all present was that of premature exhaustion. There was so much to hear, to say, to see and to do that each person had to select those things of greatest interest and regretfully omit the others. The excellence of the arrangements indeed saved a great deal of exertion, but we heard so many papers and took part in so much debate that it was a relief when Joseph Aviram promised that we could expect the Proceedings of the Congress to be published as swiftly as possible. Memory alone would be incapable of retaining and assimilating such a large amount of new information. The Congress achieved a remarkable feat - it succeeded in many instances in summarizing for the first time the results of current work in many fields and in presenting an overview of that work to a wide audience. The published report of the Congress will enable many more students and scholars to benefit, so that we all hope that it will indeed appear very soon.

One final note: it was suggested during the Congress that a meeting might be held under the aegis of the Israel Exploration Society in the not too far distant future specifically on the topic of terminology. It would be a relief to everyone interested in our field if a uniform and universal chronology and terminology could be worked out for pre-biblical and biblical times in Canaan. In spite of Professor Biran's fervent hope, none such emerged this time; perhaps in the future and at such a conference it will be possible to come to a much needed consensus on this vital subject.

Grants given by the Society

There follow reports on how grants given by the Society have been spent. It is one of the aims of the Society to help members participate in archaeological work in Israel. These summaries show that the experience can be both enjoyable and worthwhile.

Tel Gerisa

TIM CLAYDEN

Institute of Archaeology, London

With the aid of a grant from the Anglo-Israel Archaeological Society, I was able, in August 1983, to participate in the excavation of Tel Gerisa in the Tel Aviv suburb of Ramat Gan. The excavation was under the field direction of Ze'ev Herzog from Tel Aviv University, but teams from Universities in Australia and America were also participants in the excavation. The volunteer force was a very international group composed of Israelis, Americans, Australians, but only 3 'porns'. In all there were about 50 volunteers.

The excavation of the tel has been going on for several seasons now but this year we were concentrating on 6 areas. The remains were mostly Iron Age from the Philistine or Israelite period, though some Middle Bronze Age remains were exposed. In one area a section was put through the Middle Bronze Age rampart to try and determine the date of its construction.

I was in Area B. Our area was very rich both in architectural remains and pottery. In fact we found too much pottery for our own good in the end: we were always the last to dinner in the evening as we would still be washing our finds of the day after the rest of the camp had long finished.

The remains we had were all Iron Age in date. In the 4 weeks during which the excavation took place we excavated to a depth of about 1 m. In the lowest levels we found remains of a Philistine house with what appeared to be a paved area and a line of pillar bases. In this same structure I found a group of 60 or so loom weights which were really quite delightful. We also found the base of a potter's wheel and an oven against a wall. In this level Ze'ev Herzog's son found a very delicate Egyptian ring that was too small to fit on any of our fingers and must have belonged to a young child. This level would appear to have suffered destruction and a great level of ash placed over it. This ash was dreadful to work in. I had come to Israel from a site in South London where mud was more likely to be a problem. Here this grey ash with its

dust was so fine that we had to wear mouth and nose masks which were very uncomfortable in the humidity of Tel Aviv. The contrast could hardly have been greater for me. This level had a great number of complete vessels in it as well as innumerable sherds. Thus excavation could not be too careful. One or two pieces may, however, have been missed in the clouds of dust. This ash level revealed our Philistine goddess. Despite Ora Negbi's remark that it was ugly, we thought she was beautiful. The top level was probably Israelite. We had a number of walls, and again, great quantities of pottery. We were given a number of site tours in which the section directors told us about the remains they were finding in their areas. In this way each section could feel that its work was part of a greater whole and that a picture was emerging of settlement on the site at this phase. Even in the midst of a dust cloud it was possible to feel that the work was all worth while.

Our campsite was just below the tel in a park. It was very beautifully sited, with a number of trees beneath which one could collapse in the afternoon and sleep out of the heat. It was close to the essential amenity of any site - a bar, as well as the bus to the sea. It may have been a bit dirty but it was wonderfully warm.

Our area supervisor was Ora Negbi and her exhortations moved us always to work on harder. Her iced water bottles were a source of joy to us and led to jealousy to other sections who were not as favoured as we were. I noted above that there were three English people on the dig. Well, with all the Australians and Americans on site we had a golden opportunity to beat the Aussies at cricket. Unfortunately even with a lot of help I am sorry to report that England lost the ashes to the 'rest of the world' in a hotly contested test series.

More than anything, this summer taught me what digging a tel in the Middle East really means. I have been on English excavations but they did not prepare me for the vast scale of a tel. The sheer quantity of material horrified my English-site orientated mind. Our excavation seemed like a flea bite on the back of so large a mound. Not only did the summer teach me some of the techniques of digging in the Middle East (even the tools were different to those used in England), and some of the dangers, it also taught me to be able to evaluate the results of work published from Middle Eastern excavations with a more quizzical eye.

Whilst in Israel I was able to travel a little. The excavation staff laid on some trips for us to a number of interesting sites which had a relevance to the material we were excavating. I was able to go about on my own as well. There is nothing like seeing for oneself the places one has read about so often. From the moment I got off the plane at Ben Gurion Airport into the humidity of the Mediterranean night, to the day I left - dirty, tired, tanned and very satisfied with my summer, I was learning. Not only was I learning about archaeology but also about people. I met a great number of very friendly people at Tel Gerisa and I would like to thank them also for making my summer the success it was. Finally I must thank the Anglo-Israel Archaeological Society for helping me to go to Israel to the excavation, as without their grant it would have been extremely difficult for me to participate.

Tel Lachish

ADAM TELLER

St Edmund's Hall, Oxford

The excavations at Lachish are generally regarded as being in the forefront of Israeli digs in terms of their use of modern methods and ideas. This was borne out immediately on arrival, for Professor Ussishkin and his team from Tel Aviv University have abandoned the idea that the pleasure of living in an excavation camp is living rough: his 'tent city' is well situated in a eucalyptus grove and has constant running water, a large number of showers, segregated so both sexes may wash at the same time, flushing toilets (an amazing achievement), good kitchen facilities and even a professional cook (a sheer luxury in the form of one Maurice, to whom all who worked at Lachish this summer owe a huge debt of thanks). The idea of erecting shades over the excavation areas was also very good. These points may seem facile, but perhaps they mark a change in attitude away from archaeology as a rough and ready business toward a more settled, perhaps a more scientific approach to work in the field. Certainly everyone involved with Lachish must thank Yehuda Dagan for his organizational work.

The more modern approach extended of course to the field work itself. An area I was closely involved in as one of the assistant supervisors was the field recording. True to its reputation, the Lachish expedition has started recording all its finds on computer, which will greatly aid the lab work and all further research to be done on the site by allowing easy access to information. Maps and diagrams can also be very accurately plotted by computer. As this was the first season that the system was adopted, there were of course teething troubles: I found the forms for use in the field too small to read and write in comfort. The other major problem was that there was no space for the field worker to put an exact description of what he saw. This problem was worse when what was on the ground did not conform to one of the computer codes provided; something more flexible is needed - and something that puts a greater emphasis on descriptions of things seen at first hand. However, I have no doubt that in future years this system will be refined until it becomes an integral part of all the large expeditions undertaken in Israel.

The excavations themselves were in two areas this year. The first, Area S, is the section trench to recover the entire stratigraphy of the tel. Excavation was by the baulk and debris-layer method, in squares of 5 x 5 metres, and Gabi Barkay in Area S proved that this method can provide results with almost the same degree of control and accuracy as prehistoric excavation methods. His meticulous work has brought the section to Level VIII(MB) and the settlement of that period. He estimates that at the rate of progress he is making at the moment, he will finish in about another fifteen

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seasons! Apart from the fragmentary walls of Level VII, and number of floors, a great deal of pottery was discovered as ever, including some complete vessels, fragments of fine Cypriot 'milk bowls' and some exquisite Mycenaean ware. Other finds of interest included a fragment of a gold bracelet inset with azure, and part of a proto-Canaanite inscription (the second to be found at Lachish).

Area R, where I was working, was an entirely different matter. As long ago as the sixties, Yigael Yadin had identified the Assyrian siege ramp built by Sennacherib in 701 BCE on the south-west slope of the tel, an area of stone debris which Starkey had attributed to the Assyrian destruction of the city wall and a tower abutting it. The aim of the excavations was to clear a fairly large area of the ramp, and by increasing the length of the trench to come to an understanding of its connection with the city defences. An area of some fifteen squares of the ramp was cleared, and the construction of its upper layers was revealed - it appears to have been of a simple construction of layers of medium-sized stones, packed and covered with earth. The city's defences were also clarified, and an adjustment will need to be made to the artist's reconstruction of the city from the Lachish Reliefs. It came as a very great surprise to everyone when the inner mudbrick city wall was recovered to a height of some 7 m. Inside this wall excavation provided a very clear picture of the city's reaction to Sennacherib's siege: very great quantities of earth appear to have been heaped up against the wall, perhaps in an attempt to build a counter-ramp, to strengthen the defences and to allow the defenders to retain their advantage of height over the attackers. The huge amounts of earth may also provide a possible explanation for the presence of the great shaft, not far away on the tel. At least one aspect of the defences had been clarified by the end of the season - the large mudbrick construction which Starkey identified as a tower turned out to be simply the external city wall at a point where it began to turn round the edge of the tel.

All in all, working at Lachish proved to be a very impressive and enjoyable experience, and I was very sorry that bad health prevented me from spending the whole season there. I must thank Professor Ussishkin for running the dig and allowing me to work there, Yehuda Dagan who supervised the area, and Nick Slope my immediate supervisor whose sharp eye enlightened much of the excavation and whose keen sense of humour enlivened the whole business. Last but by no means least I must thank the Anglo-Israel Archaeological Society who made the trip a possibility for me.

