

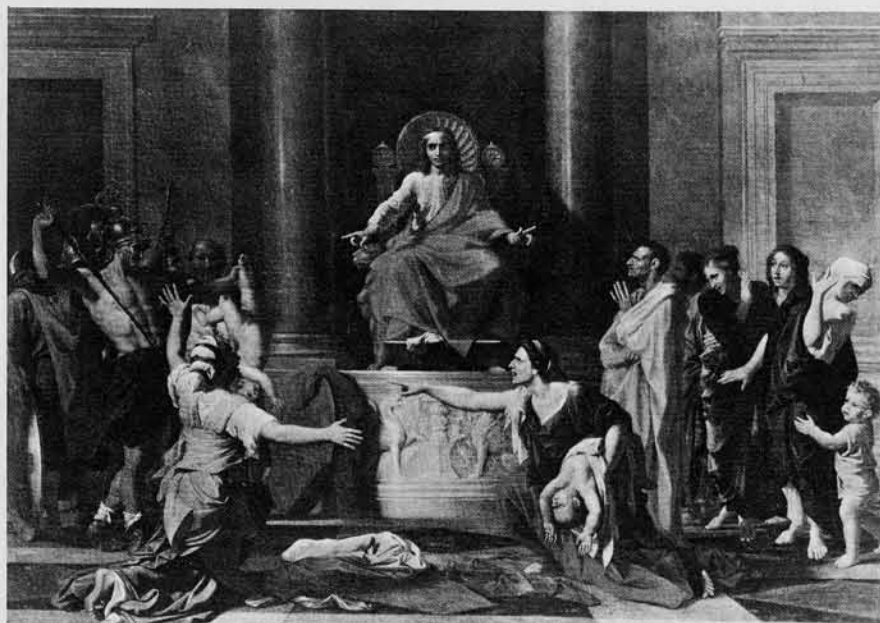
Solomon, the Copper King

A Twentieth Century Myth

JAMES D. MUHLY

King Solomon is one of those biblical figures known to almost everyone, regardless of religious persuasion or degree of spiritual belief. Most people have at some time in their lives heard stories about Solomon the builder, the architect of the first great temple for the worship of Yahweh in Jerusalem; Solomon the wise man, famous for his judgments and his ability to answer riddles; Solomon the lover, husband of many wives and author of the Song of Solomon, one of the most erotic books in the Old Testament; and Solomon the merchant prince, whose fleet sailed to the fabled land of Ophir every three years, and who sold horses and chariots "to all the kings of the Hittites and the kings of Aram" (1 Kings 10:29; see box).

Many people have also heard about one other aspect of Solomon's career, an aspect about which there is total biblical silence. Pick up any book on biblical archaeology or history, or any commentary on the Old Testament, and you will read about King Solomon's Mines: about Solomon the copper king and the great smelting and refining installations that he caused to be built at the head of the Gulf of Aqabah. Copper is seen as one of the mainstays of Solomon's wealth. The copper from Solomon's mines is also seen as providing the metal used in the building of the temple, as well as for all the utensils used in the temple services.



1
Solomon as wise judge and ruler was a frequent subject for Western artists. This scene was painted by Poussin in 1649. (The Louvre Museum, Paris)

The Bible does mention copper mining. Israel is described as a "land whose stones are iron and out of whose hills you can mine copper" (Deuteronomy 8:9), and the Book of Job gives an extraordinary description of ancient mining operations (Job 28:1-11). But of Solomon and his copper mines there is not a word. In this article we will examine what can only be described as the modern creation of a biblical tradition.

Genesis of the Myth

The story of Solomon the copper king seems to be primarily the work of one man, the American archaeologist Nelson Glueck (Fig.

2). Glueck was a scholar whose imagination certainly equaled that of the English novelist H. Rider Haggard, who had also invented a myth about Solomon, though in a very different way in a different part of the world. Haggard's mines, which produced diamonds, were set in Africa, Glueck's copper mines were placed in the southern Negev desert, in the region of the Wadi Arabah.

For three seasons (1938-1940) Glueck excavated at the site of Tell el-Kheleifeh, located at the northern end of the Gulf of Aqabah, midway between the modern cities of Aqabah in Jordan and Eilat in Israel. Today, a fence 6 meters east of the site's edge marks the

start of the neutral zone between these countries (Fig. 3). The site is a miserable, forsaken place: withering heat, blinding dust, and a constant wind that blows down from the desert to the north. An utterly desolate spot, yet Glueck saw it as a refining center for copper mined nearby, and the hub of Solomon's commercial empire.

When first discovered, Tell el-Kheleifeh was a low mound, covered with hummocks that marked the remains of ruined mud brick buildings. Through his excavations Glueck defined six major periods of occupation. The earliest settlement (Period IA) he dated to the time of Solomon, the 10th century B.C.; the latest (Period V), containing imported sherds from Greece, he placed in the 5th century B.C.

