

1962 STUDY OF THREE DOLMEN SITES IN JORDAN

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INTRODUCTION

When, What, and Where

During the period 15 March to 15 April, 1962, a small party which I led investigated dolmens at three sites on the east bank of the Jordan River: Damiya, Tell Um el Quttein, and Tell el Matabi. (Wherever possible, my spelling of site names follows the usage of the Archeological Map of the Hashemite Kingdom of Jordan.) Site locations are given in Fig. 1. These are known sites which have been published by others to some extent. Glueck's discussion of them in the fourth volume of his *EXPLORATIONS IN EASTERN PALESTINE* includes excellent bibliographical references (Glueck, 1951, 356-359, 385-389).

The dolmen site of Tell el Matabi as located on Fig. 1 does not correspond exactly to the Tell el Matabi of the Archeological Map. My identification of the site is based on Nelson Glueck's description (Glueck, 1951, 387-389) which corresponds to the situation on the ground at the site and to its geographical relationship to the site of Tell Um el Quttein.

Who

Members of the party in the field were Rafik W. Dajani, Technical Assistant in the Department of Antiquities of the Hashemite Kingdom of Jordan; my son, John L. Swauger; Lutfi Qadro Siyam, our driver; and myself.

As secretary, my wife, Helen P. Swauger, handled daily dictation and turned it into field notes and correspondence, did shopping for odd bits of equipment, and performed a dozen other tasks that permitted the field party to get out during the day and to get some rest in the evening.

We could not have done our work without the assistance of many other people. Authorization for the work was given for the Department of Antiquities by its Director, Dr. Awni Dajani. We were the recipients of many courtesies from him and are grateful for his continuing interest in the dolmen studies.

Before choosing the three sites we worked in the 1962 season, we conducted survey work on both banks of the Jordan. On the west bank we were accompanied by Nicola Antar through the courtesy of Sami M. Maddah of the Department. Yussuf Labadi of the Department was most helpful in directing us to various locations. On the east bank we were led in part by Anwar Akroosh of the Department.

As is the general experience of those working in Jordan, we were afforded every assistance by police at various posts near which we worked.

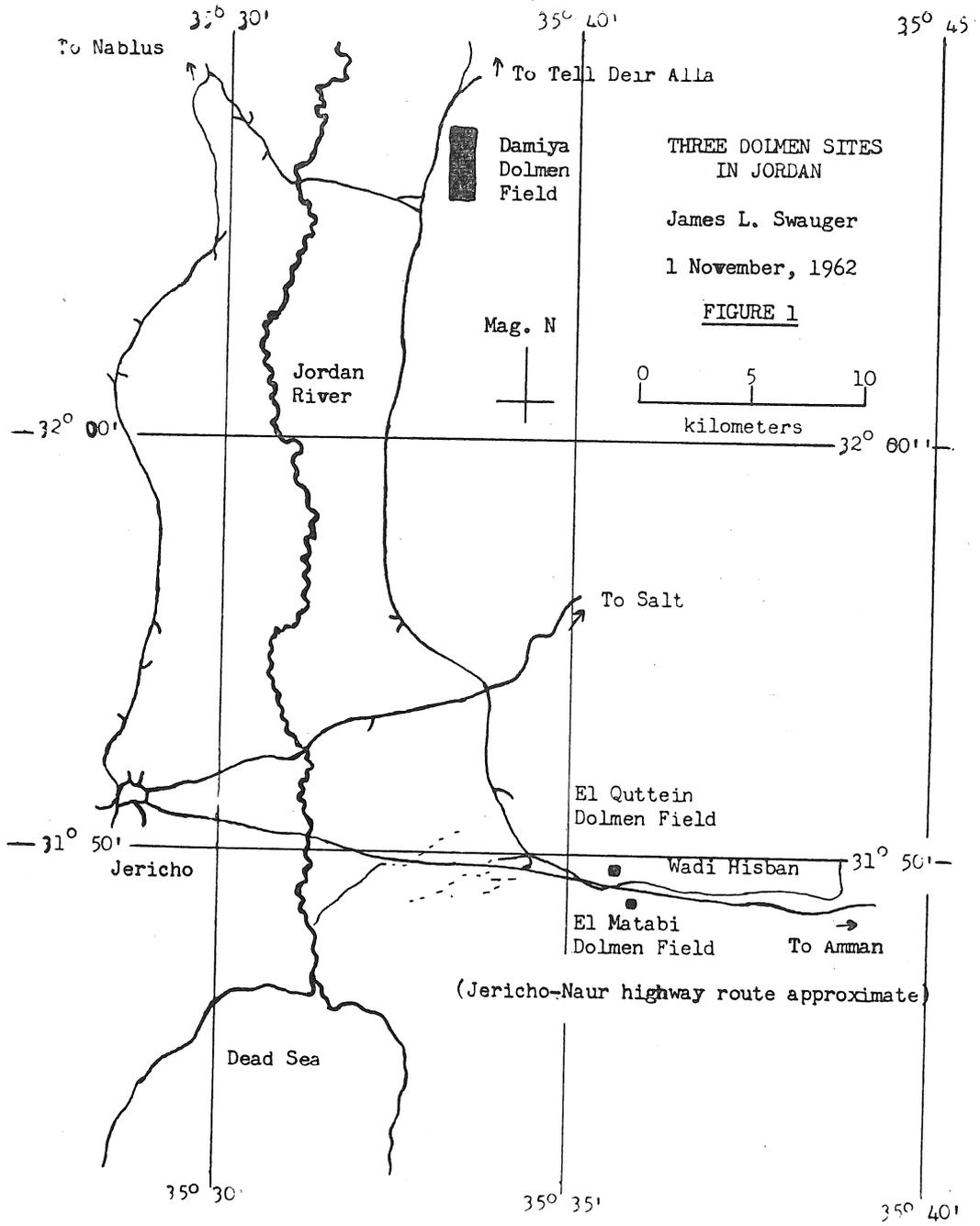


Fig. 1

My family was housed in the American School in Jerusalem. Our thanks are due the Director of the School, Dr. Paul W. Lapp; his wife, Nancy; and the staff of the school for their many kindnesses; and to Dr. William L. Reed, Executive Assistant to the President of the Schools, for assisting us in making arrangements for and beginning survey work.

The study was financed primarily by field funds of Carnegie Museum. Further assistance was furnished by the American Philosophical Society, the United Steelworkers of America, and several private donors who wish to remain anonymous.

How

We mapped the three fields under study, measured the structures in them, photographed them in black-and-white and in color, and wrote cursory descriptions intended as a means of identification of individual dolmens. The first season permitted me to become familiar with dolmens and dolmen fields, to achieve the sort of rapport with the structures and their environment that permits meaningful interpretation, and to test recording methods.

Angles were measured with a Brunton compass mounted on a tripod. Angles were read only to the degree. Course measurements were ground measurements. We did not try for exact horizontal or vertical measurements. This methodology was adopted in order that a man armed only with a compass and a reasonably good idea of his pace over rough ground can use the maps we made. The maps are intended to permit location and identification of gross objects, whole dolmens, rather than arbitrary points on a course, although we consistently located a dolmen by its southwest corner. In time we plan to make exact maps of these and other fields with angles and horizontal and vertical distances measured exactly.

Why

The dolmen study was begun at the suggestion of Prof. James L. Kelso of the Pittsburgh Theological Seminary, and his advice and guidance have been most helpful. It was at his urging that in 1959 I began bibliographical research on Jordanian dolmens.

While I delved into well over one hundred and fifty articles and major works mentioning dolmen studies, the following authors were particularly helpful: Edwin C. Broome, Jr. (1940a, 1940b); Claude R. Conder (1889); Glueck (1934, 1935, 1939, 1951); Harding (1959); Schumacher (1889, 1890); and Tristram (1874).

As Kelso had pointed out, dolmen study was not a major concern of former students except for Broome. Such work as had been done was descriptive or speculative, and while much of it was good, it had been performed as ancillary to other projects. There is still no sure knowledge as to who built the dolmens, when, or why.

