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### THREE DOLMEN SITES IN JORDAN

As one drives north in Jordan from the Dead Sea along the highway paralleling the Jordan River on the east, he sees off to his right dozens of dolmens lining the near ridges. A dolmen is a megalithic building, a man-made, hut-like structure consisting of a single massive stone resting on two or more other such stones, or some variation on this theme.

There are many dolmen fields in Jordan. The experience of driving beside these intriguing remnants of some former civilization is by no means restricted to the Jordan River valley. One gets the same effect in driving east from the southern tip of the Lake of Galilee to Irbid in north-central Jordan, in driving from Jericho east to Amman, in driving from Amman northeast to Mafraq or south to Kerak. It is intriguing that there are no known dolmens south of Kerak although my friend, Dr. Gus W. Van Beek of the Smithsonian Institution, found a dolmenic structure in Wadi Hadhramaut, hundreds of miles to the south (Van Beek, personal communication, 1968).

The Near Eastern dolmens are not isolated phenomena, of course, dolmenic structures being known from Sweden and the British Isles south to Portugal, then east across the width of Asia to Korea and south to India. Relationships between the dolmens of Jordan and those of other lands are naturally closest with those areas that, except for the accidents of political boundaries, would be one land, Israel, for instance, and Syria. This relationship is closest with Syria, such a site as that of Irbid being more or less a southerly extension of massive Syrian dolmen fields to the north, but such Israeli dolmen fields as Shamir and Korazim are neither far away nor very different.

But political boundaries are a fact of life, and it is with the Jordanian fields that I have been most involved and in which I have been most interested. Genesis of my dolmen studies was in 1959 when, on my return from a tour in Jordan on another project, Prof. James L. Kelso, an experienced Palestinian archeologist then teaching at the Pittsburgh Theological Seminary suggested I investigate them. I was astonished, for it was my impression that there was no sort of Palestinian archeological phenomenon that had not been thoroughly probed. Kelso said that most examinations of archeological materials in Palestine had been of Biblical sites. Dolmen investigations had

been cursory and not productive of enough information for establishing chronologies or cultural associations to attract the attention of the usual sort of archeologist working in Palestine.

Kelso's reason for wanting me to undertake the research was interesting. There are no literary references contemporary with dolmen building in Palestine, and there are none with which to equate American Indian sites older than the coming of the European. Kelso believed that a person with experience in working American Indian sites could apply the techniques one must use with that sort of cultural phenomenon to study of dolmens in Palestine.

I queried Prof. William F. Albright, at that time dean of living American Biblical archeologists, respecting Kelso's suggestion. Albright corroborated Kelso. Who had built the Palestinian dolmens, when, and how, and for what purpose, and what relation they had to known dolmen areas in other countries were problems yet to be solved. Albright, too, thought an Americanist might do a better job at solving the problems than would the usual Palestinian archeologist.

A survey of pertinent literature made during the last months of 1959 and the early days of 1960 convinced me Kelso and Albright were correct. Pertinent objective literature as opposed to largely speculative references was by Albright, Nelson Glueck, G. Lankester Harding, C. R. Conrad, H. B. Tristram, Gottlieb Schumacher, Moshe Stekelis, and Edwin C. Broome, Jr. To none of these but Stekelis and Broome were dolmens of major concern, and at the time Broome wrote his Ph.D. thesis on dolmens in 1940, he hadn't seen a dolmen in the field but had worked only from literature. Obviously, there was work to be done.

Returning to Jordan in 1960, although not yet beginning dolmen studies, I observed sites and structures with far more care than I had in 1959 because if I were seriously to take up their study, I would have to devise field techniques appropriate to the dolmen fields and structures. Two years later, from 15 March through 15 April 1962, I led a small party in a survey of dolmen fields on both banks of the Jordan River in Jordan, and in intensive study of three sites on the east bank of the river.

The survey was the basis of the 1962 work. It was not intensive, was subjective, in that for ten days I toured the west and east bank sites within several miles of the river in order to learn whether all the dolmens in all the sites were uniform or not, and to soak myself in general impression of their form and types.

Learning that not all fields were alike and that not all dolmens in even one field were alike, I chose three dissimilar sites reasonably near each other on which to work. They were Damiya, Umm el Quttein, and El Matabi. Results of the work were published in detail in 1965 in the Annual of the Department of Antiquities of Jordan, X. The following repeats much of the information in that article.