The International Congress on Biblical Archaeology, Jerusalem

ANTHONY FRENDO S.J.

Institute of Archaeology, London

This year the Israel Exploration Society has its seventieth anniversary. In order to mark this special event, an International Congress on Biblical Archaeology was held in Jerusalem at the Hilton Hotel. About eight hundred people participated.

The Congress was divided into two major parts: firstly, from the evening of 1 April up to the night of 5 April, there were the various talks, responses, discussions and so on. Secondly, for those who could make it, from 6 to 10 April there were excursions to various excavation sites in the country. I myself could only participate in the first part. The themes covered in the Congress were multiple, and they included the moot terminological problem of 'Biblical Archaeology', the difficult and agonizing research into Israel's origins, general methodological questions on stratigraphy, chronology and terminology, the Philistines, the Dead Sea Scrolls and Early Christianity, and so on. In one word, the Congress was comprehensive.

The schedule was rather tight: excluding the first day when we were kept busy for a few hours from 8.00 pm onwards after having finished the registration procedures, one had to reckon with the following scheme: 8.30 am-12.30 pm; 2.00 pm-6.00 pm; and 8.00 pm-10.00 pm. The last block of time was varied, and it included a visit to the Israel Museum and the Shrine of the Book; a special Knesset session under the auspices of Professor Yuval Ne'eman, Minister of Science and Development, who introduced Thorkild Jacobsen and Samuel N. Kramer who spoke respectively on Sumerian literature and Sumerian mythology; a reception at the Maiersdorf Faculty Club of the Hebrew University on Mount Scopus, and finally a festive farewell at the Jerusalem Theatre under the auspices of Mr Teddy Kollek, the mayor. Unfortunately, circumstances forbade me from attending this last meeting.

The talks were interesting and raised many questions, as was evidenced by the lively discussions. It was also a good idea to have a number of speakers who gave brief responses to the different talks.

I thought that one of the liveliest days was 2 April, when the problem of Israel's settlement in Canaan was dealt with. One could see here a test case in Biblical Archaeology. The proposals and reactions stemming from the literary, archaeological and historical viewpoints were far from unanimous: the mind ranged from envisaging Israel invading Canaan, to settling down peacefully in it, to rebelling against the Canaanite overlords from within Canaanite society itself. Another

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special feature was on the morning of 5 April when we were split up into various groups and given a good guided tour of David's City, the Temple Mount and the Upper City.

I would like to express my heartfelt gratitude to the Anglo-Israel Archaeological Society for generously giving me a travel grant to attend the International Congress. The latter including the precious encounters with various international scholars, certainly proved beneficial for my doctoral studies on the transition from the Late Bronze to the Early Iron Age in Palestine.

Summaries of lectures given in 1983-4

About the lecturers

Shimon Gibson works for the Israel Department of Antiquities and for the Archaeological Survey of Israel. He is at present studying at the Institute of Archaeology, London.

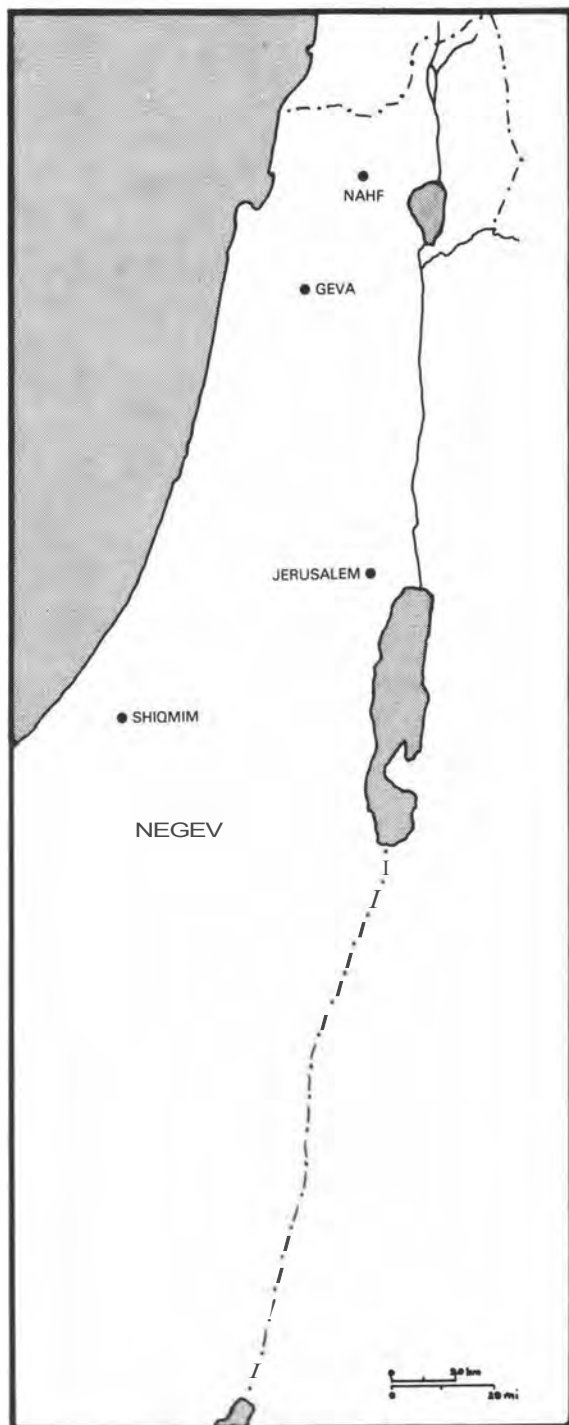
Raphael Giveon is Professor of Egyptology at Tel Aviv University. He is a veteran member of Kibbutz Mishmar HaEmek.

Thomas Levy is an anthropologist who is at present the ethnographic curator of the Negev Museum, Beersheba. He pursued postgraduate studies at Sheffield University.

Yigal Shiloh is Professor of Archaeology at the Hebrew University of Jerusalem and Director of the Institute of Archaeology there. He is the Director of the City of David excavations on Mount Ophel in Jerusalem.

Claudio Vita-Finzi of University College, London, has been working for many years on environmental changes in the Near East. His most recent book is *Archaeological Sites in their Setting*.

Fanny Vitto has been on the staff of the Israel Department of Antiquities for several years. She is now in England working on her PhD on Roman and Byzantine chamber tombs of northern Israel.



Sites mentioned in the lecture summaries.

A look into the workshop of a Late Roman Galilean potter

FANNY VIITO

Israel Department of Antiquities and Museums

Today's archaeologists should be grateful to the Galilean potters of the Roman and Byzantine periods, for they have produced the main material evidence for our knowledge of daily life at that time. The contemporaries of these potters certainly also felt some gratitude towards those responsible for the production of most of the items served in daily life: the whole range of common, burial and even some of the ceremonial vessels; sundries such as toys, loom weights, buttons and so on; and once reduced to sherds, their vessels might serve as cheap material for scribbling a message or an account, drawing a plan or serving as tokens.

The considerable role played by craftsmen in the life of an ancient community is well expressed in a passage of *Ecclesiasticus*: 'All these [craftsmen] rely upon their hands and each is skilful in his own work. Without them a city cannot be established and men can neither sojourn nor live there . . . They keep stable the state of the world and their desire is in the practice of their craft' (*Ben Sirah* 38: 31-4).

The rabbinic authorities considered handicrafts as very profitable and secure occupations, even in times of stress and famine: 'Though a famine lasts seven years, it does not pass the artisan's gate' (*Bab. Sanhedrin* 29a), and they enjoined fathers to teach their sons a craft: 'He who does not teach his son a craft teaches him brigandage' (*Mishnah Qiddushim* 4, 14), but added that it has to be a 'clean craft' and not a work that is morally open to suspicion or that soils the hands. However, since most craftsmen were uneducated, the sages tended to suspect that, through ignorance, they might be careless in the observance of the Jaws of ritual purity. To avoid the risk of buying an 'unclean vessel', they limited the contact the potter might have with the vessels he was producing - mainly when the vessel was intended for the sin-offering or for the *Terumah* - and the purchaser 'must . . . spend the night by the furnace . . . he might also bring it [the vessel] from the house [of the potter] . . . and . . . one might open the furnace and take out [the vessel]' (*Mishnah Parah* 5, 1).

The numerous pottery fragments yielded by Galilean sites show that the local production of that time was mainly common ware, consisting of storage vessels for both liquids and food, of cooking and frying vessels, as well as of other items used in a household. At first glance, all vessels of a same type might seem identical, but a closer look shows a relatively large range of variants within the basic type, whether in clay composition, shape or technique, thus pointing to different workshops producing them. Rabbinic sources record, in Galilee, two villages which were centres of pottery



The two pottery kilns uncovered at Kfar Nahf.

production: Kfar Hanania and Kfar Sihin. Archaeological evidence enables us to add, for this area, a number of pottery kilns which were in use in the Late Roman and Byzantine periods, and no doubt there were many others which either have entirely vanished or have so far escaped the archaeologist's spade. Among the pottery workshops hitherto uncovered in Northern Israel, two are situated on the coast (one at Acre and the other at Nahariya), another is located c.8 km east of Acre, at Horvat Usa, and a few years ago, an additional one was excavated by the author, on behalf of the Department of Antiquities, about half way between Acre and Safed, at Kfar Nahf.

The workshop's remains uncovered at Nahf consist of two large and well-preserved kilns and of three rooms, which may have served as the potter's workrooms. The kilns are located around a small courtyard, which is hewn into the rock, about 3.50 m lower than the floor level of the room, and is connected to them by two flights of rock-cut stairs.