It was during Period I that Glueck saw evidence for industrial activity at Tell el-Kheleifeh. At the northwest corner of the site he excavated a large square building, measuring about 13 meters on each



2
The modern legend of Solomon the copper king originated in the archaeological research and writings of Nelson Glueck, shown here in Aqabah in 1940. (From the ASOR collection at the Harvard Semitic Museum)

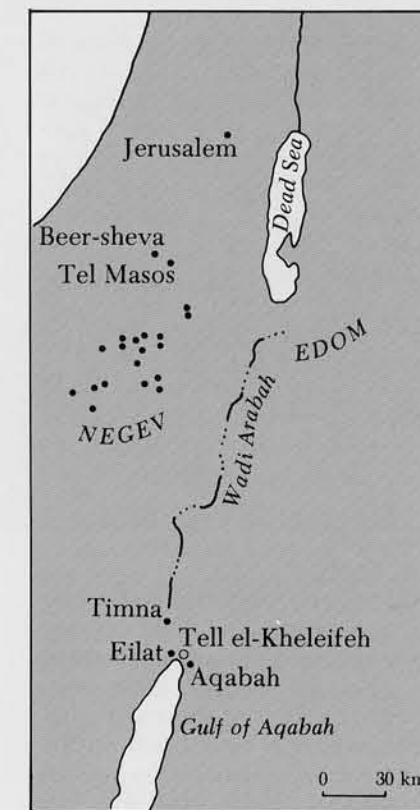


3a
Map of the Near East.

side (Fig. 4); it consisted of three long rectangular rooms, with a row of small square rooms adjacent to the north. Both inner and outer mud brick walls were pierced by two horizontal rows of holes ca. 70 centimeters apart (Fig. 5). According to Glueck, the upper row was interconnected by a system of air channels running lengthwise inside the walls. Glueck felt that the entire building must have served as a giant refining installation where smelted copper was refined for casting. The holes were a system of flues that provided a natural draft of air through the entire length of the building, the whole arrangement cleverly designed to take advantage of the relentless prevailing winds.

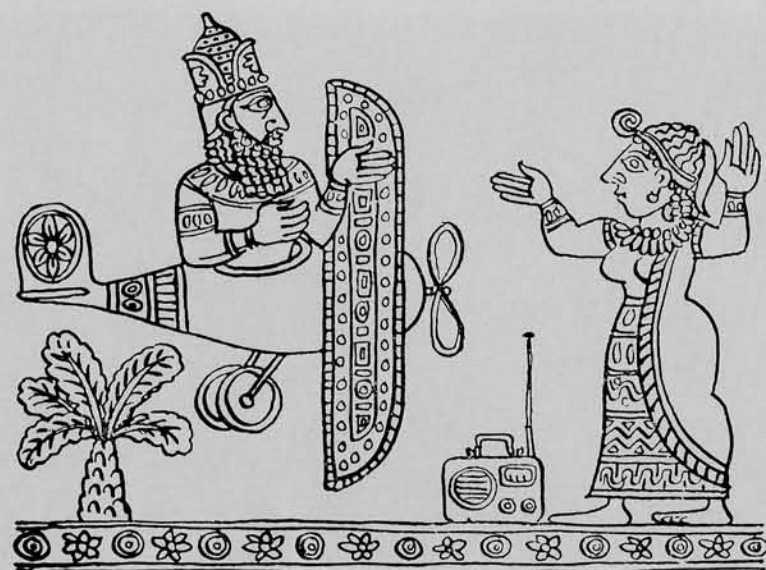
The actual smelting of the copper ore, Glueck reasoned, would have been at or near the site of the mines themselves, located up the Wadi Arabah. And surface surveys had in fact identified several copper smelting camps in the area surrounding Kheleifeh.

If Tell el-Kheleifeh was to be seen as an ancient Solomonic city on the Gulf of Aqabah, then it



• Iron Age fortresses (?)

3b
Map of the area around the Wadi Arabah.



"Solomon visiting Sheba," 20th century style. This cartoon by George Sprod appears in the memoirs of Sir Leonard Woolley (*As I Seem to Remember*, Allen and Unwin Ltd., London, 1962). It was apparently inspired by Woolley's conversation with Kurdish tribesmen, who asked how Solomon communicated with Sheba "if he didn't have writing, and how did he visit her if he didn't have aeroplanes?"

King Solomon in History and Myth

The career of Solomon, King of Israel, is known primarily through biblical references and traditions. The historical reality behind specific elements reported in these sources, however, varies greatly. Take Solomon's most famous characteristic, his wisdom. In the Old Testament, Solomon is described as a man to whom God gave "wisdom and understanding beyond measure" (1 Kings 4:29). He is credited with 3,000 proverbs and 1,005 songs (1 Kings 4:32; Proverbs 1:1). It is said that "Solomon's wisdom surpassed the wisdom of

all the people of the east and all the wisdom of Egypt" (1 Kings 4:30). His fame reached far and distant lands, and the Queen of Sheba came to Jerusalem to "test him with hard questions" (1 Kings 10:1). She concluded her trial of Solomon by telling him, "Your wisdom and prosperity surpass the report which I heard" (1 Kings 10:6).