The Damiya site is on the east bank of the Jordan River, 32 kilometers at an azimuth of  $25^\circ$  from Jericho. The dolmens cover an area roughly 4 kilometers north to south, 2 kilometer east to west. All are east of the main road along the river and many are visible from it. They stand on and are built of Um Sahm sandstone (Geological Map of Jordan, Sheet 1, Amman).

I consider the Damiya site divided into three sections: southern, central, and northern. The central section is separated from the others by dry stream beds in which water must course only infrequently. In 1962 we mapped, recorded, photographed, and briefly described only the dolmens in the southern section. We walked over the central and northern sections and familiarized ourselves with them but time did not permit our recording them in detail.

Fifty-two dolmens were recorded in the southern section. Not all these are complete and standing, but all are either whole or have enough identifiable remains to permit us to call them dolmens. In the central section, we counted 60, and in the northern, 52. Until a complete map is made of the site, the count cannot be considered exact, and depending on opinion, some additions to or subtractions from the count may be made even in the southern section. Because the dolmens were built of the sandstone on which they stand, not only collapsed but also complete dolmens melt into their backgrounds and disappear unless seen from favorable angles. It is likely 200 is a reasonable estimate of the number of dolmens at Damiya which Harding said is the largest field in Jordan (Harding: 1959, 41).

Most dolmens at Damiya are of a fairly standard size. Measuring dolmens is not a precise operation because of the irregularity of the stones and the slopes on which they stand, and because one does not always find all a dolmen's members, but I think the lengths, widths, and heights we recorded are reliable enough to permit formulation of general statements. The lengths at Damiya hovered around 2.75 m.; widths, 1.00 m.; cover slab greater dimensions, 2.5 m. by 2.10 m.; exterior heights, ground to underside of cover slabs, 1.00 m. Interior volumes average 2.75 cu. m. Exceptions to this

standardization exist, but they are obvious, and an observer sees at once that he is approaching a dolmen larger or smaller than the usual run.

The standardization is remarkable because we saw no evidence of shaping of the main slabs of which the dolmens were built. I think they must have been at least battered to size because such uniformity can hardly be accounted for by random splitting of the Um Sahm sandstone although that possibility cannot be ruled out. If there was shaping of the stones, weathering has erased its traces.

Most dolmens are oriented north to south. Deviation from this standard are only swings to northeast to southwest or northwest to southeast. Of 47 dolmens whose orientation was established, only eight are east to west. Dolmens oriented north to south received full benefit from the north to south breeze that blew nearly every day we worked there. This led to a conjecture that the dolmens might have been dwellings sited to receive the breeze, but such an explanation cries for another to account for eight mal-content dolmen builders who refused to be comfortable.

Floors of the dolmens are level. In most instances they are on circular terraces formed of one, two, or three layers of blocks of stone of various shapes and sizes. Terraces were not found for nine dolmens. It is possible excavation would uncover some, but we saw none in our reconnaissance. Representative terraces average 6.00 m. in diameter. Dolmens sit off-center on their terraces. A very few dolmens are on bedrock. On the steep western slopes where angles of declivity of 30° to 45° are common, western terrace layers are frequently three high while on the east there is but one or even none. This technique produced floors as level on the slope as those on the plateau to the east. The terrace technique probably gave an elasticity to the dolmenic structure as a whole that permitted it to absorb the shock of earthquakes that overthrew more pretentious buildings but left the dolmens standing.

I believe all the dolmens had floor slabs when originally built. Most we observed at Damiya are without full slabs but broken remnants of floor slabs and vandalized interiors indicate both that slabs had been present in many of them and that an accurate count is not now possible. Even those floor slabs still present are usually undermined to some extent to prove that treasure-hunting that led to former vandalizing touched all the dolmens.

What one might call a complete dolmen is one with a floor slab; four wall slabs of which the two longer – we saw no square dolmens – we called “side slabs,” the two narrower, “end slabs;” and a cover slab. There are several

variations on this theme at Damiya. There are collapsed dolmens whose original construction and members we could not understand without rebuilding them. There are dolmens of which only walls remain standing, one to four as the case may be, with or without floor slabs, but with cover slabs that have slipped or been thrown off. In some instances displaced cover slabs lie intact beside the dolmens they once covered; in others, they have been shattered but still are recognizable and lie near by; in yet others, there is no sign of cover slab. There are dolmens in which two or three walls yet support a cover slab and rare instances in which a cover slab slants from one wall to the ground, the others having collapsed.

