The

BIBLICAL ARCHAEOLOGIST

Published by

THE AMERICAN SCHOOLS OF ORIENTAL RESEARCH

Jerusalem and Bagdad

Drawer 93-A, Yale Station, New Haven, Conn.

Vol. XXVIII September, 1965 No. 3

Fig. 1. The outer south wall of the storehouse-granary at Tell el-Kheleifeh, showing double row of apertures caused by burning and/or decay of horizontal wooden beams.

The Biblical Archaeologist is published quarterly (February, May, September, December) by the American Schools of Oriental Research. Its purpose is to meet the need for a readable, non-technical, yet thoroughly reliable account of archaeological discoveries as they relate to the Bible.

Editor: Edward F. Campbell, Jr., with the assistance of Floyd V. Filson in New Testament matters. Editorial correspondence should be sent to the editor at 800 West Belden Avenue, Chicago 14, Illinois.

Editorial Board: W. F. Albright, Johns Hopkins University; G. Ernest Wright, Harvard University; Frank M. Cross, Jr., Harvard University.

Subscriptions: $2.00 per year, payable to **Stechert-Hafner Service Agency, 31 East 10th Street, New York 3, New York.** Associate members of the American Schools of Oriental Research receive the journal automatically. Ten or more subscriptions for group use, mailed and billed to the same address, $1.50 per year for each. Subscriptions run for the calendar year. In England: fifteen shillings per year, payable to **B. H. Blackwell, Ltd., Broad Street, Oxford. Back Numbers:** Available at 60¢ each, or $2.25 per volume, from the Stechert-Hafner Service Agency. No orders under $1.00 accepted. When ordering one issue only, please remit with order.

The journal is indexed in *Art Index, Index to Religious Periodical Literature,* and at the end of every fifth volume of the journal itself.

Second-class postage PAID at New Haven, Connecticut and additional offices.

PRINTED IN THE UNITED STATES OF AMERICA, BY TRANSCRIPT PRINTING COMPANY PETERBOROUGH, N. H.

Contents

Ezion-geber

NELSON GLUECK

Hebrew Union College — Jewish Institute of Religion

Years ago, President Glueck wrote three articles on Ezion-geber: Elath for the B.A. *Since that time, as he makes clear below, new information pertaining to the interpretation of the remains has come to light. Since the "smelter" there has found its way into many of the standard textbooks in biblical archaeology. Glueck's new ideas on the matter are extremely important, and they demonstrate a capacity to change cherished convictions gracefully. Since scholars will want to trace Glueck's shift, we have left the rather full documentation in the footnotes intact.* — Ed.

The first one to suggest the identification of Ezion-geber with Tell el-Kheleifeh was Fritz Frank.[1] The small low mound is located approximately in the center of the north shore of the Gulf of Aqabah, midway between Jordanian Aqabah at its east end and Israeli Eilat at its west end. It is about 500 yards from the actual shoreline today and may have been some 300 yards or more several millennia ago. For all practical purposes it is possible to say that the shoreline has experienced no great change since

1. *Zeitschrift des deutschen Palästina-Vereins,* LVII (1934), 208-278; esp. p. 244.

Tell el-Kheleifeh was first occupied in the 10th century B.C. The conviction that there has been comparatively little change in the northern shoreline derives partly from our discovery of a copper smelting site on a low shoreline foothill at Mrashrash, now incorporated into Eilat, immediately overlooking the northwest end of the Gulf of Aqabah. The location of Tell el-Kheleifeh approximates therefore the description in I Kings 9:26 of Ezion-geber's being located "beside Eloth, on the shore of the Red Sea, in the land of Edom." When we first examined the potsherds, copper slag, bits of copper ore and implements on the surface of Tell el-Kheleifeh, it was seen that the pottery remains dated from the 10th to the 5th-4th centuries B.C. Frank had correctly adjudged them to be older than Roman. Among the surface finds that Frank mentions, in addition to some copper arrow heads, is "an inch high animal figure apparently cast in copper."

It was natural at first, however, to search for the remains of Ezion-geber and Elath at or in the immediate vicinity of modern Aqabah, with its strong springs of fresh water, its good soil that supports flourishing and extensive date palm groves, its fine anchorage and its command of crossroads to and from Arabia. Nothing earlier than Nabataean remains could be found at Aila immediately to the west of Aqabah and nothing earlier than Byzantine and mediaeval Arabic at Aqabah itself. It is highly possible that Iron I-II remains are buried under the debris of Aqabah or have been washed away by devastating freshets that periodically have inundated the site when diversion dams did not exist or were not kept in repair. One certainly would have expected the equivalent of a 10th century B.C. and later police-post and customs house at Aqabah.

Furthermore, a fortress dating from Solomonic times may have existed on top of one of the hills overlooking the site of Aqabah below, with its fertile terrain, crossroads, springs and harbor. Such a fortress may yet be found, and its existence would comport with the general practice of the early Iron age of building fortifications on defensible hilltops dominating strategic points. At the present time, however, the mound of Tell el-Kheleifeh is the only site known on the north shore of the Gulf of Aqabah showing the occupational history necessary for either Ezion-geber or Elath or both. If Tell el-Kheleifeh is not in all finality to be identified with Ezion-geber: Elath, then it must be considered a fortified industrial, maritime, storage and caravanserai center for both.

The Smithsonian Institution — American School of Oriental Research excavations of Tell el-Kheleifeh took place in the spring seasons of 1938-1940. The final report should have been published long ago. Now that the report on the Khirbet Tannur excavation in 1937 has been completed (publication, autumn 1965), we have begun reviewing the Tell el-Kheleifeh

excavation records. We find ourselves compelled in their light and in view of new knowledge and some convincing criticisms of our initial reports to revise radically some of our original conclusions.[2]

The location of the tell in the middle of the southern end of the Wadi Arabah, its possession of the first potable water, however brackish, as one comes from the western side of the north shore of the gulf, and the fact that the shoreline in front of it is free of rocks and that small boats could have been drawn up on it or anchored close to it, add up to the sum of its natural advantages. The site can, however, easily be bypassed. Its position is not a commanding one.