It is my purpose to proceed methodically to study the dolmens of Jordan trusting that by means of refining the techniques tested and found useful in 1962, excavation at selected dolmens, and application of appropriate methodologies from geology, mineralogy and other exact sciences, we may sometime know who, when, and why. I believe relationships among fields can be established on the basis of distribution and construction that will lead to sound chronological ordering of the fields.

DOLMENS AT DAMIYA

The Damiya site is on the east bank of the Jordan River. It is 32 kilometers and at an angle of 25° east of north of Jericho (Fig. 1). Its coordinates on the highway map of the Hashemite Kingdom of the Jordan are 200.8-160.8. The dolmens lie in an area roughly 4 kilometers north to south, 1 kilometer east to west. They are all east of the main road along the river and many are visible from it. They stand on and are built of Um Sahn 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. Dajani, my son, and I 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.

We recorded 52 dolmens in the southern section. Their positions are given in Fig. 2. Plate 1 is Dolmen No. 1, the initial point of Fig. 2. (In all photographs, the measuring stick shown is one meter in length. The person holding the stick is John.) Not all these are complete and standing, to be sure, but all are either whole or have enough identifiable remains standing to permit our calling them dolmens. In the central section, we counted 60. In the northern, 52. Until a detailed mapping project is carried out in the central and northern sections, the count cannot be considered exact, and depending on opinion some additions to or subtractions of the count might be made even in the southern section. Since the dolmens at Damiya are 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).

COPY OF FIELD NOTES, MAPPING OF DOLMENS AT DAMIYA

310362, 010462, 020462, 050462, 070462

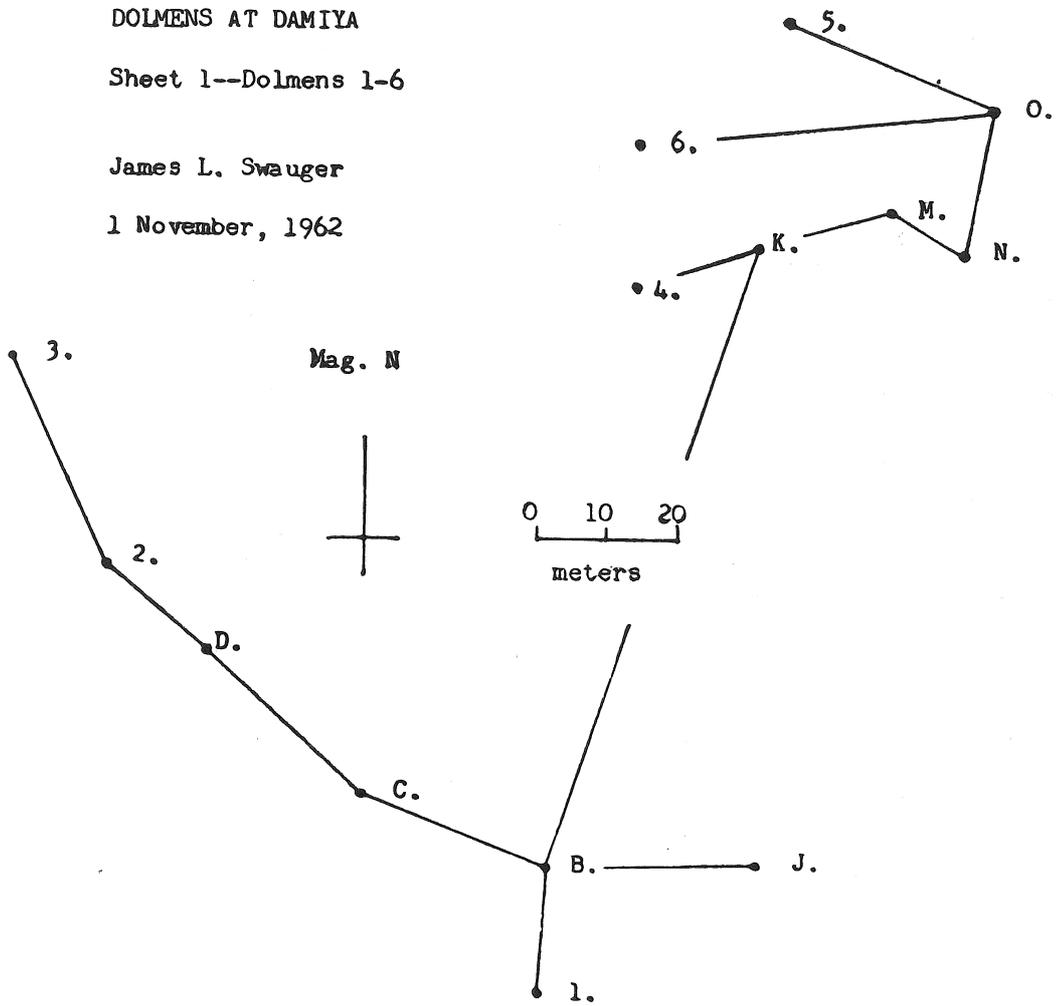
Dolmen No. or Station Letters	to	Dolmen No. or Station Letter	Angle in degree of azimuth	Distance in meters	
1		B	4	18.75	Most southerly dolmen, No. 1 is on the south end of the lip of the west face of the small plateau here. Like other lettered points, B is a station for running line.
B		C	292	28.60	
C		D	313	29.90	
D		2	311	19.45	
2		3	336	32.70	