Small openings, which I called “portholes” after Wheeler (1956, 206) and Daniel (1958, 23) among others (these openings are called “Seelenlöcher” in German books), were carved into the end slabs of a number of dolmens. A representative door is 0.45 m. high, 0.35 m. wide. On dolmens oriented north to south, portholes are in the north end slab. On dolmens oriented east to west, they are in the east end slab. The slabs in which doors were carved were smoothed and rubbed to an extent that makes them appear of a different stone from the side slabs, but inspection of their edges proved they, too, are of the Um Sahm sandstone of Damiya.

The general impression received by a person making such a survey as ours is that the dolmens of the southern section at Damiya do not have portholes and that portholes are not a common feature at the site until one has passed about one-third of the way to the section’ northern boundary. This impression may be false because many dolmens of the southern area have collapsed, some have no trace of end slabs on the north or east where, according to the location of portholes correlated with orientation, portholes may have been present at one time, and in others, end slabs are broken or have fallen forward and have been covered with earth so that only excavation – for which we have no permit – can reveal whether or not they had portholes.

The portholes of some dolmens have borders averaging about 0.05 m. carved around them. From a distance they look like frames, and so we termed them. Dolmens with framed portholes occur only in the northern area of the southern section. There is a geographical progression of dolmens without carved portholes in the southern area to dolmens with plain carved portholes in the central area to dolmens with framed carved portholes in the northern.

The progression is provocative when considered in light of the central and northern sections of the entire field. In these sections some of the dolmen

portholes are of the framed variety. Further, there are caves carved into solid hillocks of rock and huge tumbled boulders, many in the northern section, a few along the western slope of the central, and the entrances of these caves are carved in the fashion of the dolmen portholes. Framed entries into caves are also present west of the road at a continuation of the Um Sahn sandstone cropping out there. All stages of manufacture of these entries are present from holes just begun to finished openings. All obviously completed entries are framed. Perhaps many of the entries into caves in the northern section are only elaborations of natural cracks leading to natural caves, but they are quite uniform, a condition most unlikely if large numbers of natural features were used.

This sort of thing is foreshadowed in the northern area of the southern section where one dolmen is but a slab with a framed porthole carved in it placed before a natural fissure enclosing a space approximately as large as that of the inside of the average wholly artificial dolmen.

The framed portholes of the caves of the northern section add another rung to the ladder of geographical procession of architectural types from south to north: 1. no carved portholes; 2. plain carved portholes; 3. framed carved portholes; and 4. framed entries like those of dolmens leading into caves.

I am not certain this distribution in space represents distribution in time. Conceivably four different groups of even the same people might have prepared dolmens with the different kinds of entries, and even the cave entrances, at the same time. I am not certain men always progress from relatively crude to more refined work. I cannot state categorically that the southern dolmens are older at Damiya than those of the northern because the work in the south is cruder.

Nevertheless, I suggest that a working hypothesis for the relative chronology of the Damiya dolmen site is that the field was begun in the south and extended to the north over a considerable period of time and that the geographical distribution represents not only a distribution in time but also an improvement in technique and changing social attitudes.

This hypothesis is supported only by the pattern of distribution of types of portholes over the whole Damiya field. What information recording of the central and northern section will produce cannot be known at this time, but no features but the portholes show distributional patterning in the southern section. There is no other pattern of variation from south to north in size, orientation, use of terraces, or any other gross features, nor, indeed, is there

from east to west except that terraces on the west, as already indicated, are built of more layers on their western than on their eastern sides.

We found no artifacts at Damiya we could say were associated with those who built the dolmens. There were a number of artifacts, but they ranged from bladelets and microlithic scrapers of at least Neolithic times mingled with cans and modern Arabic pottery. All that the artifacts prove is that men have visited Damiya for 7000 years or so.

Excavation may produce acceptable association between artifacts and dolmens to permit identifying the culture and the time of the Damiya dolmen builders. Our surface survey did not.

Tell Um el Quttein (hereafter El Quttein) is on the east bank of the Jordan River 22 kilometers and at an azimuth of  $98^\circ$  from Jericho. The dolmens are north of the Wadi Hisban and the Naur-Dead Sea highway 12.8 km. by road east of the highway bridge across the Jordan. They stand on Um Sahn sandstone and are clearly visible (Geological Map of Jordan, 1954, Sheet 1, Amman).