Fig. 2. The low mound of Tell el-Kheleifeh.

In order to have our backs to the winds and sandstorms, we began excavating at the northwest corner of the mound, unearthing a building that seemed to us to furnish the logic for the location of the site, regardless of its lack of the amenities and advantages possessed in such abundance by Aqabah. All the walls of the square building with its original pattern of three long rectangular and three small square rooms were pierced with two horizontal rows of apertures. When the debris had been cleared, the drafts

2. *BASOR*, 71 (Oct., 1938), 3-18; 72 (Dec., 1938), 2-13; 75 (Oct., 1939), 8-11; 79 (Oct., 1940), 2-18; 80 (Dec., 1940), 3-10; 82 (May, 1941), 3-11; 85 (Feb., 1942), 8-9; 159 (Oct., 1960), 11-14; 163 (Oct., 1961), 18-22; *The Other Side of the Jordan*, pp. 50-113; *Rivers in the Desert*, pp. 153-68; *Smithsonian Report for* 1941, pp. 453-78; *BA*, XXII (1959), 89-94; G. E. Wright, *BA*, XXIV (1961), 59-62; B. Rothenberg, *Palestine Exploration Quarterly*, XCIV (1962), 5-71; *Illustrated London News*, Sept. 3, 1960, pp. 383-5.

or air entering through the apertures in the outer north wall could be felt emerging at the outer ends of the apertures in the outer south wall, the length of the building removed. With the exception of the outer south wall, only a few of the apertures in the top rows remained.

It had been our thought, which we now abandon, that the apertures served as flue-holes during Period I of this building. Through them, we opined, the strong winds from the north-northwest entered into the furnace rooms of this structure, which we called a "smelter," to furnish a natural draft to fan the flames. We had previously explored the Wadi Arabah and examined numerous copper-mining and smelting sites, many of them already visited by others, notably Fritz Frank, and had been able through surface pottery finds to place them for the first time within the framework of history. The surface sherds at these Wadi Arabah sites belonged to Iron I and early Iron II in general and especially to the 10th century period of king Solomon. We had as a result called them "king Solomon's mines," and had attributed, as we still do, a considerable part of his wealth to his exploitation of the mineral wealth obtained there. This led to our considering the building as a smelter or copper refinery and the apertures as flue-holes.

We have, however, come to the conclusion that these apertures resulted from the decay and/or burning of wooden beams laid across the width of the walls for bonding or anchoring purposes. There are numerous analogies to this kind of construction both inside and outside of Palestine. After the walls containing the wooden crossbeams had been completed, with some beams being inserted also laterally and vertically, the inner and outer faces of the walls were plastered over with a mud coating, which hid the ends of the timbers from sight[3] and would have effectively prevented any air entering the apertures. Obviously then, this structure could not have functioned as a smelter, as Rothenberg has correctly contended.[4]

Examples of this kind of construction of mudbrick walls, which strengthens their bonding, prevents warping and gives them a high degree of elasticity useful in case of earthquakes have been found at Sendschirli, Boghazköy, Tell Tainat, Tell Halaf and also at Troy and Knossos, for example.[5] The use of timber joists for bonding purposes in stone walls has

3. Lloyd, *Mounds of the Near East*, p. 86; Wheeler, in Piggott, *The Dawn of Civilization*, p 245; Frankfort, *The Art and Architecture of the Ancient Orient*, pp. 145 and 169. It is not impossible, of course, that several of the apertures were intended for ventilation, as occurred, for example, in the tower of Saul's fortress at Gibeah; cf. Albright, *AASOR*, IV (1924), 9; Sinclair, *AASOR*, XXXIV-XXXV (1960), 14. The Tell el-Kheleifeh apertures could have resulted from purposeful burning away of the crossbeams, but we regard this as unlikely because of the coating of mud-plaster on the faces of the walls and especially because of the mudbrick rampart built against the outer faces of the walls of this building.

4. *Palestine Exploration Quarterly*, XCIV (1962), 45-56; cf. Albright, *Bibliotheca Orientalis*, XXI (1964), 67.

5. Von Luschan, *Ausgrabungen in Sendschirli*, IV, pp. 247-8, Abb. 155-7; p. 249, Abb. 157A; p. 299, Abb. 209; Bittel and Naumann, *Bogazköy*, II, 49-51; Lloyd, *Mounds of the Near East*,

been attested by finds in Samaria.[6] This type of construction seems to be reflected in the description in I Kings 6:36, which reads: "He (Solomon) built the inner court with three courses of hewn stone and one course of cedar beams."[7] At Jericho, numerous horizontal lacing-timbers were employed in several stages in the town walls.[8] Striking parallels to the apertures at Ezion-geber are furnished by those in the mudbrick base of the "granary" at Mohenjo-daro in India. The burning and/or disintegration of a series of reenforcing crossbeams created horizontal rows of holes and grooves there and in related ones at Chanhu-daro and Harappa.[9]

Fig. 3. Close view of apertures in the mudbrick walls; conceivably they served for ventilation, but their basic purpose was for bonding.

In addition to the coating of mud plaster in the initial construction of the Tell el-Kheleifeh building, a mudbrick rampart was built against its

86-7; Frankfort, *The Art and Architecture of the Ancient Orient*, pp. 145 and 169; Naumann, *Tell Halaf*, II, figs. 23-24, 40; McEwan, *American Journal of Archaeology*, XLI (1937), 13; Woolley, *Alalakh*, pp. 123 and 126; Evans, *The Palace of Minos at Knossos*, I, pp. 347-50 and figs. 250-2; p. 368, fig. 267; Blegen, Caskey, Rawson, *Troy*, III:1, 288-9.