The kilns of Nahf both belong to the vertical, up-draught type which is basically a large cylinder, covered with a pierced dome. The lower chamber is the fire chamber and the upper one is the stacking room, where the vessels were placed. The two chambers are separated by a floor perforated with three concentric series of flue-holes, through which the heat was conveyed from the fire chamber to the upper room.

A LOOK INTO THE WORKSHOP OF A LATE ROMAN GALILEAN POTTER

The fire chambers of both kilns, which were entirely hewn into the rock, are fully preserved. They are of large dimensions (2.25 m height x 2.5 m internal diameter for one kiln and 2.4 m height x 3.2 m internal diameter for the other).

In their centre is a massive round column made of large limestone drums, which supports a mud-brick vaulted ceiling serving as the floor of the stacking chamber. Of the upper chamber, only the lower courses have been preserved.

Though the plan of these kilns corresponds basically to most kilns of that type, we can distinguish a few features which indicate some attempt to improve the production:

- (a) The underground location of the fire chambers not only absolves the potter from having to bother about the draught and the orientation of the doors according to the winds prevalent in the area, but it also creates a better insulation than a free-standing fire-box which would be built above floor level.
- (b) The rock walls of the fire box and the central column had been lined with a very thick layer of fieldstones and mortar, which was, in turn, plastered: not only did it protect the rock and the stones of the column from the high temperatures which might have caused their collapse but it also further improved the insulation.
- (c) In both kilns, the floor at the rear of the fire-chamber had been raised by a hemicyclic ramp which most likely aimed at equalizing the height of fuel in order to distribute the heat more evenly in the stacking chamber.

Nearly 5700 pottery sherds were collected during the excavation at Nahf. Much information concerning the composition of the clay and the technique used by the potters of Nahf could be gathered from a careful examination and chemical analyses of these sherds. But the discovery of the workshop of Nahf has also helped us to shed some light on pottery craftsmanship in Roman and Byzantine Galilee by completing the image which ancient written sources referring to pottery manufacture may offer.

Making pottery is a long and exhausting process, which requires many steps from the moment the clay is dug until the vessel is ready to be sold.

Once the potter has dug the clay, he has to prepare it: crushing the clods of earth, removing the thicker balls which do not powder well, shifting it, adding 'temper' and kneading the clay by adding water to reduce temporarily its cohesion: 'If he [the potter] has a plentiful supply of water, then the clay is well kneaded' (*Bab. Ta'anith* 19b). To mix all the ingredients homogeneously and to drive out all air pockets from the clay, he trends it by pressing down heavily with his heels: 'He shall trample on rulers as on mortar, as the potter treads clay' (*Isaiah* 41: 25).

The shaping of the vessel was done, according to rabbinic writings (*Bab. Sotah* 11b), on a kick-wheel composed of a vertical shaft with two wheels; a throwing head on top on which the potter throws the vessel; and a heavy wheel below it which he turns with his feet: 'The potter sitting at his work and turning the wheel with his feet' (*Ecclesiasticus Ben Sirah* 38: 29-30).

The jars produced at Nahf prove to have been built in two phases: a right-side up phase, during which the potter shaped the upper part of the vessel (the shoulder, neck and rim), followed by an upside down phase, at which he turned the jar upside

down on the wheel to form a base. At one or another of these stages, the vessel could be spoiled and the potter had to start again: 'So I went down to the potter's house, and there he was working at his wheel. And the vessel he was making of clay was spoiled in the potter's hand and he reworked it into another vessel, as it seemed good to the potter to do' (*Jeremiah* 18: 3-4).

The last stage in the manufacture of pottery, the firing, is for a potter an important and even the most critical moment in the whole process of making pottery, as it requires a lot of fuel and affects the product of weeks of work. To fight the imponderables of a firing, potters often use to practice various rites. At Nahf, the humerus of a young person was found, embedded into a groove specially cut into the threshold of one of the kilns. This discovery can apparently be explained as a foundation rite, which was carried out to assuage the natural forces ruling on a firing.

Firing vessels produces a lot of smoke and pollutes the atmosphere. Therefore, it was ruled 'that no kilns should be kept in it [Jerusalem] . . . on account of the smoke' (*Bab. Baba Kama* 82b), and that 'a kiln has to be distant from the town fifty cubits' (*Tosefta Baba Bathra* 10b-15b). Rabbinic literature attests the existence of other rulings which also aimed at keeping the town clean, by removing from it everything suspected of giving off a bad smell or of polluting, for instance dove cotes, graves, dunghills, and the discovery at Nahf of a chamber tomb, contemporary to the workshop, at only 7 metres from the kilns, should therefore not be surprising.

As we have seen, pottery workshops must have been quite numerous in Northern Palestine in the Roman and Byzantine periods and they were located at short distances from one another. The extent of their clientele would thus have been rather limited and their products mainly intended for local consumption. This however does not preclude the possibility that some of the vessels might have been sold to more distant places, once filled with some local produce. Josephus describes the 'abundant resources' of Galilee, which is 'entirely under cultivation and produces crops from one end to the other' (*War* 3, 3, 3). Wine, and especially olive oil, were produced in quantities in Galilee, and rabbinic literature often mentions the high quality of the Galilean olive oil, for which one came from far to purchase. The common vessels produced in Galilee at that time, despite their clumsy and unattractive appearance, may therefore constitute invaluable indicators of the economy and the trade relations during that period, if one tries to draw a map of their distribution, either as vessels in their own right or as containers.

Geology and archaeology in the Holy Land

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In the literature of early travel to the lands of the Bible, geology and history were often intertwined. There is a long-standing interest in the influence of geology on topography, hydrology and soils and thus on the pattern of human settlement. Indeed, at the beginning of the twentieth century it was possible for Huntington to claim that landscape had some effect on the mental nature of its inhabitants, so that, for instance, the timidity of the Gileadites was due to the mountainous nature of the terrain they occupied. In our own time, geology is used to analyse Biblical and archaeological records, especially where they conflict with modern topography or refer to features no longer present. For instance, there is reason to believe that during Biblical times and as late as the Crusader period the Dead Sea was limited to what is now its northern basin. Geology, then, may be used to illuminate archaeology: to better our understanding of the location of sites, and the economy and social structure of the various communities who inhabited the area.

We are, however, far from even a broad consensus on the geology of, for instance, the Dead Sea Valley. Modern theories of continental drift and plate tectonics allow some scholars to see in the valley a horizontal movement of 100 kilometres or more, which has taken place in the relatively short period represented by the Pleistocene. An alternative school of thought believes that such movements are an illusion and that vertical rather than horizontal movement has dominated. It is well to remember that interpretation of evidence is a subjective process, and the same data can be interpreted in widely different ways. Not only geological but also archaeological evidence can be ambiguous. An excellent example in the Dead Sea Valley itself is furnished by the remains of Qumran, close to the northwestern shore of the Dead Sea. There, a staircase down to a *mikveh* shows clear trace of splitting, one side being lower than the other. This is variously interpreted as evidence of the great earthquake of 31 BCE, as recorded by Josephus, or as an instance of local subsidence.

Geologists crave accurate historical information from the archaeological record by which they may date geological events; in the Dead Sea Valley these are partially forthcoming for the later periods, as we shall see. For the earlier periods, radiometric dates are becoming available. Ancient volcanic action in Jordan led to deposits of ash forming on the ancient sediments of the Dead Sea Valley. Potassium/argon-dating techniques are applicable to these volcanic ashes. Similarly, dating by uranium and radiocarbon has now established that the laminated sediments of the Lisan marls, into which were dug the Qumran caves, were still being laid down by the waters of the Dead Sea about 17,000-13,000 years ago rather than hundreds of thousands of years

ago as used to be thought. These sedimentary marls were once seen as having come into existence in a former wet period when the level of the Dead Sea was high enough to deposit them. Today it is believed that only a marginal change in temperature and rainfall is necessary for the level of the Dead Sea to change quite considerably, and that no dramatic shift in the climate need be predicated. In our own time the level of the Dead Sea has varied from about minus 390 m below sea level in 1900 to 1930, to about minus 400 m below sea level in 1969 when it was still dropping.

In the typically hilly landscape of the Dead Sea region a rocky mantle of debris nearly fills the valleys. Villagers who live on this debris cultivate fields in the silt of the wadis below. The debris slopes will only provide rough grazing for small herds of animals. The cliffs formed by the sides of the torrents as they downcut the wadis produce a rich haul of mainly Middle Palaeolithic artefacts, and but little material before that period or after the Upper Palaeolithic. It would seem then that the stripping of the hillsides of the Dead Sea Valley happened during Middle to Upper Palaeolithic occupation, some 50,000-10,000 years ago, and that the erosion damage so clearly visible in today's landscape is not the effect of recent human activity as is so widely thought. This throws into question the need for expensive modern conservation and reforestation programmes, since they are not able to change the water supply nor improve the quality of the soil. The prevention of further erosion and the provision of shade, fuel and timber are the only benefits.

Chance deposits of alluvial soil, as much as a perennial water supply, can account for the establishment of agricultural settlements. Jericho is a prime example of this, an island of brown soil in a sea of sterility. In remote antiquity other areas, which are now deserted, may have been attractive to man. The Wadi J:lasa is rich in prehistoric remains dating from the Middle and Upper Palaeolithic, and it is possible that annual flooding and deposition of silt gave rise to early experiments in agriculture. After the Roman period, geological changes led to the abandonment of the area by farmers, until the development of mechanical pumps to raise water from the subsoil. Archaeological remains enable geologists to date phases of silting and downcutting. At Tel Jemmeh on the Nahal Besor (Wadi Ghazze), as at other sites on this important route to the Mediterranean, one such phase of downcutting in the Late Palaeolithic meant that the river no longer flooded the plain and supplied it with fresh silt.