We recorded six elements at El Quttein. One of these is a *menhir*, a standing stone. The other five are partially destroyed dolmens. They are very different from those at Damiya. All dolmens at El Quttein are double dolmens, not the double-decker type, one of which was found at Damiya, but a two chambered structure as if two dolmens had been built with a shared back wall. One retains the vertical slab separating the chambers. The others do not, but broken stubs remain to prove all had such dividing slabs at one time.

The dividing slab of the dolmen we numbered No.5 at El Quttein had a porthole, but resemblance to the Damiya portholes is remote. Those at Damiya are relatively small and generally pear-shaped. The El Quttein dolmen porthole is quite large, 0.95 m. wide and more than a meter high (only excavation can tell how much higher), and it is rectangular with gently rounded corners. It is of the genre of the portholes of Damiya, of course, a carved entry in a vertical, narrow, dolmen slab, but it impresses one almost as though it were from another tradition and only accidentally as much like those of Damiya as it is.

El Quttein dolmens are larger than those of Damiya. Long walls are made of more than one slab. Enough remnants are present to permit reasonably accurate measurement of the long walls. They average 4.68 m. long. This is reasonably close to twice the length of the long walls at Damiya, which averaged 2.75, but the long walls of our No.5 at El Quttein are 7.25 m. long.

In like fashion, the widths differ. The average end slab width at Damiya is

1.00 m. At El Quttein, the average width between side walls, where it could be measured realistically, is 1.40 m.

We found no intact cover slabs. Two large slabs at No.5 may be broken remnants of a cover slab or may be whole portions of multi-slab long walls.

The dolmens are oriented north and south.

Terraces are present and, like the dolmens, they are larger than their counterparts at Damiya. That of our No.2 was probably originally 10 m. in its long dimension, north to south; 7 m. in its short dimension, east to west. That of No.1 was probably 15 m. by 12 m. in its corresponding dimensions. "Probably" is used because clearing is required to permit accurate measurements and descriptions. The dolmens are off-center to the north on their terraces.

Floor slabs are present at El Quttein, and all have been vandalized.

Slabs of the Damiya dolmens are obviously from the Um Sahn sandstone on which they stand, but this is not true at El Quttein. We saw no nearby member of the Um Sahn much like the stones of which the dolmens were built, in fact, all close outcrops are of quite different stone. Perhaps they were built of fractured slabs of the hillock on which they stand. Digging is required to test this hypothesis because no such slabs were apparent when we were there.

All dolmens at El Quttein have been vandalized. Fortunately for us, someone had dug clandestinely along the west face of our No.5 to a depth of 2.30 m. from the top of the most northerly slab. This proves the great size of the wall slabs at El Quttein, for the battered remains of this particular slab is still 2.30 m. from to to ground level (and I'm not sure we saw its actual base), 2.25 m. wide, and 0.50 m. thick. The base of the central slab is reinforced by two stone blocks 0.80 m. wide. The south end of No.6 is sink 0.70 m. into the ground.

At Damiya wall slabs were not set deeply into the ground. At El Quttein, if the evidence from Nos.5 and 6 can be assumed to hold for the others, the wall slabs were firmly planted deep in the earth. Only excavation can tell whether or not the hillock on which the dolmens stand is natural or has been built up during manufacture of terraces, terrace fill, and dolmens.

Objects from the debris of the excavation by vandals and from the surface of the site gave the same information as objects from Damiya. Men have walked across this hillock from Neolithic times to the present. We found no association of artifacts with dolmens that permit closer dating.

Tell el Matabi (hereafter El Matabi) is on the east bank of the Jordan



River 22.8 km. at an azimuth of 111° from Jericho. The dolmens are south of the Wadi Hisban and the Naur-Dead Sea highway 13.7 km. by road east of the highway bridge across the Jordan River. They are visible from the road once one knows they are there, but they, like those of Damiya, are difficult to see initially because they fade into their background. They, too, are on Um Sahn sandstone and are built of it (Geological Map of Jordan, 1954, Sheet 1, Amman). We drove past them several times before we noticed them.

We recorded 16 dolmens at El Matabi. They are different from those of both Damiya and El Quttein, even though El Quttein is less than a kilometer away and the sites are inter-visible.