6. Crowfoot, Kenyon, Sukenik, *The Buildings at Samaria*, p. 17; cf. Schaeffer, *Ugaritica*, III, pl. XIX:4.

7. Cf. I Kings 7:12, Ezra 6:4. Schaeffer, *Ugaritica*, III, pl. XIX:1-3; Thomson, *Palestine Exploration Quarterly*, XCII (1960), 57-63 and references there; Barrois, *Manuel d'archéologie biblique*, I, 103-4; Frankfort, *Art and Architecture*, pp. 139-145, 169.

8. Kenyon, *Archaeology in the Holy Land*, p. 314.

9. Wheeler in Piggott, *The Dawn of Civilization*, pp. 233, 244-6; cf. McEwan, *American Journal of Archaeology*, XLI (1937), 13, and Frankfort, *Art and Architecture*, p. 169, fig. 81. Wooden anchor or bonding beams to strengthen mudbrick walls are utilized in modern Aqabah. They are visible also in the late Mameluke castle there and in the Byzantine and later ruins on Jeziret Far'un, *AASOR*, XVIII-XIX (1939), 11.

walls, which would likewise have negated the use of any apertures either for draft or ventilation purposes and which indeed transformed the building into a citadel. We believe now, as Rothenberg has suggested, that this structure with its purposely high floors was also designed and used as a storehouse and/or granary,[10] and that the site, whether actually Ezion-geber or a suburb or satellite of Ezion-geber, belonged in a comparatively modest way to the type of fortified district and chariot cities which Solomon built in elaborate fashion at Hazor, Megiddo and Gezer (I Kings 9:15-17, 19).

Before continuing with the discussion of this storehouse-granary structure and its relationship to the wall enclosing the square in which it originally stood, we should like to underscore the fact that industrial and metallurgical activities did indeed take place in the various periods of occupation of Tell el-Kheleifeh. Copper slag was definitely found in the excavations, as well as remnants of copper implements and vessels. There was, however, little slag compared to the great masses of slag marking numerous Iron I and early Iron II copper mining and smelting sites in the Wadi Arabah, where mining and smelting activities also were carried on in Middle Bronze I[11] and late Chalcolithic times.[12]

The small amount of slag at Tell el-Kheleifeh may be explained by the difference in metallurgical operations as carried out in the Wadi Arabah and at Tell el-Kheleifeh. At the latter place, they were devoted, we believe, to remelting the globules of copper ore obtained through several metallurgical processes in the Wadi Arabah smelting sites, in order to shape them into more easily salable ingots or to pour the molten metal into molds for manufacturing purposes. This process would have produced no slag. One recalls the pouring of molten metal in "thickened earthen molds between Succoth and Zarethan" in the Jordan Valley (I Kings 7:45, 46). In addition, there may have been further refining of some of the Wadi Arabah smelted ores, resulting in the production of the limited amount of slag which we did find. A small quantity of slag may also have resulted from the repetition of the open hearth and crucible methods employed in the Wadi Arabah.

It should be mentioned in this connection that both on the surface and in the excavations of Tell el-Kheleifeh a coarse, handmade type of pottery was found that at the time was new to us, and that for a brief while

10. Albright, *AASOR*, XXI-XXII (1943), 22-4; *Bibliotheca Orientalis*, XXI (1964), 67; Wright, *Biblical Archaeology*, pp. 131, 170-1, and 185; *Shechem*, pp. 146-9; Macalister, *The Excavations of Gezer*, I, 199-202; McCown, *Tell en-Nasbeh*, I, 209; Kelso, *Interpreter's Dictionary of the Bible*, II, 838; Sellin and Watzinger, *Jericho*, pp. 67-68 and pl. IV; Tufnell, *Lachish*, III, 53 and 78; Starkey, *Palestine Exploration Quarterly*, LXIX (1937), 237; Wheeler, in Piggott, *The Dawn of Civilization*, pp. 244-5; Cross and Wright, *Journal of Biblical Literature*, LXXV, (1956), 225.

11. *AASOR*, XV (1935), 32-36; Rothenberg, pp. 12, 60-1.

12. *Rivers in the Desert*, pp. 58-9; Perrot, *Israel Exploration Journal*, V (1955), 80-3; Rothenberg, pp. 57-61; Hestrin and Tadmor, *Israel Exploration Journal*, XIII (1963), 286-8.

appeared to us to be utilized for crucibles. We soon abandoned this idea when it became apparent how common this pottery was on contemporary sites in the Negeb, as well as in the Wadi Arabah and at Tell el-Kheleifeh. Many of these crude, handmade vessels, with which appeared more familiar types of Iron I and early Iron II wheelmade wares, some of which seemed to have regional differences, had mat bases and knob or horn or ledge handles. We believe that this crude, handmade ware was largely the