Most of this description must now be considered as part of the Solomonic myth. Biblical scholars no longer hold Solomon to be the author of either the Songs of Solomon (also known as the Song of Songs) or of the Book of Proverbs. Nor is he the author of the Wisdom of Solomon (the *Liber sapientiae* in the Latin Vulgate edition of the

could only be identified as the city of Ezion-geber. The most circumstantial biblical passage concerning this place states that "King Solomon built a fleet of ships at Ezion-geber, which is near Elath on the shore of the Red Sea in the land of Edom. And Hiram sent with the fleet his servants, seamen who were familiar with the sea, together with the servants of Solomon; and they went to Ophir and brought from there gold to the amount of

"There was no biblical reference to Solomon's mining and smelting activities"

420 talents; and they brought it to King Solomon" (1 Kings 9:26-28).

Tell el-Kheleifeh is not located right on the sea, but is about 500

meters from the present shore of the Gulf of Aqabah. Once he had identified his site with Ezion-geber, Glueck concluded that Ezion-geber and Elath must be two names for the same place, since there wasn't room for two different settlements in the area. Accordingly, there must have been some port installation on the sea, as yet unexcavated, from which the ships of Solomon set sail for Ophir. Tell el-Kheleifeh owed its exact location

Bible), a Hellenistic Greek work written more than five centuries after Solomon's death. The Queen of Sheba still eludes us as a historical figure; her kingdom, however, has been located in south Arabia (modern Yemen), an area that is only now being investigated by systematic archaeological research (see Blakely and Sauer 1985).

Other parts of the biblical account pose historical problems, but they do seem to depict faithfully the international world of Solomon's time, the mid-10th century B.C. We are told that the prosperity of his kingdom came from Solomon's activities as a merchant prince. The archaeological and historical background for the Tarshish fleet presents the most intractable problems. According to the traditional account, this fleet sailed from Ezion-geber (in the Gulf of Aqabah), bound for Ophir (presumably located on the east coast of Africa in what is now Somalia). The fleet returned with a cargo of gold, silver, ivory, sandalwood, monkeys, and peacocks (1 Kings 10:11, 22). It is difficult to find any archaeological or historical evidence that would corroborate the existence of this trade. The term "Tarshish" has never been satisfactorily explained. We are not certain about the location of Ophir, and even the proper identification of the products brought from Ophir presents serious problems in translation from the Hebrew. Finally, the general nature of the trade as described in the Bible does not fit with what we know generally about international economic relationships in the 10th century B.C.

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4 Aerial view of the excavations at the desert settlement of Tell el-Kheleifeh in 1938. The tinted area shows the location of the square building. (From the ASOR collection at the Harvard Semitic Museum)



5 The mud brick walls of the square building at Tell el-Kheleifeh were pierced by two rows of holes. These holes, originally interpreted by Glueck as part of an elaborate system of flues for a giant refining installation, are more likely the remnants of wooden beams placed to protect the walls from earthquake damage. (From the ASOR collection at the Harvard Semitic Museum)

to the fact that the site had fresh water and was also perfectly situated to take maximum advantage of the winds blowing down the Wadi Arabah. Thus was born the 20th century version of King Solomon's Mines, of Solomon the copper king who created a great industrial center at the northern end of the Gulf of Aqabah, and was able to trade copper for the wealth of the land of Ophir.

Nelson Glueck was not a man plagued by angst or self-doubt. There was no biblical reference to Solomon's mining and smelting activities, but he was sure of his interpretation of the archaeological evidence. This situation produced the following remarkable passage from Glueck's very successful *Rivers in the Desert: A History of the Negev*:

It is impossible to figure out why the Biblical writers omitted this latter phase of Solomon's career from their records of history. Nor will it ever be known why, beyond the vague hint that there was copper and tin in the Promised Land, they failed to mention specifically the natural, mineral riches of the Valley of the Smiths as the Arabah may have been called on occasion. And, lastly, by the same token, it is idle to speculate why they refrained from mentioning that Ezion-geber:Elath was not only Israel's only seaport, but also, for its day and age, one of the largest, if not the largest of the metallurgical centers in existence. (1959:157)

Apparently it never occurred to Glueck that the simple explanation for this seemingly anomalous situation was the falsity of his own interpretation. In the following sections we will examine specific aspects of this interpretation in the light of more recent archaeological research.