Of the 16 recorded dolmens, six are collapsed into amorphous piles of blocks of stone. Their original relationships cannot be ascertained without rebuilding the structures. Of the other ten, the end slabs of four are measurable and are noticeably of a narrow gauge as compared with those of Damiya, averaging only 0.63 m. Three others, with widths of 1.25 m, 1.00 m., and 0.70 m. more nearly resemble Damiya dolmens in general appearance than any of the others that still stand at El Matabi. All have terraces.

Walls are generally of two or more thin slabs. Nineteen long walls are measurable. They average 2.04 m. long, about 0.70 m. shorter than the Damiya average. The walls are in such poor condition, broken, fallen, split, that the measurements from ground level to their tops are meaningless, and only three cover slabs were measurable, hardly a fair sample.

The El Matabi dolmen we numbered as 7 is peculiar. John, my son, described it as a dolmen with a trailer, and the description is apt. The northern element is a dolmen of standard Damiya type, four side walls and a cover slab. The southern is a small dolmen backed up against the larger. Its cover slab of only 1.80 m. east to west, 1.20 m. north to south, covers it adequately. Whereas the walls of the large dolmen are 0.85 m. high, those of the smaller are but 0.45 m. high. It is unique in our experience in Jordan.

Three dolmens are not of the standard Damiya type either. They resemble slab-sided cist-graves whose walls protrude above the ground. They were recorded as dolmens because they are integral parts of the site and are made of the same materials as the other structures, but they are certainly a different architectural style.

There are three architectural styles at El Matabi. Three dolmens, four even if one disregards the trailer of No.7, are reasonably close to the general

style at Damiya. Others are unquestionably dolmens but are narrow, short, squat, and thin-slabbed. The cist-grave style is the third.

Of 12 dolmens whose orientation could be determined, 10 are oriented north to south, 2 east to west. These latter are built in contour situations where an east to west orientation is more convenient than any other.

Fifteen of the 16 dolmens have terraces. Perhaps the one at which we discerned no terrace also has one, but it is low on the slope leading to a small wadi and so much loose rock and soil is piled around it we could not distinguish one.

There are floor slabs in several of the dolmens. The stone of which the walls are built is so scaly and has fallen into the body of the structures that it is not feasible to discuss floor slabs as significant features of the site until all the dolmens are cleared.

The Um Sahm formation at El Matabi furnished the builders with shoddy material. The slabs are thin, friable, mishappen, altogether a poor sort of construction stone. Thirty-eight percent of the dolmens have collapsed, evidence of the poor quality of the stone.

The general impression given by the dolmens at El Matabi is that they are noticeably shorter, narrower, have thinner slabs, smaller terraces, and poorer construction than those of Damiya, and that while they resemble those at Damiya only in a general fashion, they resemble those at El Quttein even less.

Artifacts found on the surface at El Matabi included Chalcolithic pottery, microlithic blades, and even a Levalloisian flake. Again, there was no acceptable association of artifacts with dolmens.

## SUMMARY

Tangible results of the work in Jordan:

1. Maps were made of each of three dolmen sites.
2. General descriptions were written for 74 dolmens.
3. Three general types of dolmen construction, each peculiar to one of the three sites were identified.
4. Four distinct architectural styles were identified at Damiya, three at El Matabi.
5. Surface collecting at the sites did not result in clues to age of the dolmens or the culture of their builders.
6. Terraces are commonly associated with dolmens.
7. Most dolmens have been vandalized.
8. The only relation between the orientation of dolmens and any other pattern in construction is that at Damiya doors are in the north slab of north to south oriented dolmens, in the east slab of east to west oriented dolmens.
9. Style of construction of dolmens is probably conditioned less by cultural motivations than by available building stone.
10. Dolmen sites have been used by men for one purpose or another since at least Neolithic times.

## RECOMMENDATION FOR FUTURE RESEARCH

1. Intensive work at the sites studied in 1962.
  - a. Map with more precision than possible in 1962.
  - b. Excavate to clear structures to their skeletons to determine details of construction of dolmens and terraces, relations of dolmens to terraces, relations among the dolmens at each site, and relations among the dolmens of the three sites.
  - c. Prepare detailed descriptions and isometric drawings of each dolmen.
  - d. Collect artifacts assiduously from each site because while they may have no apparent association with dolmens, they can reveal the use of the sites chronologically and quantitatively.
  - e. Rebuild collapsed dolmens.
  - f. Experiment to determine effort and time requirements in shaping stones of which dolmens were built.