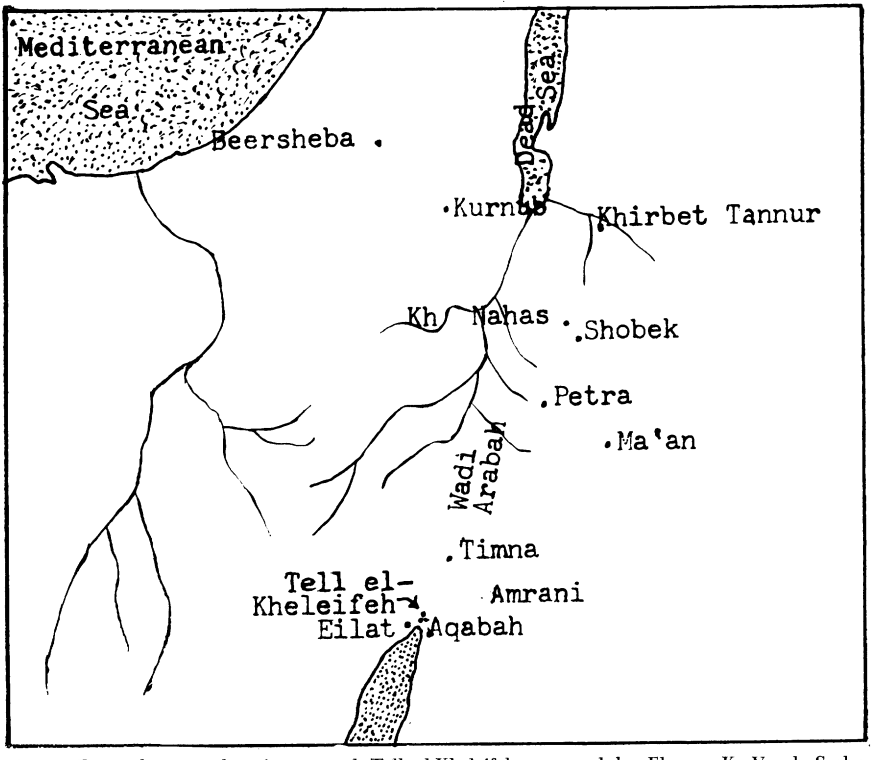

Fig. 4. Research map of region around Tell el-Kheleifeh, prepared by Eleanor K. Vogel. Scale: 47.35 miles to the inch.

work of Kenites, Rechabites, Calebites, Yerahmeelites and related inhabitants of the Negeb and the Wadi Arabah and is characteristic of much of the pottery of Iron I-II in an area comprising the Negeb, Sinai, the Arabah, and much of Arabia. Tell el-Kheleifeh was obviously a central point of that area.[13] Miss Caton Thompson found very similar pottery in Arabia, which, however, she dated to about 400 B.C.[14] The Kenites, who introduced the

13. *BA*, XXII (1959), 93-4; *BASOR*, 155 (Oct., 1959), 10-12; *Smithsonian Report for* 1941, p. 478; Aharoni, *Israel Exploration Journal*, VIII (1958), 241 and pl. 49-52; Rothenberg, *God's Wilderness*, pp. 124 and 137; Dothan, *Elath, 18th Archaeological Convention* (1962), pp. 105-8 (Hebrew).
14. Letter dated Dec. 18, 1938.

Israelites to the art of metallurgy, may also have had wheel-made pottery going back to the beginnings of Iron I, some examples of which we found in the Wadi Arabah.

It is clear, furthermore, that my original suggestion made years ago of how the copper ores in the Wadi Arabah were smelted needs to be changed and amplified in view of Rothenberg's clear demonstration of the smelting in the Wadi Arabah of crushed cupriferous ores in charcoal fires in shallow cavities with the utilization of tuyeres and bellows. By the same token, his discovery of numerous cisterns in the Wadi Arabah, which I had not found in my own expeditions, has added further valuable information to the growing body of knowledge of the past in the Wadi Arabah. His

Fig. 5. Ancient copper mine shaft at Timna.

finding of additional places where cupriferous sandstone or nodules of silica-bound copper-ores were mined is also helpful. Welcome too is the proof of Prof. A. Fahn of the Hebrew University, whom he cites, to the effect that the charcoal used in the initial smelting processes in the Wadi Arabah was made out of the native accacia there and not of the oak trees from the slopes of the hills of Edom, as I had originally surmised.

It should be remembered, however, that cupriferous ores were mined in many places on both sides of the Wadi Arabah, including, for example, more or less level areas in the Wadi Amrani and at Timna (Wadi Mene'iyeh). The ores were certainly not mined solely in the western escarpments above them. For example, in the earth stripping operations by the Israel Mining Corporation in the mid-1950's at Timna, we came across remnants of an ancient small mining shaft (Fig. 5) of the kind discovered by Fritz Frank in the Wadi el-Merah near the northwest end of the Gulf of Aqabah.[15]

Noteworthy too is the fact that in addition to the open hearth method of smelting copper in the Wadi Arabah, pottery crucibles were employed. Pieces of them, with slag still adhering to the inner surfaces, have been found by us in the Wadi Amrani.[16] It was a pleasure to show one particularly striking example in March 1965 to Père R. de Vaux.

The writer showed a fragment of a crucible found in the Wadi Amrani and submitted copper slag and ore specimens from there and from Timna to metallurgists of the Inland Steel Co. of Chicago, Illinois for examination. It is a pleasure also to express our gratitude to them and to the officers of the company for their helpfulness. In a letter of May 1, 1964, Dr. M. O. Holowaty, Associate Manager, Research and Development, Inland Steel Company expressed the belief that the metallic globules produced in the small, open hearth smelting operations had to be reprocessed in a "crucible in which the high temperature and the reducing atmosphere could easily be reproduced." In his report proper he writes in this connection:

> To demonstrate the type of process that could have been used to extract copper from the . . . ore, the submitted sample of ore (from the Wadi Amrani) was crushed, roasted and mixed with iron oxide and placed in homemade and commercial clay crucibles. The crucibles were then inserted separately in a bed of charcoal which was ignited and fanned by an air blower for a period of approximately one hour and twenty minutes. Charcoal was added periodically. When the contents of the crucible were melted, they were permitted to cool in the bed of glowing charcoal and ash. In both cases, a button of copper was produced as shown in the sample. The homemade crucible fell apart and cannot be sent for that reason. The sample was prepared in the commercial clay crucible.

In specific reply to my question as to how the coating of slag was formed on the inside of the refractory crucibles, Dr. Holowaty wrote:

15. Frank, pl. 46B.

16. *BASOR*. 159 (Oct., 1960), 13.