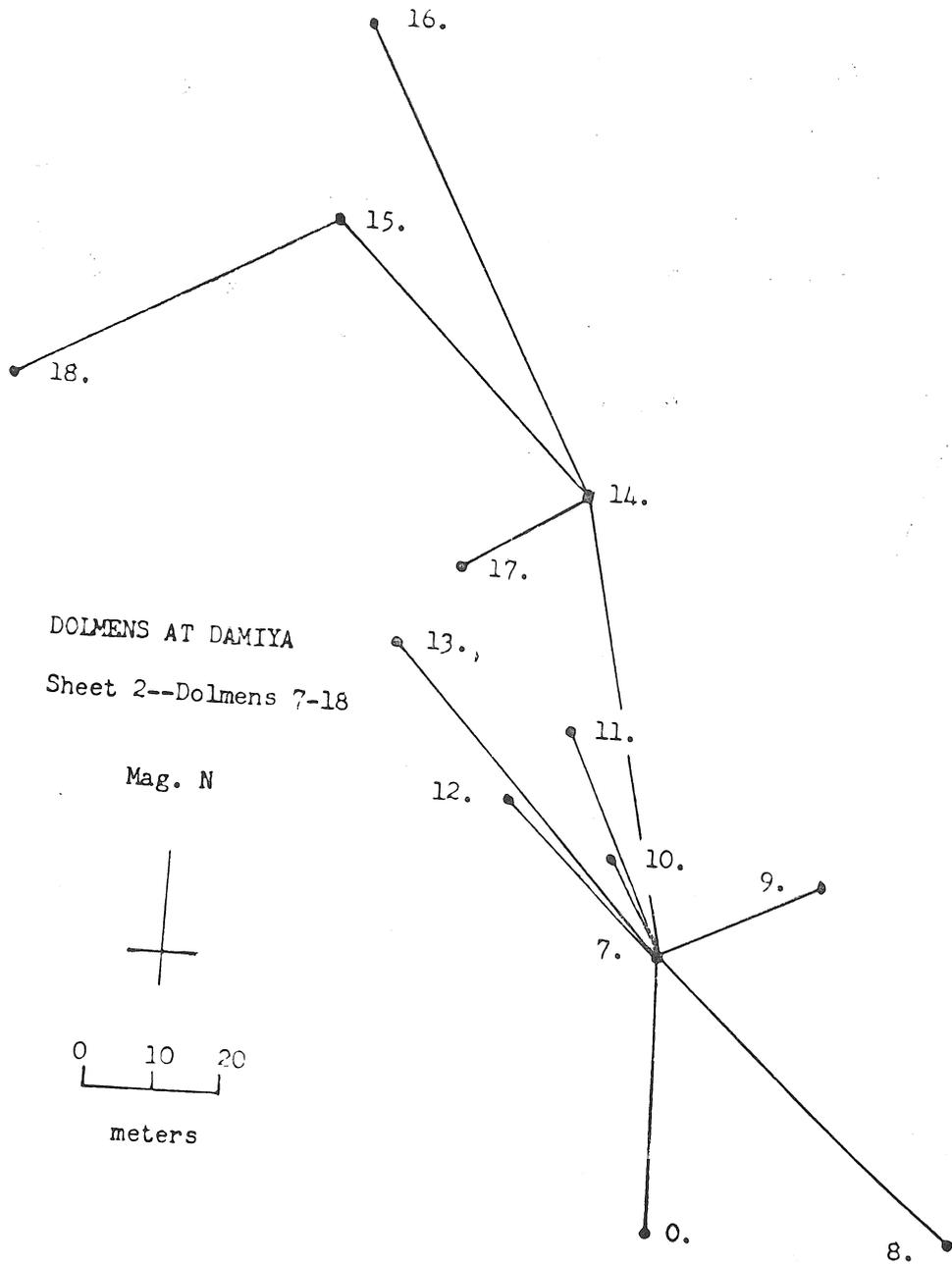
DOLMENS AT DAMIYA

Sheet 1--Dolmens 1-6

James L. Swauger

1 November, 1962

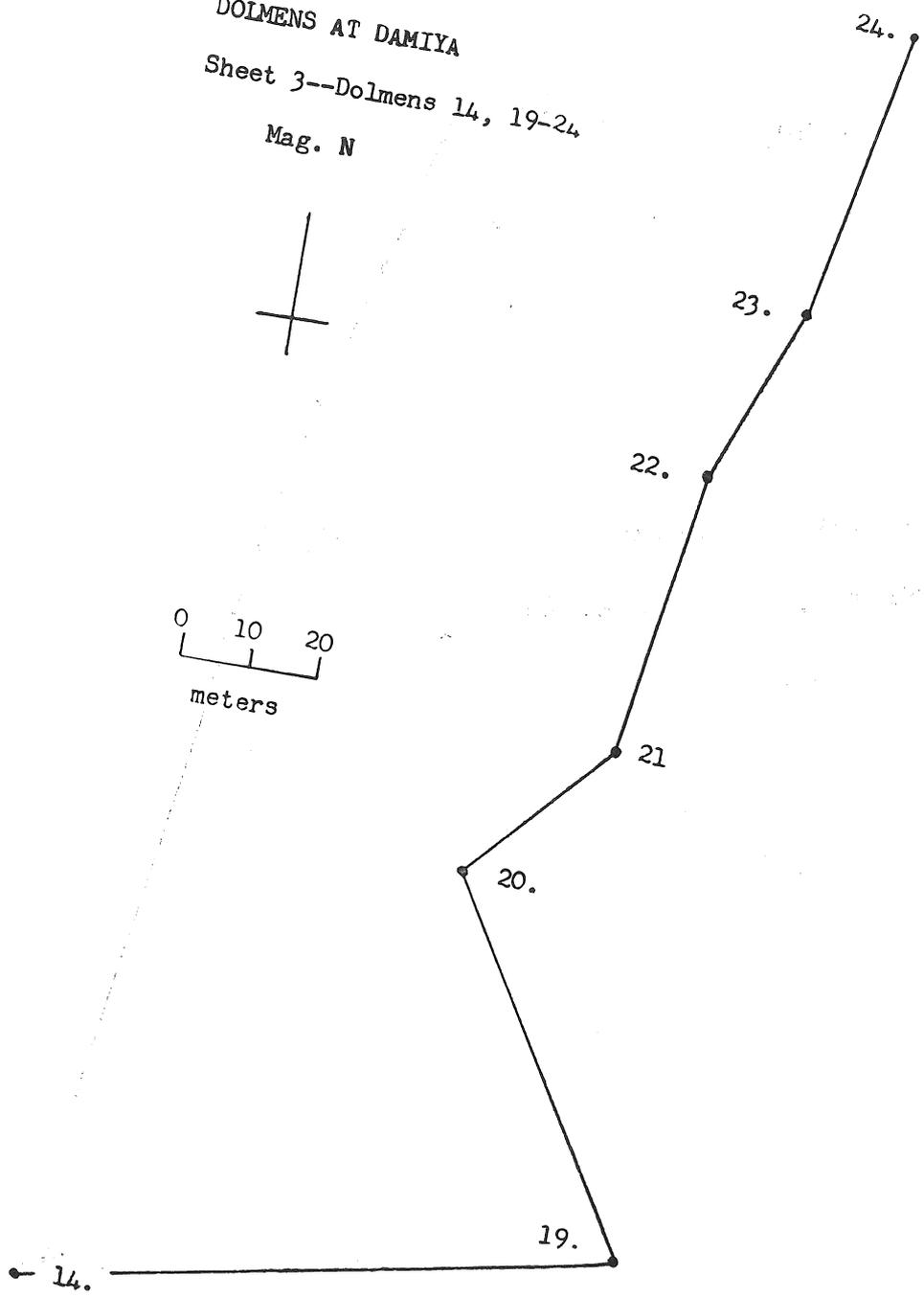
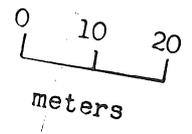