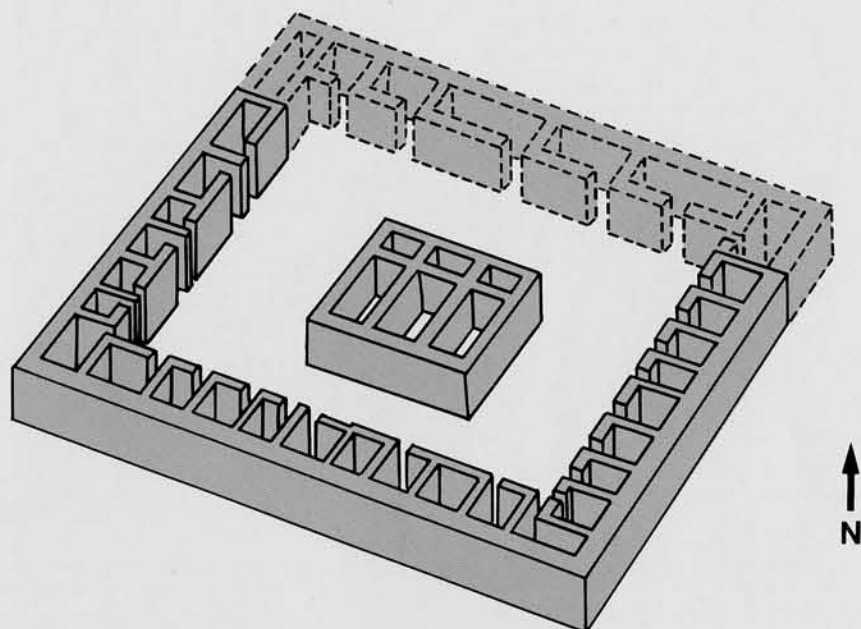
Kheleifeh: "The Pittsburgh of Palestine"

Glueck himself was uncertain as to the precise details of the metallurgical activities at Tell el-Khe-

leifeh. His first published report saw the square building as a basic smelting installation, used to separate copper from other substances within the copper ore: "...the ore to be smelted was placed in... crucibles in all of the rooms of the smelting plant, then charcoal was placed around and over the crucibles, and the rooms fired in successive order" (*Illustrated London News* 39, [July] 1938:212). He quickly realized, however, the impossible nature of his own interpretation. No copper smelting installation that has been documented, from ancient times right up to the present day, ever operated on such a scale. Moreover, the primary smelting of copper ores produces great quantities of slag. As a rule, the ratio is about 10:1, that is, 10 kilograms of slag for every kilogram of copper. Glueck did find small pieces of what he called copper smelting slag, but not the quantities needed to justify the identification of Tell el-Kheleifeh as a copper smelting installation. Nor, it must be pointed out, has any of this "slag" ever been analyzed, so its very identification must remain in doubt.

By the time of his report to the Smithsonian Institution (co-sponsor of the excavations, along with the American Schools of Oriental Research) published in 1941, Glueck had decided it was "evident that the building was an elaborate smelter or refinery, where previously 'roasted' ores were worked into ingots of purer metal" (1941:458). It is not clear just what he had in mind since he refers to processing "layers of crushed ore" with piles of charcoal (1941:459), which certainly sounds like a smelting rather than a refining operation. Glueck, in fact, continued to refer to "smelting," to the excavated building as "the smelter," and to the "smelter-refinery" (1941:465).

The presence of holes or "flues" was central to Glueck's interpretation of the square building. There was, however, a problem: in Period IB at Tell el-Kheleifeh, the square building was refurbished, and a sloping reinforcing wall or "glacis" was built up against its outer walls—thereby putting the flue system out of operation. Nevertheless, Glueck



6 Plan of the Period I occupation at Tell el-Kheleifeh. The casemate wall surrounding the small central building is typical of Iron Age fortresses in the Levant. (After Pratico 1986)

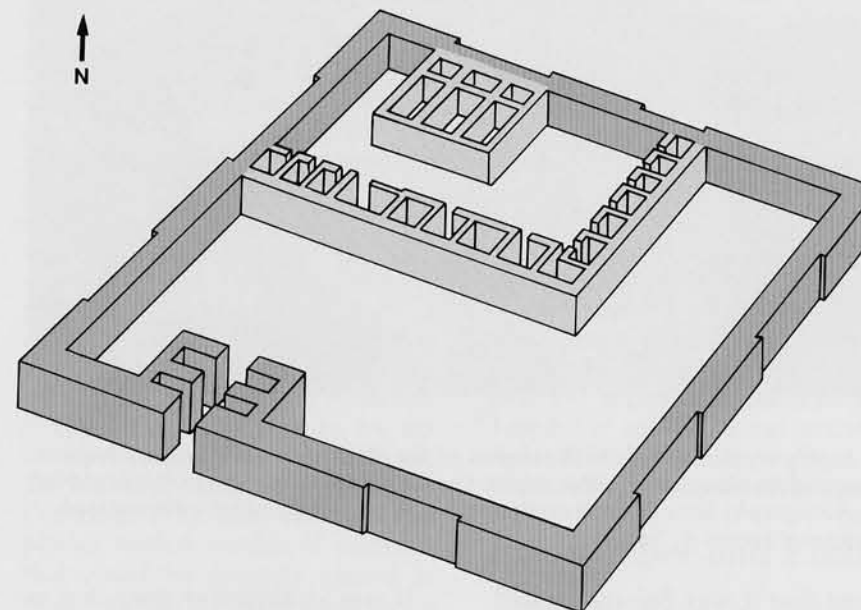
was sure that the metallurgical operations at the site continued: "Just how the necessary draft was furnished for the furnaces is not clear to us. One thing is certain, namely, refining and, to a degree, smelting operations were continued in the smelter-refinery" (1941:464).