> The slag is formed just below 1900 F. The slag of the indicated composition is quite liquid at this temperature and readily coats the walls of the crucible.

Whether or not such crucibles were placed for charcoal firing (with the employment of hand bellows) in the numerous small stone structures that abound in almost every mining-and-smelting site in the Wadi Arabah,[17] as we believe, is a matter that requires further careful examination.

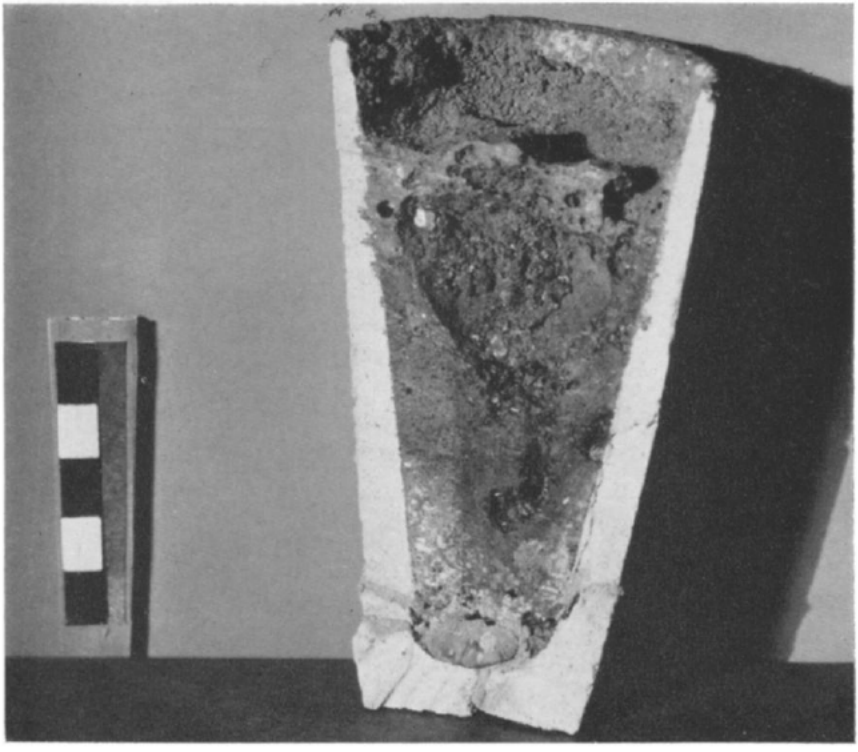

Fig. 6. A globule of copper at the base of a test crucible, with slag adhering to the crucible's inner surfaces. From the tests conducted by Dr. Holowaty of Inland Steel Company.

Assuming that this central building at Tell el-Kheleifeh was a citadel as well as a storehouse and/or granary, we find that a loosely packed, hard clay debris piled to approximately the same height on the floor of each room, served several purposes, helping preserve dryness and diminishing the heat caused by the weight of the supplies deposited. The fact that some

17. *AASOR*, XV (1935), 24, fig. 10; p. 27, fig. 12; cf. Rothenberg, *Palestine Exploration Quarterly*, XCIV (1962), 12, 15, 26, and 27, who believes they were tombs, having found burials in some of them. There is no evidence, however, of the time of origin of the burials, which may have come from much later times. See *BASOR*, 79 (Oct., 1940), 9-10 and fig. 4 for the type of "mastabah" grave excavated at Tell el-Kheleifeh.

of the middle rows of bricks of this building had been turned into the consistency of kiln-baked bricks may stem from the burning on more than one occasion of the roof timbers and their collapse onto the raised floor level or onto the supplies stored there, resulting in conflagrations that could easily have baked the rows of bricks with which the flames and resultant heat came into particular contact. This possibility has already been suggested by Rothenberg. The various wooden anchor beams inserted into the walls would also burn in such a general conflagration, helping to bake the bricks they touched.

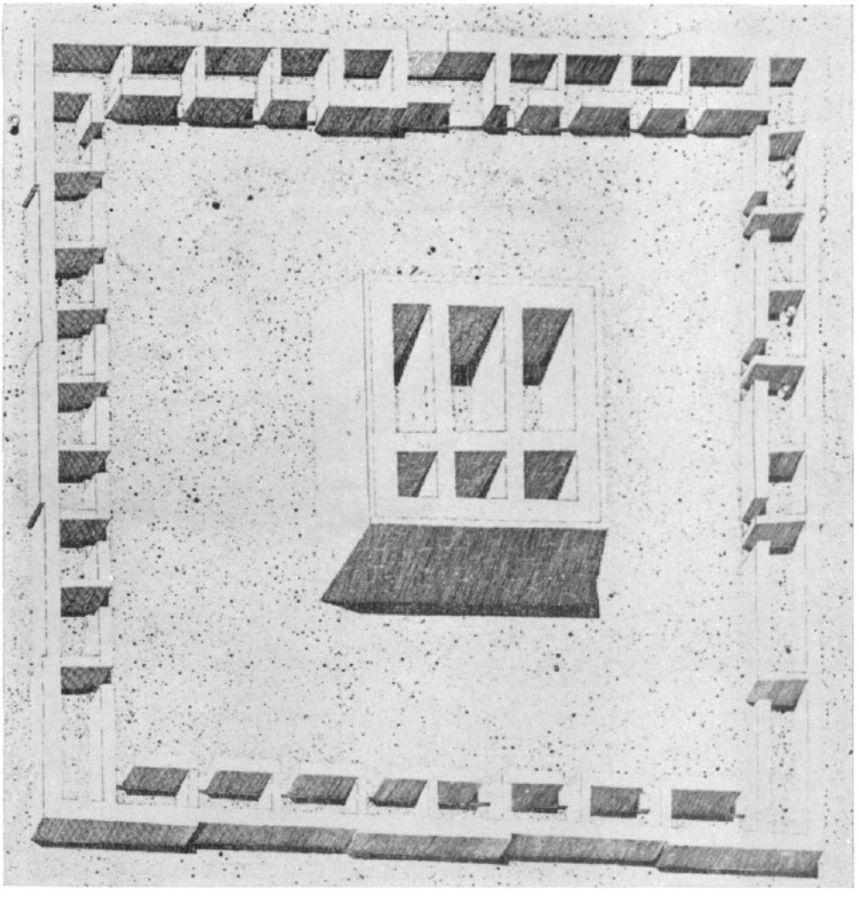

Fig. 7. Isometric view of period I fortified storehouse and glacis surrounded by casemate wall with salients and recesses, from Solomon's time.