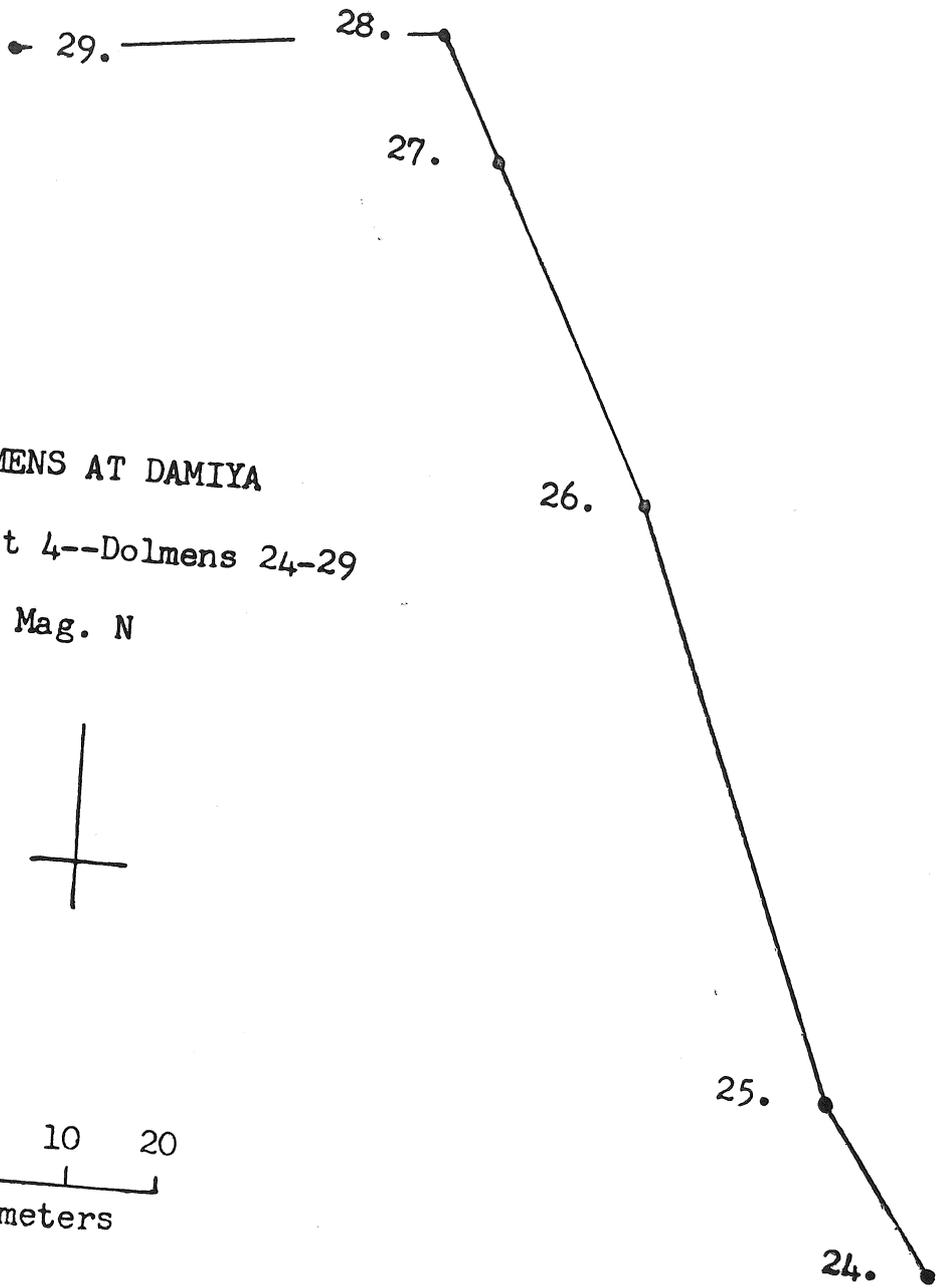


DOLMENS AT DAMIYA

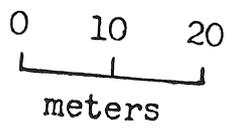
Sheet 3--Dolmens 14, 19-24

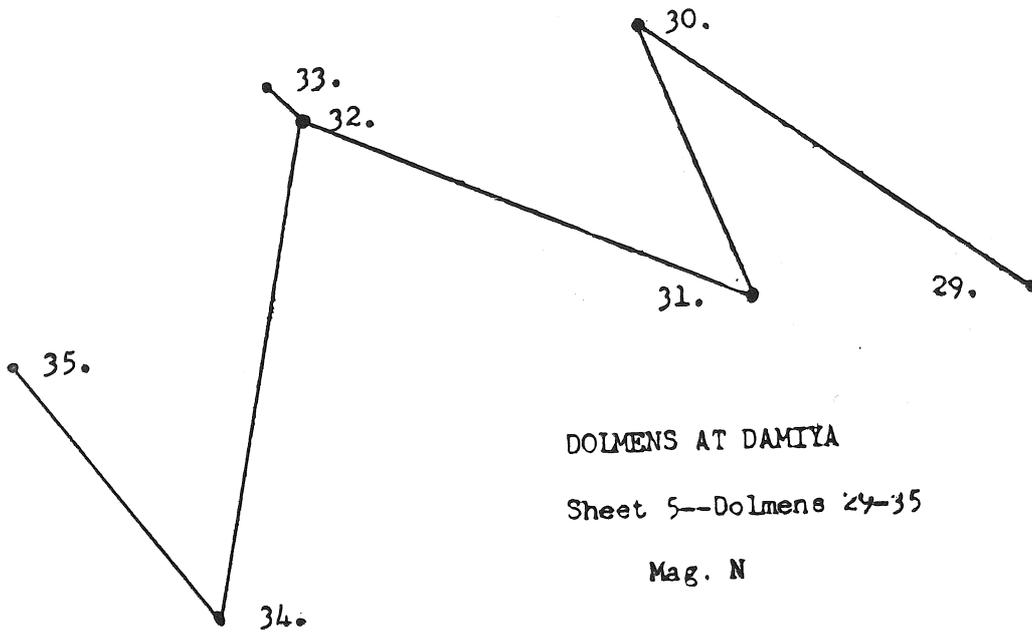
Mag. N





DOLMENS AT DAMIYA
Sheet 4--Dolmens 24-29
Mag. N

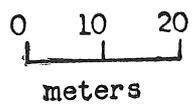




DOLMENS AT DAMIYA

Sheet 5--Dolmens 24-35

Mag. N

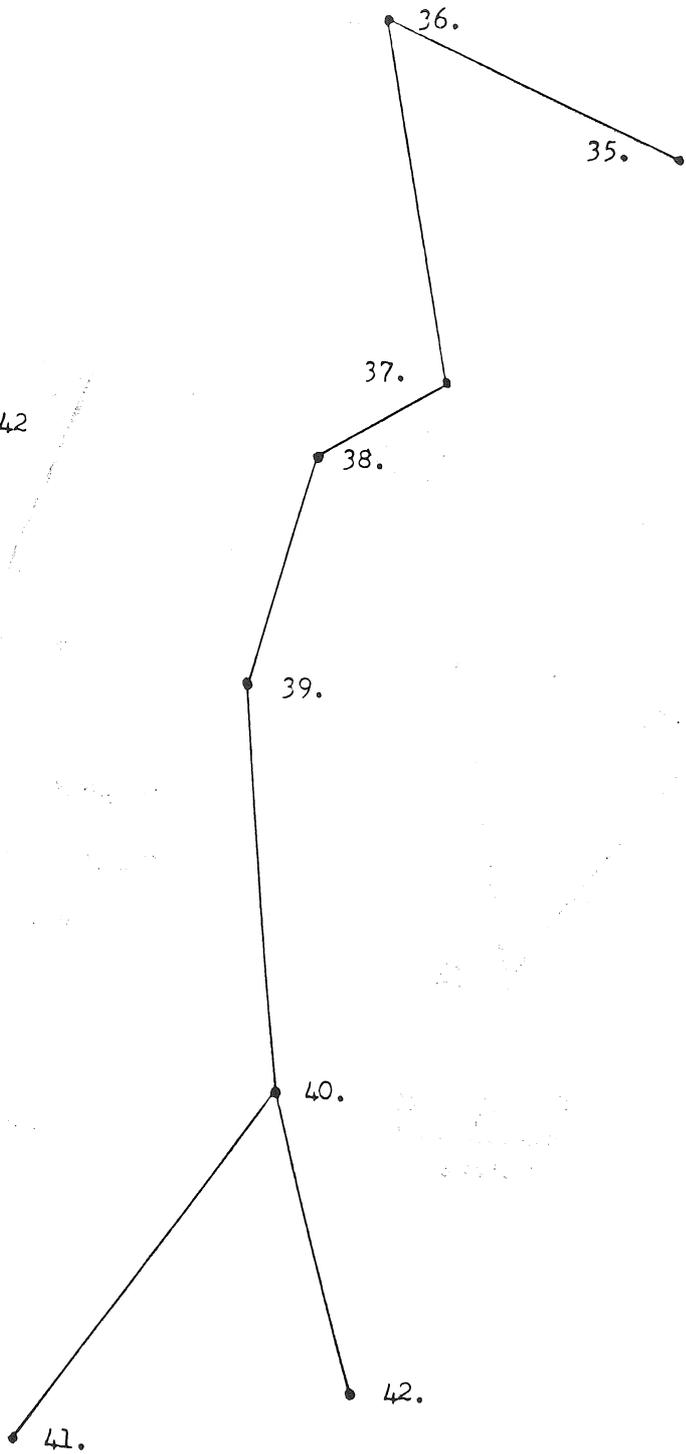


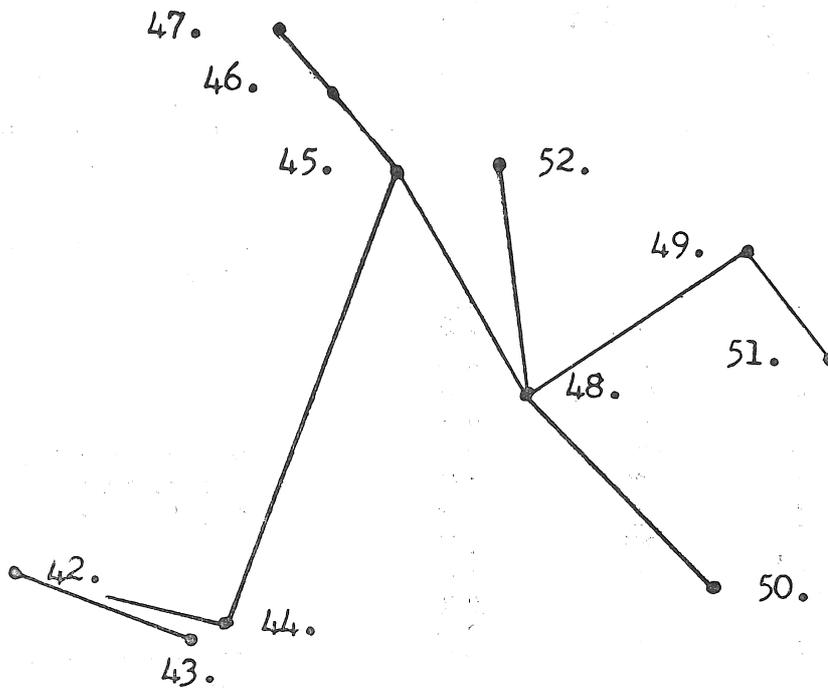
DOLMENS AT DAMIYA
Sheet 6--Dolmens 35-42