The total demolition of the mythical smelter-refinery was carried out by Beno Rothenberg, Glueck's chief assistant and photographer during six years of survey in the Negev during the 1950s. As Rothenberg worked on the Negev material, he became more and more aware of the ambiguities and inconsistencies that permeated Glueck's interpretation, and in 1962 he published his reinterpretation of the site of Tell el-Kheleifeh.

Rothenberg raised a whole series of technical objections to Glueck's concept of the square building as a smelting/refining furnace installation, most of them very well founded. First, he was sure that the so-called flue holes were not to provide natural draft for the furnace, because if that were the case, then why were the holes present in all four walls of the building? The winds blew down from the north,

but what were the possibilities for draft on the other three sides of the building? Second, the so-called furnace rooms were, in fact, enclosed on all four sides, there being no way to enter a room in order to remove the crucibles from the charcoal. Third, the so-called crucibles found inside the square building were not anything like such objects as known from other sites. This lack of similarity was explained when the crude, smoke-blackened sherds that Glueck interpreted as containers for hot ore or metal were identified as ordinary handmade cooking ware, known from Iron Age sites all over the Negev.

And so it went. Rothenberg's attack was relentless and thorough. After reading his article no one could still believe in Tell el-Kheleifeh as a copper smelting or refining installation. Nelson Glueck, being a very perceptive as well as an eminently decent scholar, immediately saw how far he had gone wrong, and he admitted so in print in 1965. Glueck himself even solved the problem of the flues. The answer was deceptively simple: the holes in the walls represented the



7 Plan of the Period II occupation at Tell el-Kheleifeh. The Period I square building and part of the casemate wall shown in Figure 6 are still standing within the later fortification walls. (After Pratico 1986)

openings left by burnt-out wooden beams that had once been there. The architect of Tell el-Kheleifeh employed a technique of building in mud brick and wood, a technique well known across the eastern Mediterranean. The Greeks call it *xylodesia*, and the common belief is that the combination of wood and mud brick serves as protection against earthquake damage. Spacing timber beams between rows of mud brick is supposed to give the walls of a building greater resiliency in withstanding shock. Glueck also suggested a new function for the square building, as a storehouse or granary.

At the same time, Glueck admitted that he had misinterpreted the overall plan of the settlement in Period I. A series of small rooms near the square building that he had designated as workshops or foundry rooms were instead compartments within a casemate fortification wall. The square building was in fact located in the center of a

square courtyard, enclosed by this fortification wall (Fig. 6).

Casemate fortification walls are a common feature of the early Iron Age throughout what is now Israel and Jordan. How could Glueck have gone so far wrong? Surely every excavator worth his salt should be able to identify a casemate wall when he uncovers one! The answer to that is yes, every excavator in the 1980s should be able to recognize this type of architecture. But Glueck was working within the context of the 1930s, a period when very little was known about the Iron Age archaeology of the Levant, or about casemate fortifications in this region. At Kheleifeh, a major rebuilding of the settlement in Period II had destroyed part of the casemate wall (Fig. 7), and the rest of it had later been incorporated in a series of densely packed buildings (Fig. 8). Thus for Glueck, working without established architectural patterns, the plan of the early fortress at the site remained hidden.

Kheleifeh: Desert Fortress?

If the excavations at Tell el-Kheleifeh are evaluated within the



8 Aerial view of Tell el-Kheleifeh at the end of excavation in 1940. Most of the exposed buildings date to the second period of occupation, between the 8th and early 6th century B.C. (From the ASOR collection at the Harvard Semitic Museum)

context of our current understanding of Iron Age archaeology in the Negev, the picture is at once more intelligible but also more complex. The outstanding feature of the Iron Age in the Negev is the existence of from 45 to 50 so-called fortresses, scattered across the landscape but concentrated in the highlands of the central Negev. These installations or settlements have been the subject of a great deal of scholarly research over the past twenty years. All aspects, including dating, identification of builders and inhabitants, and site function, are being hotly debated, and at present there is no consensus. Yet Tell el-Kheleifeh must somehow be related to these "fortresses," as they clearly constitute the dominant feature of life in the Negev during the Iron Age.

In 1967 Yohanan Aharoni, who pioneered archaeological work in the Negev following the Second World War and the creation of the state of Israel, proposed that these forts served as a prototype of the Roman military camps that guarded the boundaries or frontiers (Latin *limes*) of their empire. Just as the Romans put a string of fortified military camps (Latin *castra*) across the Germanic frontier or along the circuit of Hadrian's Wall, so Solomon designed his own *limes* system, building a string of fortresses along the roads leading south from Beer-sheva in order to protect his interests in the Gulf of Aqabah and the valuable trade routes connecting his kingdom of Israel with Arabia and lands beyond the sea.

Aharoni was convinced that these installations were fortresses, that they were Israelite, and that they dated from the time of Solomon and were to be seen as but one aspect of the imperial designs of that ambitious and powerful monarch. The years that followed added many new sites to the list of such forts, and scholars presented variations in classifying the different types of forts, but the basic idea of a Solomonic defense line remained intact.