All the rivers of the Holy Land went through such a phase of downcutting from Middle and Upper Palaeolithic times through the ancient period. Then, between 1800 and 500 years ago silting took place before downcutting began again. The valley floors formed during the period of silting are today the river terraces of Israel and Jordan which form the best agricultural land wherever a water supply is present. In other words, today's landscape is not the same as that known to farmers of the Biblical period.

Another important aspect of modern archaeological work in Israel is the development of site catchment analysis, that is the analysis of types of land in the neighbourhoods of sites and their use in various periods of antiquity. In many modern marginal farming communities, if a farmer has to walk much more than a

GEOLOGY AND ARCHAEOLOGY IN THE HOLY LAND

kilometre from his village to his fields the land becomes of marginal value. Our understanding of the economy of individual ancient sites will likewise benefit from a study of the land around it. Some sites could not have had an agricultural economy, having no arable land in the vicinity, and must have been used seasonally for hunting or for some other purpose. Site catchment analysis arose from a study of the Mount Carmel area. Here, the coastal marshes, drained in Roman times by canals cut to the sea (see illustration), had previously provided summer grazing for gazelle and other game, and the Palaeolithic hunters who occupied the celebrated caves were well placed to take advantage of their migration between the marshes and the upland winter grazing grounds.

The separate disciplines of geology and archaeology are, therefore, in many ways interdependent. We are all interested in interpreting the past as fully as possible, and a dialogue between the members of both professions is vital to the proper understanding of the antiquity of the Holy Land and the history of its inhabitants.



One of the three artificial outlets through the coastal *Kurkar* ridge probably of Roman age and cut in order to drain the marshes between the ridge and Mount Carmel (see D. Nir, in *IEJ* 9 (1959) pp. 46--54).

New finds from the City of David excavations (1981-3)

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Excavations in the City of David, situated on the southeastern hill of Jerusalem, have been undertaken since 1978 by the City of David Society for the Excavation, Preservation and Restoration of the City of David, Jerusalem. The Society was founded by the Institute of Archaeology of the Hebrew University, the Israel Exploration Society, the Jerusalem Foundation, a group of sponsors from South Africa headed by M. Kaplan and the Ambassador International Cultural Foundation in the USA. In addition, the Jerusalem Municipality and the Yad Avi ha-Yishuv (Rothschild) Foundation have regularly extended assistance to the expedition. These excavations have added greatly to the information about the biblical city unearthed by B. Mazar around the Temple Mount and N. Avigad in the Upper City on the western hill. Once the dig on the eastern slope of the hill is finished the area will be preserved and restored as an archaeological garden. Almost all work has been carried out on state lands.

The Cana'anite city was captured by King David from its Jebusite inhabitants in the 10th century BCE and both he and his son Solomon were active builders in the area, extending settlement on the hill northwards, the crest forming a platform for, presumably, the royal structures and the Temple. Unfortunately, no archaeological traces of these structures are extant. The southeastern hill formed the nucleus of the city in the First Temple period, but in the 8th century BCE the city spread to the western hill, where N. Avigad has found a stretch of the city wall. Current excavations in the Citadel area conducted by G. Solar may provide additional evidence for the line of this wall.

Among the twelve excavation areas, evidence for 25 strata has been unearthed, dating from the Chalcolithic to the Islamic period. Within each area, careful excavation within as wide an exposure as possible was deemed necessary, in order to obtain a clear and accurate picture. This is of particular importance in the case of Jerusalem, due to its topography and the resulting morphology of the city. Here the Babylonians in the 6th century BCE and the Romans in the 1st century CE undermined the terraces above the Kidron Valley, causing enormous destruction. Stratified remains are covered by a huge overburden of debris, as for instance in Area E, where 6 to 7 metres of material had to be removed before occupation levels could be reached.

At the southern end of the City of David, in Areas A1, A2 and H, investigated previously by Bliss and Dickie at the southern end of the Siloam pool, mostly

NEW FINDS FROM THE CITY OF DAVID EXCAVATIONS (1981-3)



Area G, the northernmost excavation area, looking south: descending from the crest at right is the stepped stone structure which served to support the citadel atop the acropolis, or Ophel, during the Davidic-Solomonic period. Later, during the Second Temple period, the edge of the crest was the site of the eastern city wall and tower fortifications, seen to the immediate north and south of the stepped stone structure.

Atop the stepped stone structure was constructed, during the Iron Age II-III, a system of terraced structures. The uppermost terrace is seen in the centre of the photo, surrounding the figure in the foreground. At the left (east) side of the excavation line can be seen the terrace wall separating the upper terrace of structures from the lower one. It is along this lower terrace that the 'Bullae House' was excavated (somewhat in front of the figure standing in the background). In the centre of the photo, and towards the back of the excavation area, are remains of the rectangular, boulder-filled compartments comprising the Late Bronze Age II, Canaanite extension of the hillcrest, possibly for that acropolis and citadel. (Photo: Y. Harari).

Byzantine and Second Temple period structures remain. Further north, in Areas B, D and 02 a stratigraphic profile of the eastern slope was obtained, from its crest to the foot of the hill. Thus the stratigraphy of previous excavations could be put into perspective. In Area E the city wall has been exposed for a length of 120 metres to date. First built in the Middle Bronze Age II, around 1800 BCE, as K. Kenyon originally thought, it lasted, with rebuilds, until the Babylonian destruction at the end of the Iron Age. Here, pockets in the bedrock revealed earlier Bronze Age levels, the lowest dating to the Early Bronze Age I and containing pottery and the remains of a typical 'Arad house', i.e. an Early Bronze Age I-II structure characterized by a single rectangular room with benches lining the walls. This must have been built while the settlement was still unfortified, since the Middle Bronze Age city wall runs above it.

Late Iron Age structures have also come to light, such as the 'Lower Terrace House' behind the city wall and, on the uppermost terrace, the 'Ashlar Building', constructed of large, rectangularly cut stone blocks. The latter is apparently an important building of public nature constructed along the 'four-room house' plan. Elsewhere in Area E, beneath 8th century BCE levels, are beaten earth and clay floors of the 10th century BCE, i.e. Davidic-Solomonic in date. Some of the walls relating to these floors continued in use during the 8th century BCE stratum.

Area K, situated on the crest of the hill, was leased for excavation during the 1983 season, and is today backfilled and restored to its original condition. Remains there date to the Second Temple and Byzantine periods. The area is in the vicinity of Weill's so-called 'Tombs of the House of David', which in actuality may be contemporary with the facade of a partly rock-hewn structure revealed in 1983.

The inhabitants of Jerusalem installed three water systems on the eastern side of the City of David hill. One of these, Warren's Shaft, is thought to date to the 10th or 9th century BCE contemporary with the systems at Hazor and Megiddo. If so, it cannot be identified with the 'tsinnor' (**II Samuel** 5: 8) reached by Joab (**II Chronicles** 11: 6), and which contributed to the conquest of Jerusalem by David. It took three seasons to trace and completely clear the tunnel and shaft, but today it is once more possible to descend the sloped and horizontal tunnel leading to the top of the vertical shaft.

In Area G, a great stepped stone structure, descending the hill from the crest, has been revealed. Only partially excavated, it reaches a height of some 18 metres and seals a Late Bronze Age level. Macalister (1923-5) dated it to the Jebusite period, while Kenyon (1961-7) believed it to be of Second Temple period date. However, it clearly underlies Iron Age **II** structures. The stepped stone structure is now thought to form the corner of the upper city or 'acropolis', which would have logically been situated at the northern, highest end of the city. It is this part of the city which may perhaps be termed the Ophel. Here, supported by the stepped stone structure, probably stood the citadel during the time of David and Solomon. It was originally the Canaanites, however, who added an approximately 250 square-metre extension to the hillcrest, possibly as a substructure for their own citadel. Rectangular, stone-filled 'compartments', providing a footing for the structure, have yielded pottery of the Late Bronze Age **II**, dating to the 14th-13th centuries BCE. An identical date was offered by K. Kenyon for the same structural remains dug adjacent to the south.

Also in Area G, and atop the stepped stone structure, the same Iron Age 11-111 system of terraced structures was discovered. On the upper terrace, a four-room house ('House of Ahiel') was excavated in 1979. To its north, and beneath an enormous stone collapse comprising the walls of the building and its upper floor, was the 'Burnt Room'. The structure still stands in places to a height of over 3 metres, its outside staircase leading to the upper floor still *in situ*. As in other houses destroyed in 586 BCE finds included pottery and alabaster stone vessels, stone weights, bone and ivory fittings and iron and bronze tools and weapons. Carbonized wooden remains derive from both ceiling beams and furniture. Examples of charred wood with carved

decorations were discovered, which must have been attached to the furniture. The use of wooden glyptic as applied decoration, the workmanship and the motifs themselves are paralleled in the contemporary or slightly earlier medium of ivory working. Moreover, while the less ornate pieces are of local *Pistachio atlantica* wood, the more elaborately carved pieces are of imported *boxwood*, which comes from north Syria and southern Turkey. Another interesting find from Area G was a fragment of a typically local, late Iron Age cooking pot bearing an apparently chiselled inscription in an early form of the South Arabian script. Paleo-Hebrew inscriptions were also found.