Mag. N



0 10 20
meters

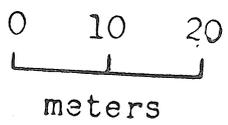
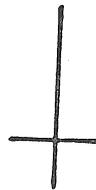




DOLMENS AT DAMIYA

Sheet 7--Dolmens 42-52

Mag. N



COPY OF FIELD NOTES, MAPPING OF DOLMENS AT DAMIYA

310362, 010462, 020462, 050462, 070462

Men No. or Station Letter	to	Dolmen No. or Station Letter	Angle in Degree of Azimuth	Distance in meters
3 ⁰		G	4	12.90
3		H	4	103.00
3		I	98	24.40
B		J	90	30.00
J		K	0	90.00
K		4	251	19.20
K		M	73	19.50
M		N	120	12.50
N		O	12	21.50
O		5	293	32.00
O		6	264	51.5
O		7	0	40.50
7		8	113	60.15
7		T	101	35.3
7		9	63	26.00
7		10	332	15.00
7		11	336	35.50
7		12	313	31.50
7		13	349	59.50
7		14	317	68.15
14		15	315	55.50
14		16	332	77.30
14		17	238	21.55
15		18	241	52.80
14		19	79	86.50
14		GG	79	9.30
19		20	329	61.00
20		21	40	28.00
21		22	9	42.00
22		23	21	28.00
23		24	11	44.00
42		25	326	22.00
25		26	339	67.5

Neither G, H nor I are, in our opinion, dolmens nor remnants of dolmens. From a distance, however, we thought they were, and we mapped them in. Although not shown on Fig. 2, their statistics are included for the use of others.

M is the remains of a stone tower.
N is the remains of a stone tower.
O is the remains of a stone tower.

We thought at first this was a collapsed dolmen, later decided it was a natural formation. It is not charted on Fig. 2.

Circle of stones on end. It is not charted on Fig. 2

COPY OF FIELD NOTES, MAPPING OF DOLMENS AT DAMIYA:

310362, 010462, 020462, 050462, 070462

Dolmen No. or Station Letter	to	Dolmen No. or Station Letter	Angle in degrees of azimuth	Distance in meters	Remarks
26		27	332	41.50	
27		28	332	14.90	
28		29	254	46.00	
29		30	305	62.00	
30		31	158	39.50	
31		32	293	64.40	
32		33	314	7.00	
32		34	191	67.00	
34		35	322	44.00	
35		36	292	46.00	
36		37	167	53.20	
37		38	237	21.40	
38		39	193	33.4	
39		40	172	58.20	
40		41	214	61.30	
40		42	164	45.00	
42		43	108	21.40	
42		44	102	32.90	
44		45	19	52.50	
45		46	320	11.70	
45		47	318	19.90	
45		48	148	28.80	
48		49	54	28.90	
48		50	134	29.00	
49		51	141	14.50	
48		52	350	25.50	

Table 1, Sections A (which gives general description) and B (which gives measurements) lists the characteristics of the dolmens at Damiya as we observed and measured them. 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 here given are reliable enough to permit formulation of general statements. All measurements are maximum figures. All are given as meters and fraction of meters.

TABLE 1 — Section A
Dolmens at Damiya

No.	Condition	Porthole		Oriented
		Slab	Frame	
1.	Collapsed. W, S slabs present, standing. Cover slab present.			N-S
2.	E, W slabs standing. Cover slab present.			NE-SW
3.	E, S, W slabs standing. Cover slab broken off and covers only S end of dolmen.			NE-SW
4.	Collapsed.			N-S
5.	E, S, W slabs standing. Cover slab present.			NE-SW
6.	E, S, W slabs standing. N slab recumb- ent to N, broken. Cover slab broken.	N		N-S
7.	E, W slabs standing. Cover slab present			N-S
8.	Collapsed. Portions of N, E, S slabs remain. Dimensions listed give only present, broken status.			N-S
9.	Collapsed. Large slabs.			
10.	Collapsed. Large slabs.			
11.	E, S, W slabs standing. Cover slab present, broken.			N-S
12.	Collapsed. Only W slab standing.			N-S
13.	E, S, W slabs standing. N slab recumbent to N. Dug out inside for nearly a meter Diamond-shaped cover slab, long dimen- sion oriented N-S.	N		
14.	E, S, W slabs standing. N slab recum- bent to N, earth packed over it. Cover slab present.	E		E-W
15.	All walls standing, cover slab.	N		N-S
16.	Collapsed. E, S, W slabs leaning. N slab fallen in dolmen; was a carved door now broken off at base. Cover slab present.	N		N-S
17.	Collapsed.			N-S
18.	All slabs standing, cover slab present.	N		N-S
19.	Collapsed. W slab standing. S on ground.			N-S
20.	All slabs standing, cover slab present. 1/3 N slab broken off.	N	X	N-S
21.	Collapsed. E, S, W slabs leaning. Cover slab slipped off to W. 3/4 N slab broken off.	N		N-S
22.	All slabs standing, cover slab present but broken off on S side.	N		N-S

No.	Condition	Porthole		Oriented
		Slab	Frame	
23.	All slabs standing, cover slab present. N slab broken off.	N	X	NW-SE
24.	Collapsed. One slab leaning and twisted.			
25.	Collapsed. One slab standing.			E-W
26.	E, S, W slabs standing. N slab broken off.	N	X	NE-SW
27.	Collapsed. One slab leaning.			
28.	W, S, N slabs standing. Cover slab present.			E-W
29.	Collapsed. W slab standing. S slab fallen in.			N-S
30.	Only carved porthloe standing. This can be a porthole in process of preparation. It is oriented N-S meaning if it is part of a complete dolmen the latter was orientea E-W.			E-W
31.	Collapsed. Door slab on E broken, but basal portion present. On bedrock.			E-W
32.	Collapsed. Only W slab standing. Bedrock on E. Terrace on W to level of bedrock.			
33.	Collapsed. E, W slabs leaning. S slab broken off. Impression it is a small one.			N-S
34.	E, S, W slabs standing. N slab knocked forward. Cover slab present.			N-S
35.	E, S, W slabs standing. W slab broken in two.			N-S
36.	E, S, W slabs standing. Cover slab present.			N-S
37.	Collapsed. Only W slab standing.			N-S
38.	Collapsed. Only W slab standing.			NE-SW
39.	Collapsed. E, W slabs present but broken.			E-W
40.	All slabs stading. Cover slab present.	N		NE-SW
41.	Collapsed. N, S slabs present.			E-W
42.	E, S, W slabs standing. Cover slab present Partially dug inside.			N-S
43.	Collapsed.			NE-SW
44.	N, E, S slabs standing. W slab fallen in. Cover slab present.	E	X	E-W
45.	Standing. Cover slab present.	N		N-S
46.	Collapsed. Single standing slab, E (?).			
47.	Collapsed. Single standing slab, E (?).			N-S

No.	Condition	Porthole		Oriented
		Slab	Frame	
48.	Collapsed. E, W slabs present. Cover slab present.			NW-SE
49.	E, S, W slabs standing. Cover slab present.			N-S
50.	N, E, W slabs standing. Cover slab present.			N-S
51.	Single carved slab oriented E-W at entrance to natural fissure. Cover slab fallen in fissure.			N-S
52.	E, S, W slabs standing, N slab recumbent to N. Cover slab roughly pentagonal.			N-S