This main building was considered so important that a sloping rampart of mudbricks was built against its outer sides, as mentioned above. It

is likely that the "storehouse-granary" of Period IA and the glacis built against it which had been assigned to Period IB belong together. Both utilize 16 by 8 by 4 inch mudbricks and could have been built within a comparatively brief span of time. Unlike the glacis of the major one of the double outer fortification walls of a later period, it is not tied into the walls of the "storehouse-granary" but is built against it as has already been mentioned.

Fig. 8. Part of the glacis built against outer east wall of storehouse-granary.

This well built structure, with its glacis, is located not quite in the center of a square enclosed by a fortification wall with its salients and recesses on its outer sides and casemate rooms against its inner sides.[18] Each side of the enclosure wall was 150 feet in length, divided into three slight salients and two recesses, each 30 feet in length. It was built of bricks somewhat larger (about 17½ by 9½ by 5 inches) than those of the "storehouse-granary" and its glacis; possibly an interval of time elapsed between the construction of the two, although only a short one. This case-

18. Albright, *AASOR*, XXI-XXII (1943), 15; *The Archaeology of Palestine*, pp. 121-2; Aharoni, *BASOR*, 154 (May, 1959), 38; Rothenberg, *God's Wilderness*, pp. 122, 123, and 137; Dothan, *Elath, 18th Archaeological Convention*, pp. 101, 104. Attention has been called correctly to the fact that what I originally designated workshops or foundry rooms are really casemate rooms; cf. Albright, *Archaeology and the Religion of Israel*, p. 136; Mashal, *Bulletin of the Israel Exploration Society* (*Yediot*), XXV (1961), 157-9 (Hebrew); Rothenberg, *Palestine Exploration Quarterly*, XCIV (1962), 53-4; Gichon, *ibid.* XCV (1963), 126, n. 54.

mate wall with its salients and recesses has been assigned to Period IC. If Period I AB can be attributed to the time of Solomon, then the Period IC wall should be assigned to the same period. The casemate rooms opening on the square had all been occupied at one time or another. In the middle offset of the south side of the wall was an eight-foot wide gateway with the outer entrance originally at the east end and the inner entrance at the west end. The gateway turned out to be in line with the massive one of a later, much larger, double, enclosing fortification wall, with both gateways pointing toward the sea.

The enclosure wall proper, including the salients, is about 3½ feet thick, and, with the casements, some 13½ feet thick. The recesses in the outer face of the wall are set back some 10 inches. Whether or not this casemate wall with its salients and recesses can be assigned, as we have assigned it, to the time of Solomon remains open to question.[19] Yadin's excavations at Hazor, as well as his findings at Gezer and Megiddo,[20] have made it possible to distinguish sharply between their casemate walls built by Solomon and the more massive and solid walls of later periods with their salients and recesses. Related to Solomon's casemate walls of Hazor, Gezer and Megiddo are those of Tell en-Nasbeh (Mizpah), Tell Beit Mirsim (Qiriath-sefer) and Beth-shemesh, probably of the time of David and those of Gibeah of the time of Saul.[21]

Ezion-geber I with its central structure and enclosing wall may have been destroyed by Shishak (the Egyptian Pharaoh Sheshonk) in the fifth year of Rehoboam, the son of Solomon (I Kings 14:25-26; II Chron. 12:2-4). At the beginning of Period II, a completely new series of massive fortification walls of mudbrick was erected on the ruins of Ezion-geber or its satellite, if that is what Tell el-Kheleifeh was. The glacis-strengthened central structure was no longer in the center of the site but at its northwest corner. The north and west sides of the former enclosure wall were built over by the new wall. It was largely weathered away particularly on these

19. The plan of this wall and all the plans of the excavations were drawn by the late Jacob Pinkerfield of blessed memory; see *Kedem*, I (1942), 57-60 (Hebrew). For the attribution of the fortress casemate walls at Ain el-Qudeirat (Qadesh-barnea) to the time of Jehoshaphat (871-849 B.C.) and possibly to the time of Uzziah (784-733 B.C.), see Dothan, *Elath* (1962), 116-7 (Hebrew); Yadin, *The Art of Warfare in Biblical Lands*, pp. 376-7; Aharoni in *God's Wilderness*, pp. 122-5. For the possible ascription of the casemate walls in the Ain Qadeis fortress to the time of Solomon or earlier, see Aharoni, *ibid.*, pp. 125 and 137-8. Yadin thinks that the Ain Qadeis citadel was apparently built by Jehoshaphat, although he does not exclude the possibility that it was constructed by Solomon; Yadin, *Hazor*, II, 3; cf. Gichon, *Palestine Exploration Quarterly*, XCV (1963), 125-6. The existence of salients and recesses is no proof in itself of post-Solomonic period construction. They can be traced back, like casemate construction, to pre-Iron age times; see Wright, *Shechem*, p. 75 and figs. 20 and 31; for Iron II salients and recesses, see Yadin, *Hazor*, II, 37, 47 and pl. CCV.