On a lower, eastern terrace of structures, partial excavation of the 'Bullae House' in Area G yielded a collection of 51 clay sealings - or bullae - each the size of a fingernail, together with pottery and stone stands dating to the last days of the First Temple. These well-preserved sealings bear a total of 82 private names and their patronymics. Among them is a bulla bearing the formula 'belonging to Gemariah, son of Shaphan'. This name is identical with a contemporary personage who was a scribe of the Judean court in Jerusalem and who is mentioned in *Jeremiah*, chapter 36.

The City of David excavations have thus far contributed a great deal to the history of Jerusalem, particularly from the time of David in the 10th century BCE to Zedekiah in the 6th century BCE. Above the overwhelming signs of the 586 BCE Babylonian destruction are stratified remains of the Persian and early Hellenistic periods, which unfortunately are beyond the scope of this lecture. Next season's plans centre on elucidating further problems connected with the remains described above, and uncovering more of the Bronze Age city which lies below them.

Ancient Jerusalem's rural landscape

SHIMON GIBSON

Archaeological Survey of Israel

During the last twenty years or so extensive excavations have been carried out in Jerusalem, providing a great deal of detailed information about the urban growth of the city from Chalcolithic to Ottoman times. Although we know that Jerusalem during major periods of urban density had a mixture of market-based and agricultural subsistence economies, very little work has actually been done to try and establish the nature of the relationship, reciprocal or otherwise, between the city and its environs. Apart from a certain amount of mapping of the more prominent of ancient sites within the peripheral areas of Jerusalem since the Survey of Western Palestine in the late 19th century, no attempt has hitherto been made to study the overall distribution and patterning of the numerous cultural and rural remains as an integral part of the general configuration of Jerusalem's ancient environment.

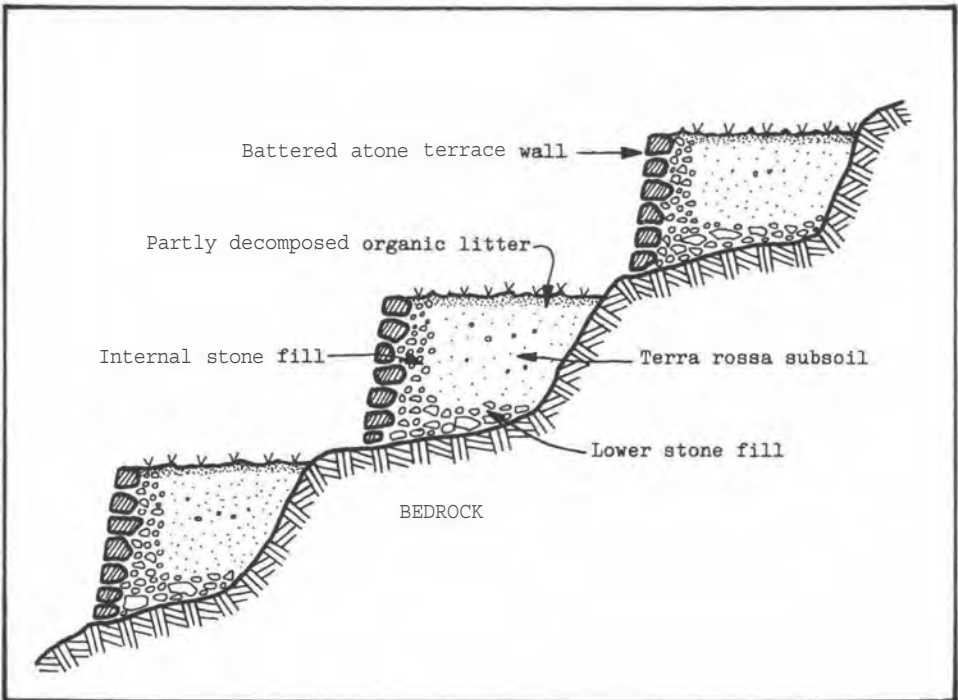
It was this lack of information about the complexity of Jerusalem's rural setting, together with the fear that impending modern development schemes would obliterate a lot of the evidence, which eventually brought about the launching of a methodical archaeological survey in 1980. This survey was undertaken by a number of separate teams working within the Jerusalem municipal boundaries and was officially conducted under the auspices of the Archaeological Survey of Israel, under the general co-ordination of Dr Amos Kloner of the Israel Department of Antiquities. Apart from the conventional mapping and recording of archaeological remains, we also attempted to establish the location and distribution of ancient rural settlements; to understand the technological development of agricultural landscape features; to demarcate the layout of ancient road systems; and to find out more about the cultural exploitation of natural resources (biological and mineral).

The most obvious of human modifications to the landscape of Jerusalem are the agricultural terraces which were built on the slopes of the hills and in the valleys. When we began plotting the terraces in the field, using surveying methods and aerial photographs, we became aware of the fact that each area of terracing was subdivided into many separate units by a series of stone-built boundary walls. A close study of these terraced areas has led us to identify numerous farms characterized by structures, storerooms, installations and water cisterns. Khirbet er-Ras and 'Ein Yalu are examples of two farms located in the Repha'im valley to the southwest of Jerusalem. The farm at Khirbet er-Ras was in use during the late Iron Age, 8th to 6th centuries BCE, and a large building of the 'four-room' architectural type was unearthed at the site. This late Iron Age farm appears to have been a permanent peasant-holding, which practised dry farming and the processing of agricultural

ANCIENT JERUSALEM'S RURAL LANDSCAPE



(1) A terraced farm above Wadi Ahmed near the Repha'im Valley in southwest Jerusalem (Photo: Israel Department of Antiquities).



(2) A schematic drawing showing the details of terrace construction.

produce. During Hellenistic times (late 2nd century BCE) and much later the site appears to have served solely as a subsidiary terraced unit and may have been associated with the nearby site of Mall) (Manaq.at). The farm at 'Ein Yalu consists of a large and complicated water system fed by a spring and an extensive area of irrigated terraces. The water system consists of a rock-hewn spring area, a number of successive horizontal stone-built galleries with water channels, and a large plastered reservoir. Near the upper part of the water system are the remains of a large structure built of squared blocks of stone, which has recently been partially unearthed. Although this farm was probably initially used during the first century BCE, as ceramic surface finds indicate, it was clearly being used extensively during the Byzantine period, during the 5th or 6th centuries CE.

As we have already mentioned, agricultural terraces are the most characteristic landscape feature of Jerusalem's environs, and of the Judaeian Hills in general. Since it has been estimated that about 60 per cent of the hills to the west of Jerusalem are covered with terraces, these terraces may be regarded as the most important of the human changes to the overall ecological balance of this mountainous landscape. It was once assumed that the main reason for the construction of terraces was in order to conserve soil against erosion. This would be correct assuming that the hillsides were originally covered by a thick blanket of topsoil immediately prior to the construction of the first terraces. However it now appears more likely that accelerated soil erosion caused by a process of substantial devegetation, with the subsequent degradation of the hillsides, apparently had taken place a long time before the construction of terraces actually began. During the survey we examined a large number of terrace constructions, and we now believe them to be completely artificial constructions which were filled with *terra rossa* soil and stones imported from nearby valleys. There is no evidence to support the contention that terrace walls were built in order to retain pre-existing erosion soils. Since there is a clear physical lack of level plains in the region of Jerusalem, the construction of terraces on hillsides meant that there was an enormous number of additional areas which could be used for cultivation purposes.

Among the various archaeological features which are characteristic of ancient farms around Jerusalem are structures, water cisterns, and agricultural installations. A rural structure served a dual purpose as an observation post for guarding the terraced fields during the harvest seasons and also as a storeroom for the storage of agricultural produce and their by-products. A typical structure of this kind was built in a prominent part of the farm overlooking the terraces and usually had water cisterns and agricultural installations in its immediate vicinity. The earliest rural structures investigated during the survey date from the Late Iron Age, 8th to 6th centuries BCE. Examples of a few late Hellenistic and Byzantine structures have also been found. The most typical of the more recent rural structures are the so-called 'towers' which are round or square in plan. Some of these structures are still being used today by the local Arab farmers.

A large number of water cisterns of various sizes and shapes were investigated during the survey. These cisterns which were hewn out of the rock and plastered

ANCIENT JERUSALEM'S RURAL LANDSCAPE

internally with lime plaster, collected the surface run-off of rainwater. The great difficulty in dating such cisterns is due to the fact that they were re-plastered and re-used throughout the periods. It has been assumed by W. F. Albright and others that the earliest plastered cisterns in Judaea probably date from the settling of the hill country during the Early Iron Age. Many of the ancient water cisterns in the vicinity of Jerusalem are still being used by the local inhabitants.

Agricultural installations such as wine and oil presses, represent yet another important feature of the ancient farms around Jerusalem. The most typical kind of installation is the wine press, and at least three main typological groups have been identified. The simplest kind of wine press consists of a treading floor, a filtering basin and a vat. Beam and upright-screw presses have also been found, and they represent a considerable technological advance on the simple type. Apart from the upright-screw press which may be regarded as an innovation of the Roman and Byzantine periods, we were unable to date the earliest use of the other two types of installations. However the evidence from our survey does indicate that all three types of installations were in use at the latest during Byzantine times. Very few oil presses were found around Jerusalem and this is strange when one considers that a number of historical sources indicate that olive trees existed in abundance around Jerusalem during most periods. Possibly a certain amount of olive crushing and pressing could have been done within the wine presses. However it is more likely that large-scale olive-oil production only took place in central rural settlements and not in farms.