TABLE 1 — Section B
Dolmens at Damiya

No.	Cover Slab	N Slab	E Slab	S Slab	W Slab
		E-W	N-S	E-W	N-S
1.	3.75 N-S; 2.5 E-W. 0.35 thick.				
2.	2.30 N-S; 2.45 E-W. 0.30 thick. Pentagonal. Point to W.		2.10 1.12 high		2.40 1.30 high
3.	1.5 NW-SE; 0.95 NE-SW. 0.40 thick.		2.65 1.00 high	0.70 1.00 high	2.70 1.25 high
4.			1.00 0.95 high		2.50 0.70 high
5.	3.40 N-S; 2.65 E-W. Rectangular.		2.60 0.90 high	1.00 NE-SW	3.35 1.25 high
6.	2.80 N-S; 2.65 E-W. Roughly triangular.		2.55 1.00 high	1.20 1.00 high	2.50 1.00 high
7.	2.35 N-S; 2.00 E-W 0.40 thick. Roughly triangular		1.85 0.75 high		2.25 1.25 high
8.			0.80 0.30 high	1.10 0.60 high	
9.	No measurements possible.				
10.	No measurements possible.				
11.	2.77 N-S, including broken portion. 2.20 E-W.		2.20 0.76 high	0.70 0.70 high	2.50 1.10 high
12.					2.05 0.90 high
13.	3.65 N-S; 2.80 E-W.	1.50	2.55 0.50 high	1.10 0.85 high	2.70 0.95 high
14.	3.20 N-S; 3.05 E-W. Roughly pentagonal.	2.10 0.70 high	1.00 0.60 high	3.15 0.45 high	
15.	2.80 N-S; 2.50 E-W. 0.25 thick. Roughly pentagonal.	1.10 1.10 high 0.15 thick	2.60 1.07 high	1.00 1.30 high	2.08 1.60 high

No.	Cover Slab	N Slab E-W	E Slab N-S	S Slab E-W	W Slab N-S
16.	3.10 N-S; 3.00 E-W.		2.85 1.15 high	1.15 1.30 high	2.40 1.45 high
17.					1.30 1.65 high
18.	3.10 N-S; 1.70 E-W. 0.40 thick.	1.00 0.83 high	2.20 0.45 high	0.90 0.70 high	1.75 1.15 high
19.			2.15 1.15 high		2.70 1.25 high
20.	2.30 N-S; 2.10 E-W	0.85 1.00 high	2.60 1.00 high	0.85 1.00 high	1.85 1.30 high
21.			2.45 1.00 high	0.85 1.20 high	3.00 1.20 high
22.	1.80 E-W. 0.40 thick.	0.85 1.00 high	2.70 5.70 high	0.95 1.00 high	2.20 1.10 high
23.	2.10 N-S; 2.10 E-W.		2.65 1.25 high	0.95 1.30 high	2.20 1.25 high
24.	No measurements possible.				
25.	No measurements possible.				
26.			2.70 0.95 high	1.00 1.20 high	2.00 1.25 high
27.			1.80 0.80 high		
28.	2.50 N-S; 2.25 WE- 0.35 thick.	2.40 1.10 high		2.40 1.10 high	0.85 1.10 high
29.					2.70 1.25 high
30.			1.25 1.50 high		
31.	No measurements possible.				
32.					2.25 0.80 high
33.			1.50 0.85 high	0.80	1.45 1.00 high
34.	2.10 N-S; 2.00 E-W.		2.10 0.85 high	0.85 1.25 high	1.90 1.25 high
35.			2.40 0.80 high	0.75 1.50 high	2.10 1.25 high
36.	2.50 N-S; 2.25 E-W.		2.60 0.85 high	0.75	2.30 1.25 high
37.					1.90 0.65 high
38.					2.70 1.40 high
39.		2.25 1.25			

No.	Cover Slab	Slab		E Slab	S Slab	W Slab
		E-W	N-S	N-S	E-W	N-S
40.	2.60 N-S; 2.00 E-W.	1.00	2.35	2.35	1.00	2.35
		1.00 high	0.95 high	1.25 high	1.45 high	
41.			2.25			
			1.35 high			
42.	2.30 N-S; 2.10 E-W. 0.60 thick.		2.35	1.00	2.35	
			0.65 high	1.35	1.70 high	
43.	3.00 N-S; 2.70 E-W.					
44.	3.60 N-S; 2.80 E-W.	3.23	1.35	2.32	1.15	
		1.10 high	1.40 high	0.85 high	1.70 high	
45.	2.90 N-S; 1.90 E-W.	1.00	2.30	1.00	2.30	
		1.00 high	0.50 high	1.10 high	0.50 high	
46.			2.35			
			1.00 high			
47.			1.90			
			0.80 high			
48.	2.35 N-S; 1.65 E-W.		1.40			2.80
			0.80 high			0.90 high
49.	2.85 N-S; 1.76 E-W.		2.65	1.00	2.60	
			0.80 high	1.50 high	1.15 high	
50.	3.10 N-S; 2.00 E-W.	1.00	3.60		2.60	
		1.00 high	0.59 high		1.10 high	
51.		1.25				
		1.00 high				
52.	2.35 N-S; 2.45 E-W. 0.60 thick.	0.75	2.00	0.80	2.40	
			0.65 high	0.75 high	1.20 high	

Most dolmens are of a fairly standard size. Their lengths hover 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 since we saw no reliable evidence of shaping of the main slabs of which the dolmens were built. I think they must have been at least battered to size since such uniformity can hardly be accounted for by random splitting of the Um Sahn sandstone although that possibility cannot be ruled out (Plate 2). If there was shaping of the stones, weathering has erased its traces.

Most dolmens are oriented north to south. Deviations from this standard are only swings to northeast to southwest or northwest to southeast. Of 47 dolmens whose orientation was established, only 8 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 malcontent 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 heterogeneous shapes and sizes. Those without terraces are 23, 30, 31, 39, 43, 46, 47, 51, and 52. Perhaps excavation will uncover terraces for some of these, 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 produces floors on slopes as horizontal 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 the treasure-hunting that led to former vandalizing touched all the dolmens.

What one might call a complete dolmen (Plate 3) 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 have understood without rebuilding them. There are dolmens of which only walls remain standing, one to four as the case might be, with or without floor slabs, but without cover slabs which 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 close by; in yet others, there is no sign of them. 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 shall call "portholes" after Wheeler (1956, 206) and Daniel (1958, 23) among others, were carved into the end slabs of a number of dolmens. (Plate 4). A representative door is 0.45 m. high, 0.35 m. wide. On dolmens oriented north to south, they 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 Sahn 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's northern boundary. This impression may be false since 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 might have been present, and in others, end slabs are broken or have fallen forward and have been covered with earth so that only excavation — for which we had no permit — can reveal whether or not they had portholes.

There is an established fact concerning porthole architecture and distribution. The portholes of some dolmens have borders 0.05 m. carved around them. (Plate 5). From a distance the borders looked like frames to us, 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 particularly provocative when considered in light of the central and northern sections of the entire field. In these sections most 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. (Plate 6). Framed entries into caves are also present west of the road at a continuation of the Um Sahn sandstone cropping up there. All stages of manufacture of these entries are present from holes just begun to finish openings. All obviously completed entries are framed.

This sort of thing is foreshadowed in the northern area of the southern section. Dolmen 30 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. (Plate 7).

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.

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 sections will produce cannot, of course, 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, in-

deed, is there from east to west except that terraces on the west, as already indicated, are built of more layers on the western side than the eastern.

We found no artifacts in the southern section. In the central there were a few sherds identified as Iron Age by Rafik Dajani. In the northern there were sherds of Iron Age and Roman pottery, and we know Byzantine pottery has also been found there. These materials were all surface finds with no sure association with dolmens and have no real meaning for us in terms of identifying either the builders or the time of building of the dolmens. They were found mingled with bladelets and microlithic scrapers of at least Neolithic times, and cans and modern Arabic pottery of the 20th century A.D. All 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.