20. Yadin, *The Art of Warfare*, pp. 289-90, 372-8.

21. Albright, *AASOR*, XXI-XXII (1943), 12-14; *The Archaeology of Palestine*, pp. 21-2; Sinclair, *AASOR*, XXXIV-XXXV (1960), 12-14 and pl. 35; Yadin, *The Art of Warfare*, p. 290; Gichon, *Palestine Exploration Quarterly*, XCV (1963), 123 and 126. [On Gibeah, see now Lapp, *BA*, XXVIII (1965), 4. —Ed.]

sides at the time of our excavations as a result of the constant winds and sandstorms from the north. In general, the tell is better preserved at the south end than at the north end for the same reason.

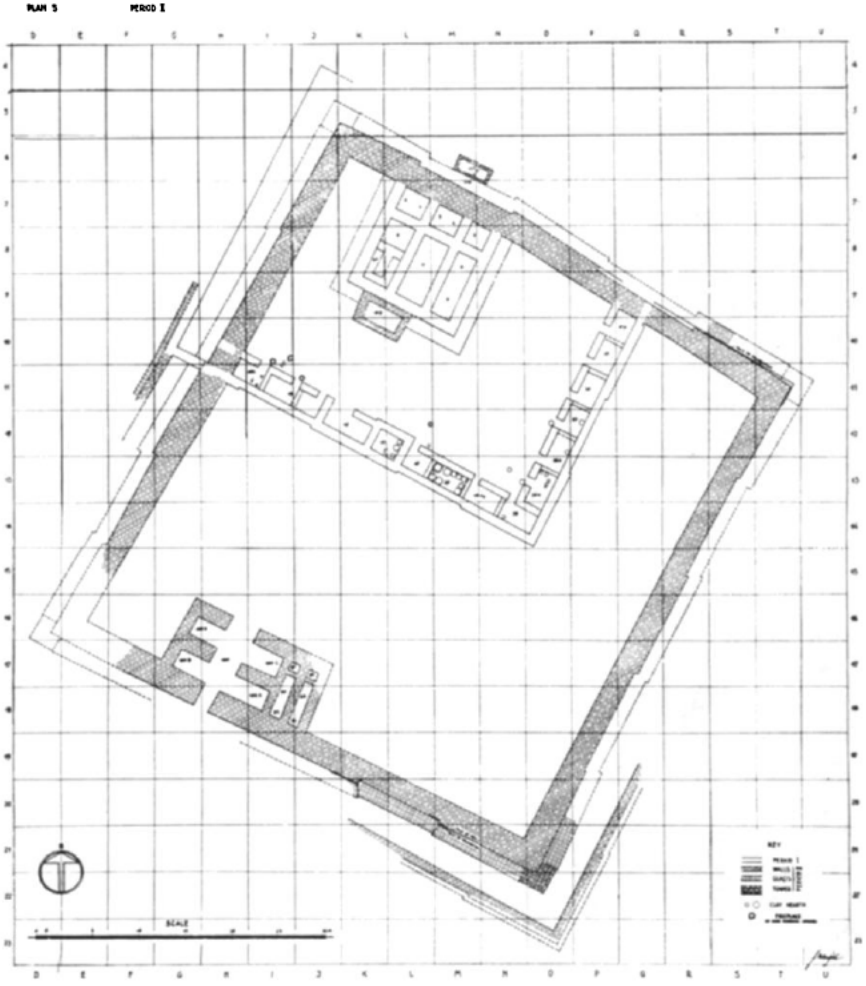

Fig. 9. Plan of period II, showing double outer wall with supporting glacis and massive gateway of Jehoshaphat's time. The wall was built in part over the north and west sides of the Solomonic building.

The new outer mudbrick fortification consisted of a large inner wall and a smaller outer wall, each strengthened by a glacis with a dry moat between the walls. The major inner wall, with its salients and recesses, further strengthened by a strong glacis with corresponding offsets and insets tied into it above its foundation levels, was a particularly massive affair. It was originally some 26 feet high, perhaps 6 feet wide at the top and

13 feet wide at the foundation base. About 10 feet beyond the base of its glacis was another but thinner outer wall, which seems to have mirrored the construction features of the inner one. The dry moat between the two walls was marked by a stamped clay and mudbrick floor. At the corners of the inside major wall were towers overlooking its supporting glacis. The scheme of double-walled outer defenses with a dry moat between the walls can be paralleled at the Moabite site of Khirbet el-Medeiyineh overlooking the Wadi Themed and at other sites.[22]

On the south side, near the southwest corner of the double-wall was a massive city gateway, with three pairs of doors and two opposite sets of guard-rooms between them. It is much similar to the massive gateway of city IV (IVA) of Megiddo, which Yadin has shown was built long after the time of Solomon, perhaps by Ahab. He has pointed out that at the end of the 10th century B.C. and the beginning of the 9th, the tendency was to reduce the entrance corridors of the Solomonic period from three chambers on either side to two chambers on either side, as evidenced at post-Solomonic Megiddo IV (IVA), Tell Halaf, Carchemish and now at Ezion-geber (Tell el-Kheleifeh).[23]

We believe that Period II may represent a reconstruction by Jehoshaphat of Judah, who reigned from about 871-849 B.C. He was the one who made the abortive attempt to revive the sea-trade between Ezion-geber and Arabia and Africa which had flourished during the reign of Solomon (I Kings 22:48; II Chron. 20:36, 37). As a result of the subsequent economic decline, coupled with the growing political weakness of Judah, the importance of Ezion-geber seems to have diminished. At any rate, after the time of Jehoshaphat, it is no longer mentioned in biblical literature.

Ezion-geber may have been destroyed during the successful rebellion of the Edomites against his son Jehoram/Joram (II Kings 8:20-22; II Chron. 21:8-10), shortly after the middle of the 9th century B.C. They were, however, not powerful enough to rebuild it and were probably not strong enough to renew copper mining and smelting on a large scale in the Wadi Arabah. Nor apparently was their economic and military strength sufficient to enable them to build a fleet of ships of their own and emulate the foreign trade activities of Solomon.