Apart from the physical components of ancient farms, we also investigated lime kilns, stone quarries and roads. A large number of lime kilns are known in the vicinity of Jerusalem. Twenty-two installations of this kind were studied in detail in an area of about 10 kilometres in northeast Jerusalem. The limestone which was burnt in these kilns was used for the preparation of plaster for coating the walls of cisterns and agricultural installations. One lime kiln which can be dated to the 8th to 6th centuries **BCE** has recently been unearthed at Riis et-Tawil near the settlement of Tell el-Ful in north Jerusalem. Another lime kiln was excavated in Ramot, one of the northern suburbs of Jerusalem, and it appears to have been in use prior to the Byzantine period.

The earliest known quarries in the Judaeian Hills are dated to the Late Iron Age. Others are also known dating from Roman and Byzantine times. The technique of hewing blocks of stone was by cutting channel-like grooves, perpendicular to each other, around required sizes of stone. These stone blocks were then subsequently released from the bedrock by means of a sharp instrument probably made out of iron. These blocks of stone (usually no larger than 1x0.5 m) were then used for the construction of houses and storage buildings in nearby farms or settlements.

Many traces of ancient roads were investigated during the survey. Some of these roads are still being used by the local inhabitants. A typical road is usually about 2 to 5 m wide, and is bordered on both sides by a heaped row of stones or by a wall. We are able to distinguish three types of roads around Jerusalem: highways, leading from Jerusalem in the direction of other urban settlements; regional roads, leading to nearby rural settlements; and internal roads or paths, linking the farms and rural

settlements with the terraced fields. The earliest roads found during the survey date from the Late Iron Age. One Late Iron Age road originally led from Jerusalem all the way to the northeast to the site of Ras el-Kharriiba, which is sometimes identified as biblical Anathoth. Scattered along portions of this road were many typical Late Iron Age potsherds from the 8th to 6th centuries BCE.

Very few prehistoric remains have been found in the vicinity of Jerusalem. It is quite possible that the 'disappearance' of early prehistoric sites may have been due to the large-scale landscape modifications caused by the later terracing activities. Two Lower Palaeolithic sites with Acheulian tool industries are known: one in the upper part of the Repha'im Valley south of Jerusalem, and the other in the area of Sheikh Jarrah north of Jerusalem. Individual flint implements of Neolithic age have also been found, but sites from that period have not yet been identified. One large Chalcolithic site is known from the southern slope of Khirbet es-Sauma'a to the north of Jerusalem. A few Early Bronze sites, usually located alongside natural springs, are also known in the region of Jerusalem. One site from this period has recently been investigated next to the spring of 'Ein Farah to the northeast of Jerusalem, by a survey team headed by Uri Dinur. From the EB-MB period, we know of at least three sites in the Repha'im Valley, and one site east of Tell el-Ful in northeast Jerusalem. Virtually nothing has been found from the period between the EB-MB period and the beginning of the Early Iron Age, apart from a few solitary Late Bronze Age cist graves in north Jerusalem.

Even though terracing activities may have been the principal cause for the covering-up or removal of a certain percentage of the earlier sites, the existing archaeological evidence still does seem to indicate that the environs of Jerusalem were only very sparsely settled prior to the Iron Age. From the Early Iron Age there are two major sites in the immediate vicinity of Jerusalem: a site in Giloh south of Jerusalem which was recently excavated by Amihai Mazar, and the site of Tell el-Ful to the north of Jerusalem which was excavated by W. F. Albright in the twenties. However, it is from the Late Iron Age (8th to 6th centuries BCE) that we have clear evidence of extensive agricultural activities in the environs of Jerusalem, with the construction of many rural settlements, farms, terraces and roads. Since terrace construction was well developed during the Late Iron Age, it would not be too far-fetched to suggest that terracing may have been an innovation which was either introduced into the region or developed locally, with the settling of the hill country during the Early Iron Age. It appears that the farms dating from the Late Iron Age were to a large degree self-sufficient peasant holdings, and had structures which were lived in permanently. When the northern kingdom (Israel) fell to the Assyrians in the year 721 BCE, there was probably a large influx of refugees into Judaea, and this may have been the reason for the unprecedented urban growth of Jerusalem at that time. The urban expansion of Jerusalem must have brought about a greater demand for larger quantities of agricultural produce, and this probably explains why there was a proliferation of rural settlements and farms being established during this period in the region surrounding Jerusalem. With the sack of Jerusalem in the middle of the 6th century BCE, the farms were abandoned and the terraces were allowed to crumble.

It is only during the late Hellenistic and Early Roman periods that we have evidence of the renewal of the rural areas surrounding Jerusalem. Numerous farms with structures and installations were investigated during the survey. Although the historical sources indicate that some of these farms were estates owned by inhabitants of Jerusalem but run by tenant farmers there is no way that this can be substantiated archaeologically. Various stone vessel industries are known to have existed during the first century CE in the vicinity of Jerusalem. Stone vessel workshops are known from Hizma northeast of Jerusalem and from Jebel Mukabar south of Jerusalem. During the survey conducted at Hizma, many fragments of lathe-turned and hand-carved stone vessels were collected from the surface of the site.

Cultivation of the rural areas surrounding Jerusalem was apparently largely halted following the destruction of the city by the Romans in the year 70 CE. However, these rural areas began to prosper once again during the Byzantine period, 4th to 7th centuries CE. The evidence from our survey indicates that most of the rural population was settled in villages and that farms were no longer lived in permanently. Monasteries or monastic settlements clearly of an agricultural nature are also known. Such a settlement has recently been excavated at Ras et-Tawil in northeast Jerusalem, and consists of a large building containing a mosaic-paved chapel, various agricultural installations, and a large area of terraces. From the Arab conquest in 638 CE and down to Ottoman times, there was a gradual abandonment of terraced hillsides which eventually brought about a destructive wave of erosion, a process which still continues today.

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New Chalcolithic discoveries in the northern Negev desert, Israel

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During the past five years, renewed interest in the excavation and study of Chalcolithic settlements in Israel's northern Negev desert have created a need to reassess traditional perspectives of this protohistoric period. The Chalcolithic is a formative period which precedes the emergence of the first Early Bronze urban centres in Palestine. Traditional frameworks for explaining culture change during the protohistoric periods of the Palestinian archaeological record relied on the theory of cultural diffusion. Most text books on Palestinian archaeology characterize cultural developments during the Chalcolithic as having 'contributed surprisingly little to the ultimate civilisation of Palestine' (Kenyon 1970: 82). The emergence of Early Bronze urbanism has been consistently explained by diffusionist models, some of which see the bearers of urbanism as having come from as far away as Soviet Central Asia (Lapp 1970). Diffusionist models, which explain social change as having originated from outside sources, do not take into account the effects of local environmental and cultural variables in initiating cultural change. The presence of one of the largest Early Bronze urban centres in Western Palestine at the northern Negev site at Tel Arad (Amiran 1978) highlights the importance of clarifying the nature of social organization and subsistence patterns during the preceding Chalcolithic period. To study some of the local processes of Negev protohistoric culture change, a multidisciplinary research project was initiated in 1979 which focuses on the excavation and analysis of the extensive (9.5 hectares) Shiqmim Chalcolithic village and mortuary complex (c. 8 hectares). This project is co-directed by my colleague David Alan and myself and carried out under the auspices of the Israel Department of Antiquities and Museums and the Negev Museum, Beer Sheva. The project was generously funded by the National Geographic Society in 1982 and 1983, and is affiliated with the American Schools of Oriental Research. In 1982 travel funds for one of the Shiqmim expedition supervisors were kindly provided by the Anglo-Israel Archaeological Society (see *BAIAS* 1982-3, p. 13).

To monitor the changing patterns of Negev settlement and land use during the Late Neolithic through Early Bronze Age periods, Alan and I (Alan and Levy 1980; Levy 1981) carried out an intensive systematic archaeological survey along the main 110-km-long Nahal Beer Sheva-lower Nahal Besor drainage. Until recently the lack of systematic archaeological surveys in western Palestine, where key variables such as site size and physiographic setting are recorded, precluded any detailed analysis of the range and variation of protohistoric settlements on a regional scale. However,

this situation is rapidly changing in the Negev. Since the signing of the Peace Treaty with Egypt and the subsequent redeployment of the Israel Defence Forces in the Negev, the Negev Emergency Archaeological Survey, under the directorship of Rudolf Cohen, has been carrying out systematic archaeological field surveys in a wide range of physiographic zones in this desert (Cohen 1981; Baumgarten 1983, Haiman 1983, Rosen 1983a, 1983b). The survey data discussed here was recorded in conjunction with the Negev Emergency Archaeological Survey.

Chalcolithic research in the northern Negev began in 1929 during the British Mandate when Eann Macdonald (1932; Roshwalb 1981), a member of the Petrie expedition at Tel Fara (south), made an archaeological survey on the Negev coastal plain along the Wadi Gaza, now called the lower Nahal Besor. In the same year, members of the Pontifical Biblical Institute in Jerusalem (Mallon *et al* 1934) were searching for the Biblical site of Gomorrah along the northeast coast of the Dead Sea when they discovered Teleilat Ghassul. The new pottery and flint types soon made it clear that they were dealing with a new archaeological culture which became known as the Ghassulian Chalcolithic. In 1930, these same researchers (Neuville 1930) discovered an extensive Chalcolithic necropolis called Adeimeh located 2 km east of Teleilat Ghassul. Excavations by Stekelis (1935) revealed a well-organized cemetery made up of circular graves and cist structures. In the early 1950s, with the establishment of the State of Israel, Alon (1961) and others (Gophna 1980) began a series of surveys along the major wadis in the Negev foothill zone and discovered the first Chalcolithic sites in this region of the Negev. Excavations by Jean Perrot at two sites along the Nahal Beer Sheva, Abu Matar (1955) and Bir es-Safadi (1964), and by Moshe Dothan at Horvat Beter (1959), revealed a cluster of Chalcolithic village sites in the vicinity of the city of Beer Sheva. These excavations demonstrated that Chalcolithic villagers in the semi-arid foothill zone practised a developed metal industry, made a wide range of pottery types (some on the slow wheel), cultivated cereals and some legumes, raised herds of sheep and goat, built both rectangular buildings and subterranean structures and had long distant trade patterns involving copper, ivory, basalt, shells and other items.