DOLMENS AT TELL UM EL QUTTEIN

Tell Um el Quttein (hereafter El Quttein) is on the east bank of the Jordan River. It is 22 km. and at an angle of 98° east of north from Jericho. (Fig. 1). Its coordinates on the highway map of the Hashemite Kingdom of Jordan are 210.-130.8. 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 River. They are clearly visible. They stand on Um Sahn sand stone. (Geological Map of Jordan, 1954. Sheet 1, Amman). They were brought to our attention by William L. Reed.

We recorded six elements at the El Quttein site. Their position is given in Fig. 2. The element I called Dolmen No. 1 has been called a "menhir" or standing stone (Conder, 1889, 234), and this is probably right. (Plate 8). From the road, it appears a continuation of the east wall of the dolmen I numbered No. 2. Reflection prompts me to remove the designation "Dolmen No. 1" from this feature which gives us the anomaly of a numbered series of dolmens at El Quttein beginning with No. 2.

The other five features are partially destroyed dolmens. They are very different from those at Damiya. Those at El Quttein are all 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 sharing a back wall. Dolmen No. 5 (Plate 9) still 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 Dolmen No. 5 was carved into a porthole as were many of the entry slabs at Damiya, but the resemblance to the Damiya portholes is remote. (Plate 10). Those at Damiya are relatively small and generally pear-shaped. The porthole of Dolmen No. 5 at El Quttein is quite large by comparison, 0.95 m. wide, more than a meter high (only excavation can tell how much higher), and it is rectangular with gently rounded corners. It is of the same genre as the portholes of Damiya, of course, a carved entry in a vertical,

DOLMENS AT EL QUTTEIN

James L. Swauger

1 November, 1962

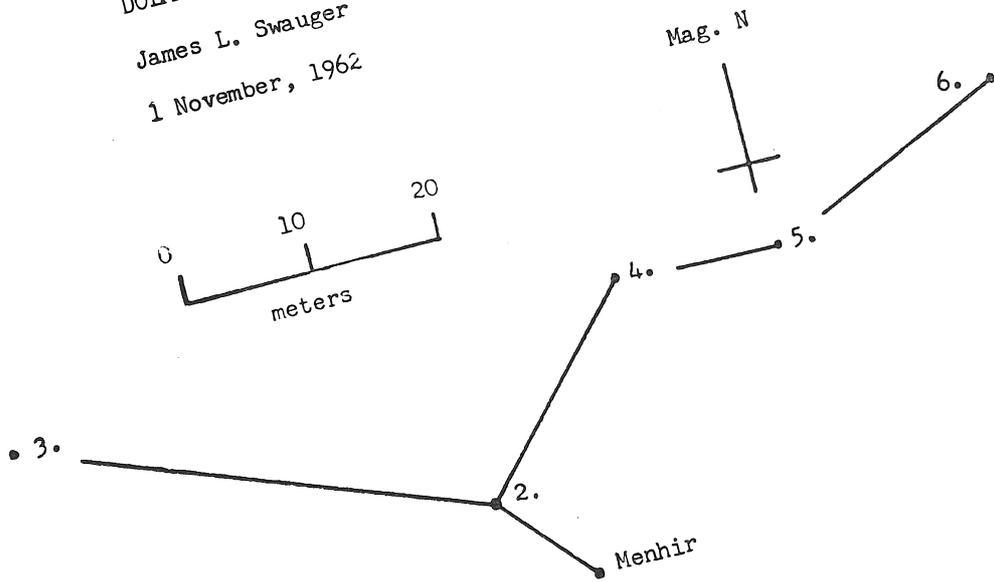


FIGURE 2

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 at Damiya. Long walls are made up of more than one slab. Enough remnants are present to permit reasonably accurate measurement of the long walls. Table 2 gives characteristics and such statistics as were available at El Quttein. The long walls average 4.68 m. This is reasonably close to twice the length of the average length of the long walls at Damiya, 2.75, but the long walls of No. 5 at El Quttein are 7.25 m. I think the other dolmens were probably nearer to this length before being battered than to the present average and that the difference in length as indicated by No. 5 is a significant difference.

In like fashion, the widths differed. 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, is 1.40 m.

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

The dolmens are oriented north to south.

Terraces are present. Like the dolmens, they are larger than their counter-parts at Damiya. That of 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 measurement and description. The dolmens are off center to the north on their terraces.

COPY OF FIELD NOTES, MAPPING OF DOLMENS

AT EL QUTTEIN: 310362

Dolmen No. or Station Letter	to	Dolmen No. or Station Letter	Angle in degrees of azimuth	Distance in meters	Remarks
A		2	320	8.90	Station A is a menhir or standing stone
2		3	290	37.50	
2		4	42	19.70	
4		5	93	12.73	
5		6	65	21.00	

TABLE 2 — Section A
Dolmens at El Quttein

No.	Condition	Porthole	Oriented
2.	Collapsed. E, W walls standing. Battered remnant of what may have been a door slab at N end of floor slab. 1.70 width of dolmen. Floor slab present.		N-S
3.	Collapsed. Circle of terrace stones, battered remnants of wall slabs and floor slab all that are left. 1.46 width of dolmen. Floor slab present.		N-S
4.	Collapsed. Terrace notice able on S. E-W slab at S end may be remnant of an end slab. Indication of a floor slab.		
5.	Collapsed. Double dolmen. Porthole in center. Terrace 17 m. in diam. Excavated on W side to depth of 1.50.	X	N-S
6.	Collapsed. May well have been a double dolmen. Dug to a depth of 1.80 at N face of S slab.		N-S

TABLE 2 — Section B

		Dolmens at El Quttein		
No.	N Slab	S Slab	S Slab	W Slab
2.		N-S 4.75 1.70 high 0.20 thick	E-W	N-S 3.35 0.75 high 0.40 thick
3.				
4.		3.26 1.34 high 0.25 thick		
5.			1.80 0.50 thick	Northerly piece 2.25 1.25 high Central piece 1.40 0.45 high Southerly piece 3.60 1.10 high
			Porthole: 1.60 E-W 1.15-1.30 high 0.50 thick Opening 0.40 below top of slab	
6.		Northerly piece 2.25 0.90 high Southerly piece 2.90 1.15 high Each 0.40 thick		Northerly piece 3.00 1.00 high Southerly piece 2.20 0.60 high Each 0.60 thick

NOTE: Remember all these structures have been damaged, and measurements are not true measurements of the original sizes of the stones.

Floor slabs are present at the El Quttein dolmens. All have been vandalized.

Slabs of the Damiya dolmens are obviously from the Um Sahn sandstone formation on which they stand. This is not true at El Quttein. We saw no nearby member of the Um Sahn much like the stone 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 since no such slabs were apparent when we were there.

All dolmens at El Quttein have been vandalized. Fortunately for us, someone with energy dug along the west face of Dolmen 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 top to ground level (and I'm not certain we saw its actual base), 2.25m. 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 sunk 0.70 m. into the ground.

Wall slabs of Damiya dolmens 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 this hillock is natural or has been built up during manufacture of terraces, terrace fill, and dolmens.

Objects from the debris of the excavations 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 permitted closer dating.⁽¹⁾

⁽¹⁾ *In correspondence, Rafik Dajani informed me he had dug into dolmens both here and at Damiya and found Iron Age pottery. Whether this material is intrusive or of the same date as the construction of the dolmens is not yet clear to me.*

DOLMENS AT TELL EL MATABI

Tell el Matabi (hereafter El Matabi) is on the east bank of the Jordan River. It is 22.8 km. at an angle of 111° east of north of Jericho (Fig. 1). Its coordinates on the highway map of the Hashemite Kingdom of Jordan are 210.6-130.7. 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 clearly visible from the road once one knows they are there, but they, like those of Damiya are difficult to see intially since they fade into their background. They, too, are on Um Sahm sandstone and built of it. (Geological Map of Jordan, 1954, Sheet 1, Amman). We drove past them several times before John one day noticed them and called our attention to them.