- g. Experiment to determine effort required to plit out slabs suitable for use in building typical dolmens.
  - h. Experiment to determine methods and effort required to move such a slab as a cover slab fifty yards or so.
2. Continue locating sites noted in literature. 1962's work proved such work must be carefully planned and according to the routes followed by such men as Glueck, that much of the work must be done on horseback or on foot, and that it must be performed as companion to, not part of, excavation.
  3. Map, excavate, and describe sites in addition to the tree worked in 1962, and study them in terms of knowledge of Damiya, El Quttein, and El Matabi.

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#### M a p r e f e r e n c e

Geological Map of Jordan (East of the Rift Valley). The Hashemite Kingdom of Jordan. Sheet 1. Amman. 1:250,000. 1956.

Eine Zusammenfassung in deutscher Sprache erscheint in einer der nächsten Nummern der IC-Nachrichten.

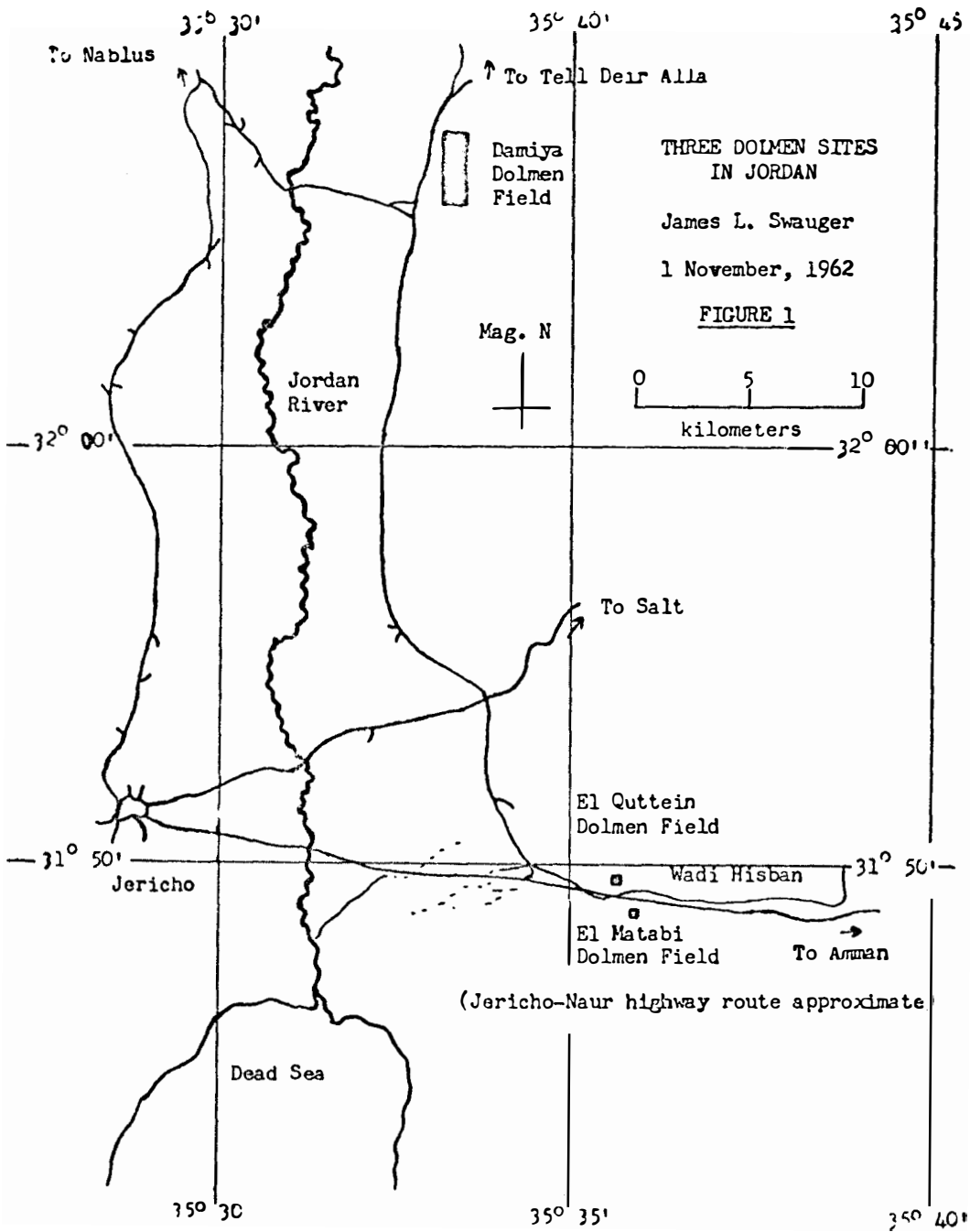
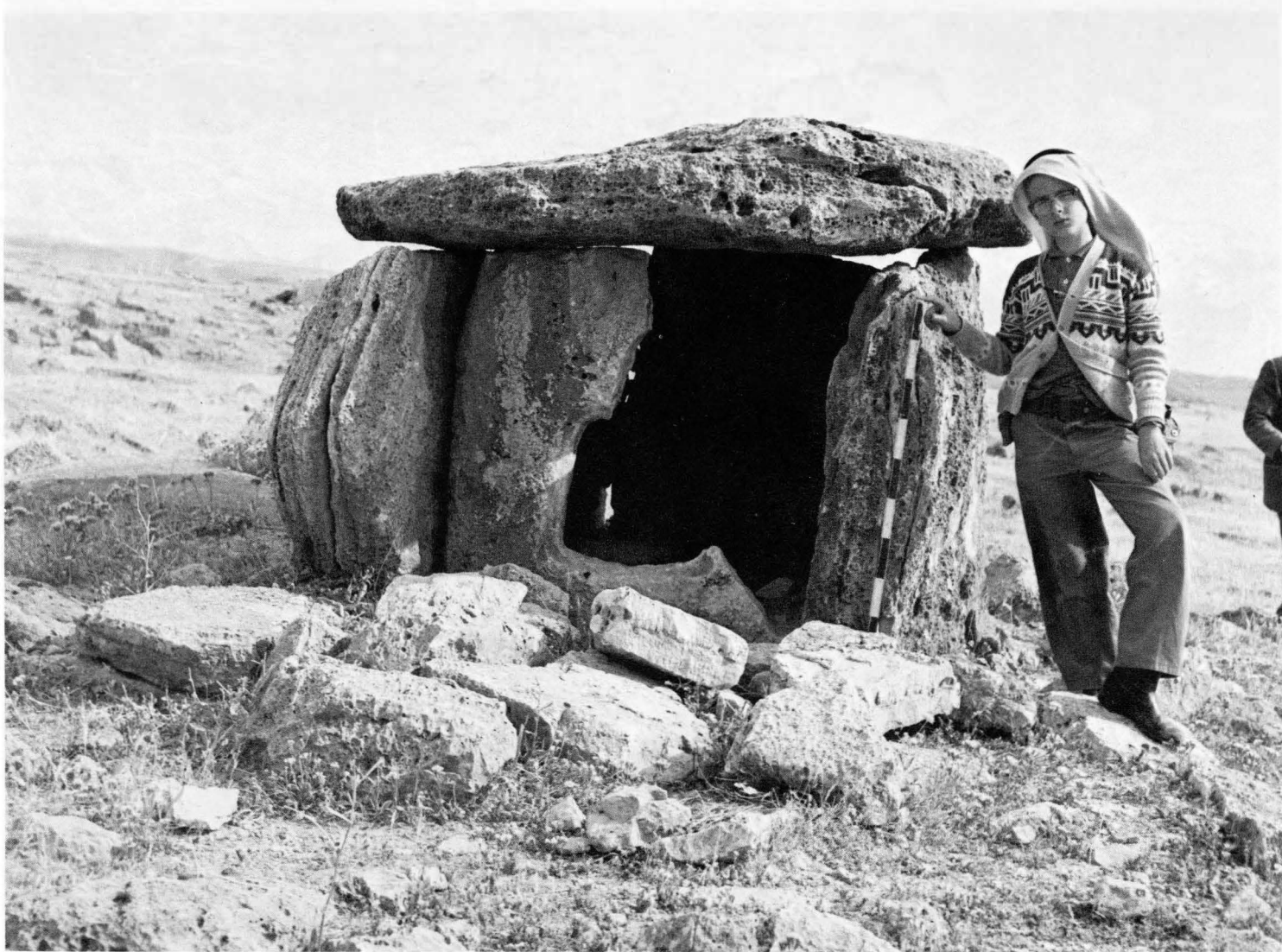


Fig. 1



Rest of a El Outtein dolmen with a large porthole.



A Dolmen from the Damiya Dolmen Field, with rest of a porthole.





Walls of a destroyed dolmen, with a scale for indicating the size.