Obviously such an interpretation fitted in very well with some of Nelson Glueck's ideas regarding Tell el-Kheleifeh. His Ezion-geber might not be a smelting-refining installation, but he was still con-



9 The highly eroded terrain in the region of the Wadi Arabah. Ancient copper mines and smelting sites in this region (such as Khirbet Nahas, in the center of the photograph) have been investigated by the Timna Project. (Photograph courtesy of James A. Sauer)

vinced that it was Solomonic and was to be connected with Solomon the merchant prince and the Tarshish fleet that brought the wealth of Ophir to Israel at three-year intervals. Surely it must have been necessary to store and to protect goods at the harbor (hence the fortress at Tell el-Kheleifeh). And all those isolated fortresses out in the Negev desert were surely intended to protect the shipment of goods between Jerusalem and Ezion-geber.

It was an attractive story, but as with Solomon the copper king, the whole edifice has now been brought to ruins by the onslaught of revisionist scholarship. The Negev sites in question are no longer considered to be fortresses, are no longer considered as Israelite, and are considered *pre*-Solomonic in date. What seemed so convincing just a short time ago (e.g., Cohen 1985) has now been challenged on every single detail. Poor King Solomon—there was little left that

	ARCHAEOLOGICAL PERIODS	BIBLICAL CHRONOLOGY	EGYPTIAN CHRONOLOGY
1300 B.C.	Late Bronze IIB	Moses	Ramesses II (1279-1212) Merneptah (1212-1202)
1200	Iron IA-B	Period of Judges	Ramesses III (1182-1151) Ramesses V (1145-1141)
1000	Iron IC or Iron IIA	United Kingdom (David and Solomon)	Shishak (945-924)
925	Iron IIA or IIB	Divided Monarchy (Jehoshaphat of Judah—870-848) (Ahaz of Judah—736-716)	
721			

with any confidence could be dated during his reign.

What made all these fluctuations and disagreements possible, almost inevitable, was the paucity of well-dated material from any of the Negev sites. Even pottery was relatively scarce, and what was found, both handmade and wheelmade wares, could not be dated with any precision. *Everything was thought to be Solomonic because everyone knew about Solomon.* He was the ruler whose presence in the area was best recorded in the Old Testament. All of these sites must date to the time of Solomon because, from a historical point of view, such a dating seemed to fit so well. Then came the excavation of Tel Masos.

The largest site ever to be excavated in the Beer-sheva basin, Tel Masos presented its excavators (Volkmar Fritz and Aharon Kempinski) with a wealth of material that could be securely placed in time. Stratum II at Tel Masos, dated from the second half of the 12th century to the end of the 11th century B.C., provided at last the comparable material for dating almost all of the sites in the Negev highlands. These sites, including Masos, could now be seen as coming to an end prior to the reign of Solomon.

Nor was Tel Masos an Israelite site. It is almost certainly to be identified as the capital city of the Amalekites, a people presented in the Bible as plunderers and bandits against whom the Israelites finally carried out a war of genocide during the reign of Saul (ca. 1020-1000 B.C.). The basic biblical source for the extermination of the Amalekites is 1 Samuel 15:1-34, and there we read of the "city of Amalek." As modern biblical scholars have long been convinced that the Amalekites were nomadic bedouin, this reference to a city had been considered as some sort of scribal error or later textual corruption. But the sedentarization of the Negev nomads is the most important historical development of the 12th and 13th centuries B.C., a process that resulted in the building of Tel Masos Stratum II, and all of the settlements in the Negev highlands.

Such is the thesis of the brilliant

young Israeli scholar Israel Finkelstein, building upon the earlier work of Beno Rothenberg. Just as it was Rothenberg who first challenged the interpretation of Tell el-Kheleifeh as a copper smelting site, so it was Finkelstein who first argued that the Negev "forts" were not Israelite, but were to be attributed to the local inhabitants of the Negev, known in the Bible as Amalekites and Kenites (1 Samuel 15:6). According to Finkelstein it was the growing prosperity of the late 2nd millennium B.C. that encouraged the nomadic inhabitants of the Negev to settle down and take control of the rich trade that passed north-south across the desert. Tel Masos has produced evidence for metallurgical activity, and it is likely that copper from the Wadi Arabah was part of this trade.

Ezion-geber and Elath

But what about the location of Ezion-geber and Elath? Here, at least, the activities of Solomon seem to be clear: "King Solomon built a fleet of ships at Ezion-geber, which is near Elath on the shore of the Red Sea, in the land of Edom" (1 Kings 9:26). Once he had identified Tell el-Kheleifeh with Solomon's port, Glueck had suggested that the names Elath and Ezion-geber referred to a single place (see above).

It seems more reasonable to argue that the biblical passage preserves for us the name of a town (Elath) and its port (Ezion-geber). An inland location was not uncommon for so-called harbor towns of those times; ancient Ugarit, modern Ras Shamra in Syria, is an excellent example of an inland commercial maritime site, served by its port of Minet el-Beida on the sea. Moreover, a second biblical reference also suggests that Ezion-geber was a harbor. According to 1 Kings 22:47, in the reign of King Jehoshaphat, the Tarshish fleet did not make it to Ophir "for the ships were wrecked at Ezion-geber." If this interpretation of the texts is correct (and if one is going to insist on a biblical identification for the site), then Tell el-Kheleifeh could be the ancient town of Elath based on its geographical location.