About half a century later, the Edomites again lost their independence to the Judaeans under Amaziah (*ca.* 803-775 B.C.).. He captured their great stronghold of Sela, (the Umm el-Biyara of modern Petra), which he

22. *AASOR*, XIV (1934), 13-15, 22-25; XVIII-XIX (1939), 119, fig. 45; *BASOR*, 79 (Oct., 1940), 7; cf. Sellin and Watzinger, *Jericho*, p. 6; Albright, *AASOR*, XXI-XXII (1943), 19; Wright, *Biblical Archaeology*, pp. 150, 169 and 170.

23. Yadin, *The Art of Warfare*, pp. 289-90, 323-5.

renamed Joktheel (II Kings 14:7; II Chron. 25:11-12). Ezion-geber remains unmentioned in the Bible and there is no reference to an Elath of that time. It was first during the reign of his very capable son Uzziah (Azariah) (775-734 B.C.) who "built towers in the wilderness (the Negeb) and hewed out many cisterns" there (II Chron. 26:10) that the name Elath appears or reappears. It is written that he "built Elath and restored it to Judah" (II Kings 14:22; II Chron. 26:1-2). This occurred probably early in his reign, shortly after the first quarter of the 8th century B.C. The new city he built is to be identified, we believe, with the one of Period III of Tell el-Kheleifeh.

Fig. 10. Brickyard of period II at Tell el-Kheleifeh.

Nearly seventy years had passed between the destruction and abandonment of Ezion-geber or its satellite town and the rebuilding of a new city on its sand covered ruins, with which in the interval the name of Elath became associated, as we have suggested. It preserved thus the name of the original Eloth (I Kings 9:26), that at the time of the Exodus and later may have existed farther east, either near or on the site of modern Aqabah. In any event, the occupational history of Tell el-Kheleifeh encompasses the histories both of Ezion-geber and Elath as delineated in the Bible, spanning the period between the 10th and 5th-4th centuries B.C.

It was in the Period III city of (Ezion-geber:) Elath that a seal signet ring, with the inscription "belonging to Jotham" was found. The reference is probably to Jotham, king of Judah, the successor of Uzziah. Underneath the inscription is a horned ram and in front of it an object that N. Avigad has brilliantly identified as the representation of a bellows.[24] This ring may well have belonged to the governor of Elath ruling in the name of Jotham. The representation of the bellows seems to testify to the continuation of metallurgical activities first inaugurated on a large scale by Solomon in the Wadi Arabah and of related industrial activities at Ezion-geber.

After the time of Uzziah and Jotham, Elath was to change hands once more. Taking advantage of the distress of Uzziah's grandson, Ahaz, during the Syro-Ephraimitic war in 733 B.C., the Edomites regained control of Elath. II Kings 16:6 has been emended to read: "At that time the king of Edom restored Elath to Edom and drove out all the Judaeans from Elath; whereupon the Edomites came to Elath and dwelt there unto this day." Having considerably damaged the city while retaking it, the Edomites proceeded to rebuild it. Their substantial new city is represented by Period IV at Tell el-Kheleifeh. With its several sub-periods, it lasted from about the end of the 8th century to about the end of the 6th century B.C. The freedom regained by Edom from Ahaz was never again threatened by Judah, which was not strong enough thereafter to dispute Edom's control over the Arabah and Elath. Edom itself, however, despite periods of efflorescence, apparently became progressively less able to take full advantage of its independence.

Stamped on the handles of a series of jars belonging to the first phase of Period IV, which probably extended well down into the seventh century B.C., was an Edomite inscription reading: "Belonging to Qausanal, the servant of the king." The first part of the theophorous name of Qausanal or Qosanal, namely Qaus or Qos is that of a well known Edomite and subsequently Nabataean deity and occurs also in the Bible (Ezra 2:53; Neh. 7:55). Belonging also to Period IV were fragments of a large jar, which was probably used for transporting incense and spices from Arabia. On two of its pieces were incised the first ancient South Arabic letters in Minaean script[25] ever discovered in a controlled excavation in greater Palestine. Other finds were made in the course of the excavations showing connections with Egypt, which were to be expected.

The Babylonian conquest brought an end to Edomite rule over the Elath of Period IV. It was destroyed before the end of the 6th century

24. *BASOR*, 163 (Oct., 1961), 18-22.

25. *BASOR*, 71 (Oct., 1938), 15, fig. 5; *Rivers in the Desert*, p. 162; Ryckmans, *Révue Biblique*, XLVIII (1939), 247-9 and pl. VI.

Fig. 11. Jars with stamp impression reading "belonging to Qos'anal, the servant of the king."

B.C. A new industrial city of Period V was built over it, which lasted from near the end of the 6th or from early in the 5th century down to the end of the 5th or the beginning of the 4th century B.C., mainly under Persian administration. Trade on an extensive scale was still carried on with Arabia as evidenced by Aramaic ostraca, including wine receipts.[26] And goods were exchanged between both countries and Greece as indicated by fragments of 5th-4th century B.C. black glazed Greek pottery. Tell el-Kheleifeh was abandoned thereafter and the subsequent Nabataean settlement was located farther to the east at Aila, close to present day Aqabah.

26. *BASOR*, 80 (Dec., 1940), 6-9; Albright, *BASOR*, 82 (May, 1941), 11-15; for other ostraca from the site see Torrey, *ibid.*, 15-16; Rosenthal, *BASOR*, 85 (Feb., 1942), 8-9.

The Biblical Scrolls from Qumran and the Text of the Old Testament

PATRICK W. SKEHAN

Catholic University

So many partial lists of Old Testament manuscripts from Qumran exist in the scholarly literature that it seems necessary to begin this account with