The primary significance of our intensive systematic survey along the Nahal Beer Sheva-lower Nahal Besor, is that the full range of Chalcolithic settlement types for 2 adjacent physiographic zones (the Negev coastal plain and foothill zone) along one drainage system was recorded. A total of 11 Late Neolithic sites, 75 Chalcolithic sites (30 with surface architecture, 24 without, and 21 find spots) and 8 Early Bronze Age sites were recorded. The survey data provide evidence for a degree of social centralization not previously observed for Chalcolithic sites in the northern Negev. For example, during the last phase of Chalcolithic occupation in the foothill zone, 3 main types of settlements can now be defined in the Nahal Beer Sheva-lower Nahal Besor 60-km-long trough-shape valley. These include:

1 Sub-regional centres, which are greater than 5.5 hectares, contain evidence of cult artefacts and are surrounded by smaller sites. In the study area there are four of these sites: Ze'elim, Shiqmim, Horvat Beter, and Nevatim.

2 Hamlets, these sites range in size from as large as 4.85 hectares to as small as

0.25 hectares. Hamlets contain both residential buildings as well as larger buildings which may have functioned as corporate meeting areas. Seventeen of these sites were recorded in the trough-shape valley.

3 *Small sites*, these are sites which are less than 0.25 hectares in area and contain surface architecture. They lack the corporate features found in hamlets and sub-regional centres. Nine of these sites were recorded in the trough valley.

For our purposes here, it is sufficient to point out one pattern of centralization for the linear Nahal Beer Sheva-lower Besor Chalcolithic settlement pattern. This concerns the number of hamlets associated with the larger sub-regional centres. Clearly there is a hierarchy with the Shiqmim site, surrounded by 8 hamlets, Horvat Beter by 4 hamlets, Nevatim by 2 and Ze'elim by 1. The fact that Shiqmim is surrounded by the largest number of satellite sites may indicate its primary importance during the last phase of Chalcolithic occupation as a centre for socioeconomic activities in this valley. The full testing of this hypothesis will have to await another large scale excavation season at Shiqmim.

The recent excavations in the Shiqmim village, located c. 15 km west of the Beer Sheva site cluster, highlight the importance of this site during the last phases of Chalcolithic occupation in the valley. After three seasons of excavation, the upper building phases at this site appear well planned compared with other excavated sites along the Nahal Beer Sheva. The foundation walls of the upper building phases are aligned in the same northwest/southeast orientation. At other sites, such as Safadi, the site plan (Perrot personal communication) for the upper building phases show that the buildings are more isolated and not as densely packed as Shiqmim.

The first clear evidence of cult activities at the Shiqmim site came to light during last year's excavation. A cache of 13 complete ceramic vessels and an unusually small limestone mortar were found *in situ* near the wall of a building. Three of these vessels (a fenestrated holemouth stand with elaborate painted designs, a decorated high neck bottle and a spouted jar) are new types not previously found in western Palestine. Not far from this cache, the head of a finely carved anthropomorphic female statuette made of basalt was found (Levy and Alan, in press). The general morphology and facial features of this statuette head are remarkably similar to the carved ivory statuettes found at Bir es-Safadi (Perrot 1959). These cult statuettes highlight the similar nature of ritual activities along one northern Negev drainage in the Nahal Beer Sheva-lower Nahal Besor trough shape valley. As Gilead (personal communication) points out, there are clearly different kinds of cult objects found along the different northern Negev wadis. At sites located along the Nahal Garar (Oren and Gilead 1983), the Nahal Patish (Alan 1976), the Sinai coast (Oren and Gilead 1981) and some sites along the lower Nahal Besor on the Negev Coastal Plain (Macdonald 1932; Roshwalb 1981), a variety of violin-shape figurines have been found. These are not found in the Chalcolithic assemblages from the Nahal Beer Sheva-lower Nahal Besor trough-shape valley sites. This observation may point to several cult orientations within the relatively small northern Negev desert. In terms of the northern Negev cultural environment, this indicates the importance which local social factors may have played in shaping protohistoric culture change in the



Chalcolithic grave circle. Shiqmim cemetery.

northern Negev. A model which attempts to explain why social change occurred along this drainage system from small egalitarian Late Neolithic (Moore 1973) communities to the more hierarchical one observed during the Chalcolithic is discussed in detail elsewhere (Levy 1981; in preparation). In this model, population growth and the development of an agricultural system which incorporated floodwater farming in the trough-shape valley bottom of the Nahal Beer Sheva-lower Nahal Besor is used to help explain the process which led to more centralization in the linear settlement system reviewed here.

The discovery of an extensive Chalcolithic mortuary complex, stretching for over 800 m x 100 m along a series of chalk hills adjacent to the Shiqmim village adds a new dimension for 5th-4th millennia studies in western Palestine. This is the first formal Chalcolithic cemetery to have been discovered in the Negev desert. In 1979 and 1982, excavations on two separate hilltops within the mortuary complex revealed clusters of circular graves lined with stones and filled with disarticulated multiple burials and Chalcolithic grave offerings (Levy and Alon 1979, 1982). To date 49 circular graves have been excavated in the Shiqmim mortuary complex. One of these grave circles complete with disarticulated burials is illustrated here (see plate). In 1982, another new form of Chalcolithic mortuary structure was discovered in the Shiqmim mortuary complex. These are carefully constructed stone lined cists. Each of the cists are large enough to accommodate an adult body. However, careful sieving of all the soil deposits in the cists revealed no human bone remains. There is little doubt that the cists are connected with the Chalcolithic burial ritual. The cists are in close association with the circular graves and each one contained evidence of Chalcolithic artefacts found commonly in the circular graves. The establishment of a large formal cemetery adjacent to Shiqmim, like the Adeimeh necropolis and Teleilat Ghassul, may be another indication of the importance of Shiqmim as a centre for co-ordinating some ritual activities in the valley. In closing, these new discoveries in the northern Negev have created more questions than answers concerning the nature of early culture change in the Negev.

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Archaeological evidence for the Exodus

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The title of this paper is somewhat misleading since in fact there is no archaeological evidence at all for the Exodus either in Egypt or elsewhere. The biblical account was composed hundreds of years after the event, and some scholars believe it to be a nationalistic fiction designed to create a common history for the disparate tribes of Israel. The problem for the historian is therefore to examine the background of the story in order to discover any period of time in Egypt into which the narrative might fit: was a large group of foreign residents ever there; was there an oppression of such a group; was an emigration from Egypt, voluntary or forced, ever possible?

The first question must concern the arrival of the Israelites and their origins. Asiatic intrusion into Egypt is as old as Egyptian history and older; it is connected with periodical drought in the Levant which caused migration south, especially to the Nile delta, in search for water and pasture. The desert does not form an effective natural barrier between the two areas, so that penetration of Egypt was possible from time immemorial and it was a permanent source of conflict between the two areas.

The historical identification of a migration of the Children of Israel into Egypt is very difficult. It may possibly be seen in the Second Intermediate Period (c. 1786-1567 BCE); that is, during the period of the Hyksos. It is striking that names such as Joseph, Izhak and Ya'kov occur in Egyptian documents of this period. Other elements of the Joseph story reflect a much later state of Egyptian society, which may be accounted for by the fact that the Biblical narrative itself is much later than the events described. However, a descent into Egypt in Hyksos times would mean a sojourn there much longer than the Bible would allow, and we should not disregard the biblical account unless there is no other solution.

For the Exodus, we have a *terminus ad quern* in the Israel Stela of Merneptah, which mentions the people of Israel in Canaan in the fifth year of this king (c. 1230 BCE), thus making an Exodus likely under the rule of one of his predecessors. We agree with those scholars who date the event to the reign of his father, Ramesses II (c. 1304-1257 BCE). An Exodus postulated by others in the reign of Amenophis III (c. 1408-1372 BCE) seems less likely.

From the New Kingdom (especially the Eighteenth and Nineteenth Dynasties) we have a number of 'Exodus papyri', which are literary documents made for the scribal schools, imitating material from the royal archives describing situations which are typologically similar to the biblical account. These are reports of escaped slaves and their escape routes, naming places which occur also in the biblical story, and citing

the journals of border officials and accounts of the Pharaoh's actions against them and certain Asiatic nomads. Unfortunately, excavation in the cities of Pithom and Ra'amses, in other delta regions and in north Sinai have not revealed a single piece of archaeological evidence for the Exodus under the reign of any Egyptian king. Nevertheless, there is a large group of documents of the time of Ramesses II which mention Asiatic bedouin, called in the texts Shasu (which is connected to the Hebrew word 'shosim' - to plunder or pillage). Most of these documents are from the delta region, and Ramesses II describes the Shasu as people who must be punished for their aggressive behaviour.