The archaeological evidence from Tell el-Kheleifeh rules out this site as Ezion-geber, but supports its identification as Elath. The site has a long Iron Age occupation, dating to the time of Solomon at the earliest, down into the 4th century B.C. The biblical references to Ezion-geber suggest that this site had its importance in the early years of Israel's history, from the days of Moses (Numbers 33:35-36; Deuteronomy 2:8) to those of Solomon. No biblical references to Ezion-geber suggest that it was still occupied as late as ca. 400 B.C. Elath, on the other hand, may have been a functioning settlement at that time. In 2 Kings 16:6 (referring to the reign of Ahaz, king of Judah, and Tiglath-pileser III, king of Assyria), events of the year 735 B.C. are described. We read that "... the king of Edom recovered Elath for Edom, and drove the men of Judah from Elath; and the Edomites came to Elath, where they dwell to this day." Solomon's port of Ezion-geber, where any ship-building facilities would surely have been located, is thus still awaiting the spade of the archaeologist.

The Timna Project

But what about Solomon's mines? Curiously enough Glueck never took any great interest in dating the evidence for mining operations in the area nor did he ever undertake any real investigation of the vast heaps of copper smelting slag to be seen at Transjordanian sites such as Feinan (ancient Punon) and Khirbet Nahas ("Copper Ruin"). He simply refers to the wealth of copper ore deposits in the Wadi Arabah and to the abundant evidence for local mining and smelting. For Glueck, his image of Solomon the copper king seemed to require only the establishment of local sources of raw material.

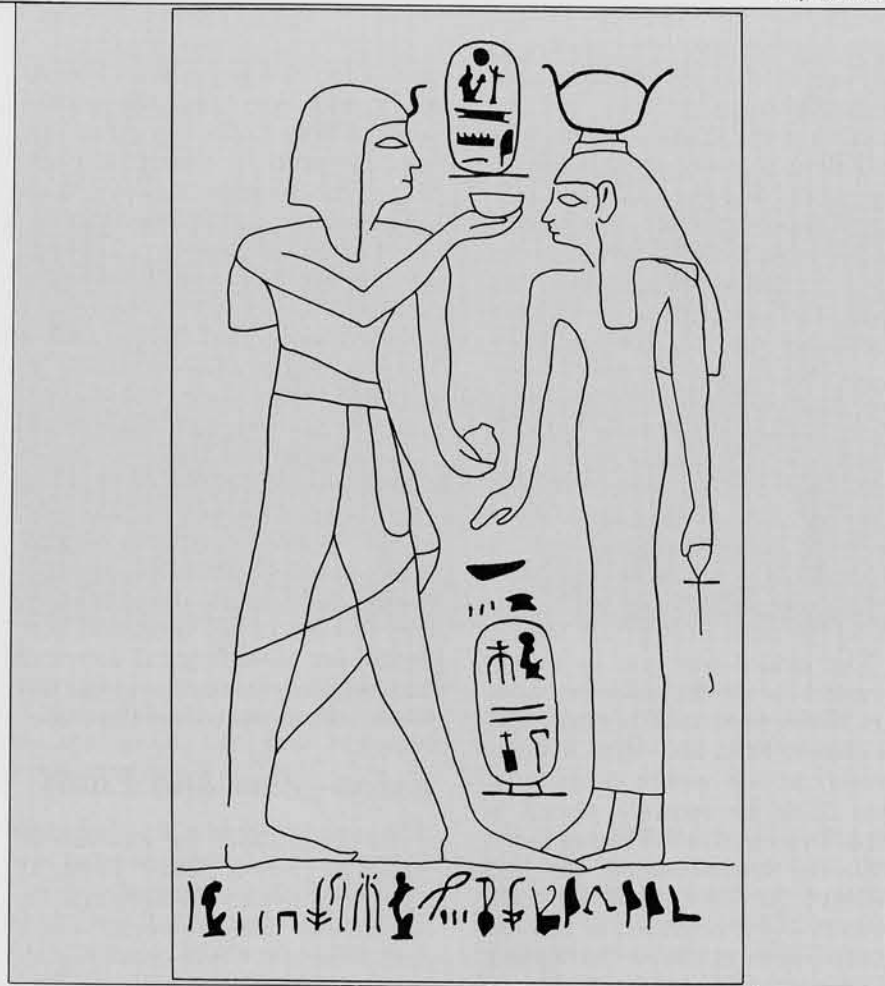
This aspect of the problem—the dating and nature of the activity at all of these local mining and smelting sites—is precisely the aspect that most fascinated Beno Rothenberg. Was it possible to show that the local mining and smelting activities were in fact

contemporary with operations at Tell el-Kheleifeh? More important, if all these industrial operations were at their height during King Solomon's time, then why did the biblical accounts completely ignore this vital aspect of his reign? It seemed very unlikely that the biblical historians would single out Solomon's use of Ezion-geber as a port for his Tarshish fleet while ignoring the major industrial activity going on all around the area. Thus began Rothenberg's Timna Project.

I have discussed elsewhere the history of the Timna Project, and the results of research underway since 1959 (Muhly 1984), and it would greatly complicate our story to repeat the material here. It seems far more advantageous to concentrate upon but one aspect of Rothenberg's work: his dating of metallurgical operation in the Wadi Arabah, including mining, smelting, refining, and casting. Tied to this issue is a new problem, the identity of the people carrying out all this industrial activity. Were they Israelites, Egyptians, Midianites, Kenites, or do we lack the evidence to make such an identification?

As part of the Timna Project, Rothenberg carried out a detailed investigation of ancient copper mines of the Wadi Arabah, especially those in the vicinity of the Timna Valley. He too discovered that what had been attributed to the reign of Solomon must in fact be dated to the centuries just prior to his reign. The mining activities in the area were clearly under Egyptian control, with inscribed Egyptian objects, a rock-cut inscribed Egyptian relief (Fig. 10), and even an Egyptian temple to the goddess Hathor. All the Egyptian inscriptions came from the reigns of 13th and 20th Dynasty pharaohs, from Rameses III to Rameses V (ca. 1182-1141 B.C.).

The famous Papyrus Harris from the reign of Rameses III even refers to an expedition sent to the copper mines in the land of Atika, almost surely to be located in the southern Negev. The copper mines of Atika would then be equated with those of the Wadi Arabah. The Pharaoh states that his officials "sent forth my messengers to the country of



10 During the 12th century B.C. mines in the Wadi Arabah were established by the Egyptian pharaohs. One of the rock-cut reliefs of this period shows Rameses III making an offering to the goddess Hathor. (Drawn by Gil Stein after Conrad and Rothenberg 1980: Fig. 230)

Atika, to the great copper mines that are in this place. Their galleys carried them. Others, on the land journey, were upon their asses.... Their mines were found abounding in copper. It was loaded by the ten-thousands in their galleys. It was sent forward to Egypt and arrived safely" (Papyrus Harris). The logical interpretation of this passage would be that personnel went by sea while heavy mining equipment was carried across the Sinai by pack animals. The Wadi Arabah is one place logically reachable from Egypt by sea as well as overland.

What this means is that all the trade and building activity once associated with the reign of Solomon did indeed take place, but it all happened before Solomon had even been born—in the 12th and 11th centuries B.C. Over the past twenty years, Aharoni, Cohen, and others have argued that the Negev trade

and life in the hill forts came to an end with the Palestinian campaign of the Egyptian pharaoh Shishak (Shoshenq I) in 925 B.C. It would now seem that it was the rise of the United Monarchy of Israel, under Saul, David and Solomon, that caused the balance of power to shift northward, resulting in the collapse of the indigenously controlled Negev trade routes and the abandonment of the highland settlements.

The logical conclusion to all this would be to date Tell el-Kheleifeh in the 12th-11th centuries B.C. Alas, such a dating finds no support in the archaeological evidence from the site. A re-examination of the Tell el-Kheleifeh pottery by Gary Pratico (1985) recognizes only two major phases of occupation at the site: the casemate-walled fortress, followed by a larger, more densely built up fortified settlement (see Fig. 9). Most of the pottery from the

site (corresponding to both of these phases) is dated between the 8th and 6th century B.C. (Later material, dating up to the 4th century, comes from the surface and fragmentary architectural remains.) This means that nothing remains in the Wadi Arabah and the Gulf of Aqabah—neither mining site, nor smelting site, nor storehouse/granary, nor port—that can be associated with the reign of Solomon.

It could be that Tell el-Kheleifeh should, in fact, be compared to such Iron Age II Negev sites as Tell 'Ain el-Qudeirat (perhaps the biblical Kadesh-barnea) and Kuntillet 'Ajrud (modern Horvat Teiman), where spectacular discoveries have been made within the past ten years. But that story has nothing to do with King Solomon's Mines.

The Power of Imagination

Every field archaeologist knows that it is very difficult to study an excavated site in isolation. An understanding of the remains uncovered at a particular site comes through comparison with what is known from other sites in the same area and from the same period. It is through such detailed and painstaking study, carried out over many years, that the archaeologist begins to develop a feeling for the material, and a sense of what is possible, what not possible. In the Negev in the 1930s Glueck was working alone in an uncharted, little-studied part of the world. It is not surprising that he often went badly astray.

What is surprising is the independent life and vitality of Glueck's mistakes. Once it had been demonstrated that he was wrong, Glueck was prompt to admit, in print, the magnitude of his interpretive errors. Yet despite this retraction published more than twenty years ago, virtually every book on biblical archaeology and every Bible commentary published contains the modern myth of King Solomon's Mines and Solomon the copper king.

That such an interpretation still lives on in the popular literature,

and even in the publications of many scholars who should know better, is further proof of a well-known phenomenon. Once an idea has caught the imagination of the general public and found its way into what we can designate as the

general store of knowledge or information common to all educated people, it is very difficult to throw out that idea or alter it in any significant way. To try to do so is to take on the basic stubbornness of human nature. **21**



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