The Shasu appear in the time of Tuthmosis II (c. 1510-1490 BCE) and then in the consecutive reigns of Tuthmosis III, Amenophis II, Tuthmosis IV, Amenophis III, Akhenaten and Horemheb, all of the Eighteenth Dynasty. A document of Amenophis II is of special importance, as it contains a list of Asiatic prisoners in which Shasu and 'Apiru are mentioned together, showing that they cannot be identical. There is a widely held belief that the 'Apiru, or Habiru, are the Hebrews (and indeed the words 'Apiru and 'Ivrim are very similar). However it should be emphasized that a good deal is known of the society and lifestyle of the Habiru, and the indications are that they were very different from early Israelite tribal society. On the other hand, the Shasu are named and depicted in a relief of Seti I (c. 1318-1304 BCE) at Karnak. Here and elsewhere they wear a typical headdress and tasselled kilts. Tassels, according to the Mosaic law, were obligatory for every male Israelite. We know from various Egyptian documents that the Shasu homeland was Se'ir, or Edam in southern Transjordan. The Song of Deborah, a very ancient element in biblical literature, identifies Se'ir with Sinai. At Soleb in the Sudan there is a temple from the time of Amenophis III (more than a century earlier than Ramesses II) which twice mentions the Shasu in connection with a city called Yahve, in the region of Se'ir, apparently a city which had a temple to a deity who became the sole God of Israel. A further indication of a relationship between the Shasu and Israel may be in one of the rare representations of Shasu outside Egypt, namely on an ivory plaque from Megiddo showing two circumcized prisoners led before the chariot of the local king.

The Shasu were a mixture of Asiatic tribes. It seems to us that the Exodus can at present best be seen as the movement of a group of Shasu which led them through Sinai to Cana'an. Somewhere in Sinai, or in southern Transjordan, important events took place which led to a religious crystallization. Once the group was in Cana'an, other tribes already settled there joined them. The later national tradition saw in this process a miraculous liberation of all the tribes at one time from servitude in Egypt.

We therefore believe that the Exodus was an historical event, although there is little to prove it outside the literary tradition of the Bible. We likewise believe Moses to have been an historical figure. His name is a common abbreviation of many personal names in Egypt. Thus the frequent appearance of the name 'Moses' in Egyptian documents is no proof of the historicity of Moses. On the other hand, without a charismatic leader it is hard to envisage the emigration of the group from Egypt, the desert wanderings, the religious transformation at Mount Sinai or the

entry into Canaan. It is only natural that many legends arose around such a figure and that literary works should be attributed to him.

If Moses led the Children of Israel out of Egypt it follows that he must have lived there. Thus there have arisen theories that his basic theological concept, monotheism, arose from the religious movement of Atenism, at the time of Akhenaten (Amenophis IV c. 1369-1375BCE). We doubt if this religious revolution of the heretic king can in truth be called monotheism, and we believe that Mosaic religion, in so far as it can be reconstructed before the times of the kings, was very different from Atenism. A chronological problem also arises since Atenism perished with the fall of Amarna, Akhenaten's capital. This happened at the time of his death, so Atenism could only have been influential on Moses during the reign of the king or shortly after. This would make the Exodus, or a first Exodus under Ramesses II, impossible, and we should be forced to assume an earlier date, or several waves of emigration.

The route of the Exodus cannot be reconstructed. Toponyms such as Paran are not relevant to the discussion. Life in the desert is, however, possible, since rainfall does occur, so vegetation is sufficient for small herds of wandering animals. However, large numbers of migrants could not survive there for any length of time. Neither can the site of Mount Sinai, likewise the subject of much speculation, be located. Here again we must be aware that the biblical description of Mount Sinai is a literary creation, the intention being to demonstrate the glory and terror of the Mountain of the Lord. It is, in our view, useless to search for a geographical location for Mount Sinai among the volcanically active peaks of those times in the area.

The archaeology of the Exodus consists of research into the possible social, cultural and geographical background of the events described in the Bible, together with careful analysis of the political forces which were at work at the time itself and also at the time of the composition of the narrative.

Geva, a new fortress city: from Tuthmosis to Herod

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The ancient city of Geva lies near Kibbutz Mishmar Ha'Emeq, some 5 kms from Megiddo, on the edge of the Esdraelon Valley. The identification of the site comes from a Greek inscription on a lead weight naming the site as *Geva* (meaning 'hill') and from an Aramaic inscription found at Ayn Hashophet, nearby. Coins found in the area also mention 'Geva' or 'Geva Hippaion' ('Geva of the horsemen') known from the writings of Josephus, where Herod the Great settled some of his Gentile veteran soldiers. The city was previously thought of as nearer to Haifa in the area of Sha'ar Ha'Amekim. However the finds of the town's name during excavation of the site may now be taken as proof of identity.

The tel itself, now called Tel Shosh, is well stratified, with strata of the Early Christian period of the 4th and 5th centuries CE and stretching back through Roman, Hellenistic and Persian levels to earlier horizons, as yet undug. There is, however, material of the Late Bronze Age (grave deposits rather than building remains), early Middle Bronze (contemporary with the Egyptian Middle Kingdom) and a definite Chalcolithic presence. Considerable Late Bronze material is to be expected, since mention is made of Geva in the annals of New Kingdom Egypt, in the time of Tuthmosis III (c. 1504-1450 BCE) and just possibly in the reign of Amenophis III (c. 1417-1379 BCE). In his great stela at Karnak, Tuthmosis III, the victor of the Battle of Megiddo, lists Geva among the hundreds of towns he overthrew during his Canaanite campaign. It appears in a geographical context suggesting a location near Yokneam, which is also some 5 kms from the site. In the records of Amenophis II, mention is made of 'Geva of shemen' (connected to the West Semitic root of the word for 'eight' and meaning something like 'Geva of the Eight [Tribes]' - compare the modern name Kiryat Sh'moneh). This town is different from Tuthmosis III's Geva mentioned near Yokneam and should be located nearer Acre on the north shore of the Bay of Haifa.

During excavations at Mishmar Ha'Emeq a Hellenistic grave produced a Ptolemaic faience bowl, the first to be found unbroken in Israel. Nearby, a Rhodian two-handled amphora was inscribed with the name 'Sokrates'. Other finds include oil presses, one of which has rock-cut niches in which oil vessels could be stored behind wooden doors. Nearby, living quarters produced several small finds, such as a miniature dramatic mask which served as the spout of a 3rd-century-CE jug and a small head of Aphrodite.

The mosaic floor of a Roman villa was found in the upper levels of the tel, as well as

a tomb which is unique in the Roman world. The body was laid on an inclined white mosaic surface and the head, at the upper end, was outlined by a line of black mosaic. Below the body, probably that of a man, were two parallel red lines of mosaic, like the decorative edges of a Roman sheet. Beneath him a small pit was covered with a pierced pottery tile from a bath house. Possibly this was a drainage hole to allow water to percolate out of the grave. The tomb, like others in the vicinity, was sealed with a rolling stone, typical of the 1st century CE. However, a small round-bottomed glass bottle found with the body is of 6th century CE date.

Perhaps the most interesting series of finds came to light near the olive presses and other industrial installations. These are a number of trenches cut in the bedrock. They range from 5 to 8 metres long and between 70 to 100 centimetres wide and about as deep. They are intersected at right angles by shorter trenches cut at a slightly higher level. Nearby are water cisterns. It seems very probable that these installations are for the processing of flax, which was a valuable crop grown in the area in antiquity for linseed oil and cloth. The trenches would fill with water in the winter and could be kept topped up from the cisterns, although in fact the limestone here, once sodden, becomes rather impermeable. The flax stalks were laid in the long main channel and held in place by wooden or stone bars set across them and slotting into the cross channels. Flax has to be soaked in water for several weeks after harvesting in April to May (the months of the flax harvest according to the Gezer Calendar of the 10th century BCE). The flax soaked in water until the outer husk had rotted but before the inner fibre began to degenerate. It was then lifted from the water, washed with clean water taken from the nearby cisterns and combed to separate the useful fibre from the useless husk. A final point of interest is that the installations lie to the east of the town, so that the prevailing wind from the west would carry any smell from the stagnant water of the trenches away with it. To end on a note of caution: it has yet to be established beyond any doubt that these somewhat enigmatic trenches were in fact used in the industrial preparation of flax: further research is necessary before the use can be accepted as certain.

Obituary

YIGAEEL YADIN

The death of Yigael Yadin marks not only the end of an era in the archaeology of the Holy Land, but the extinction of a scholarly star of the first magnitude. He was perhaps the most outstanding figure in the younger generation of archaeologists who emerged on the creation of the State of Israel in 1947 and he seemed to possess a magic touch for discovery and a flair for presentation. He came to the fore by his skilful conduct of two very successful campaigns in 1955 and 1958 at Hazor, a Canaanite city reputedly destroyed by Joshua, and thereby vindicated the credibility of the Biblical record. The excavations were supported by the late James de Rothschild and others in this country, and Yadin brought an excellent exhibition of his finds to the British Museum in 1958. It was to Hazor that he was hoping to return to dig again this coming winter; if he had, it would certainly have rewarded him - for the royal palace and its archives may still perhaps be found there. When in 1963 he was deflected from Hazor to the even more spectacular but almost inaccessible site of Masada, he showed to the full in the service of science the combination of managerial skill and command of manpower resources to which his military career had trained him. The support of the Hon. David Astor and the *Observer* newspaper brought another all too brief but unforgettable exhibition of his finds at Masada to this country in 1966. Mention should be made of the able part played in his work by Carmella, his wife, who first invented and organized the use of cohorts of young volunteers from abroad as excavation workers - now a normal feature on most Israeli digs.

Yadin was in a class by himself; he was one of very few scholars who could stand up successfully in friendly debate with such formidable foreign colleagues as the late Dame Kathleen Kenyon. Not least of his many gifts was his expertise in Semitic epigraphy, as is shown by the recent English edition of his great work on the 'Temple Scroll', which he had recovered himself from its hiding place in the Dead Sea Caves. His diversion into politics from 1974 to 1981 deprived him - and us - of some potentially fruitful years, but he has left us an important legacy of the highest standards in the study of Biblical archaeology.

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