We recorded 16 dolmens at El Matabi (Fig. 3). They are different from those of both Damiya and El Quttein, even though El Quttein is less than a kilcmeter away and the sites are inter-visible. Plate 11 illustrates Dolmen No. 1 at El Matabi.

Of the 16 recorded dolmens, six (Nos. 2, 5, 6, 9, 10, and 15) are collapsed into amorphous piles of bolcks of stone. Their original relationships cannot be ascertained without rebuilding the structures. Of the other ten the end slabs of four (Nos. 3, 4, 8, and 14) are measurable and are noticeably of a narrow gauge as compared with those of Damiya. The widths of the four average only 0.63 m. Nos. 7, 1.25 m. wide, and No. 16, 1.00 m. wide, more nearly approximate the Damiya standard, and they, with No. 14, whose end slab is 0.70 m. wide, more nearly resemble those of Damiya in general appearance than any of the others that still stand at El Matabi. All have terraces. Table 3 gives characteristics and such statistics as were available at El Quttein.

COPY OF FIELD NOTES, MAPPING OF DOLMENS AT EL MATABI: 090462

Dolmen No.	to	Dolmen No.	Angle in degrees of azimuth	Distance in meters
1	2		26	29.50
2	3		69	32.50
3	4		110	17.50
4	5		68	19.00
5	6		45	36.00
6	7		337	11.50
7	8		74	5.75
8	9		87	5.85
9	10		47	12.35
7	11		333	17.80
11	12		16	7.50
11	13		28	11.65
11	14		56	34.90
14	15		218	27.25
14	16		347	117.90

DOLMENS AT EL MATABI

James L. Swauger

1 November, 1962

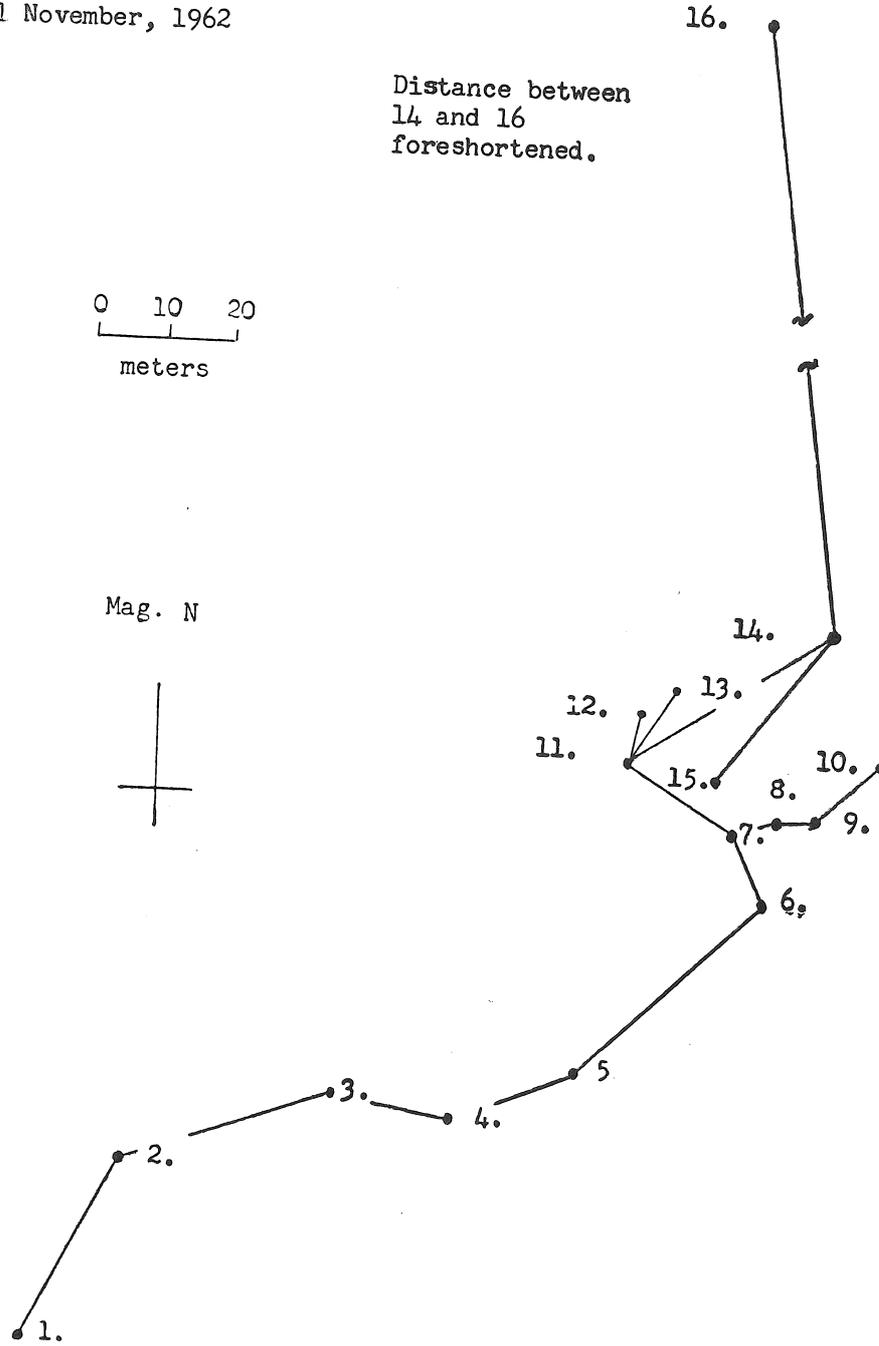


TABLE 3 — Section A
Dolmens at El Matabi

No.	Condition	Oriented
1.	Collapsed. N wall is one slab, standing. S wall is one slab, broken. Cover slab broken. Terrace 4.25 diameter.	E-W
2.	Collapsed. Amorphous.	
3.	Collapsed. No cover slab present. 0.60 wide at best.	E-W
4.	Collapsed. No cover slab present. 0.50 wide at best.	N-S
5.	Collapsed. Amorphous.	
6.	Collapsed. Amorphous.	
7.	Standing. Double dolmen. Smaller section on S. Cover slabs on both sections. Terrace amorphous.	N-S
8.	Collapsed. No cover slab. Terrace amorphous. 0.60 wide at S, 0.35 at N.	N-S
9.	Collapsed. No cover slab present. Terrace amorphous. 0.70 wide at N. Walls broken off, not measured.	N-S
10.	Collapsed. Cover slab broken, slipped off to W. Walls broken off, not measured. 0.85 wide at best.	N-S
11.	E, W slabs standing. Cover slab 0.75 wide at N end.	N-S
12.	Collapsed. On E and W, one wall slab standing. N, S slab present. 0.85 wide at base on N.	N-S
13.	Collapsed.	N-S
14.	N, E, W slabs standing. Cover slab present	N-S
15.	Collapsed. Amorphous.	
16.	N wall is two slabs. W slab present. E, S slabs broken off at ground level. 1.20 wide at W end, 0.60 at E.	N-S

TABLE 3 — Section B
Dolmens at El Matabi

No.	Cover Slab	N Slabs		E Slabs		S Slabs		W Slabs	
		E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S
1.		2.10							
		0.80 high							
3.		Easterly,				Easterly,		0.50	
		0.60				0.45		0.50 high	
		0.25 high				Westerly,			
		Westerly,				1.10			
		1.10				0.40 high			
		0.35 high							
4.		0.55	1.95					Northerly,	
		0.65 high	0.75 high					1.30	
								0.80 high	
								Southerly,	
								0.62	
								0.55 high	
5.									
6.									

7.	Larger, 2.20 N-S; 2.00 E-W.		Larger section only:	
	Smaller, 1.20 N-S; 1.80 E-W.	1.25	1.90	2.00
8.		0.85 high	0.85 high	0.75 high
		0.75	Northerly,	Northerly,
		0.55 high	1.00	1.25
			0.35 high	0.60 high
			Southerly,	Southerly,
			0.95	0.85
			0.30 high	0.45 high
9.				
10.				
11.	2.90 N-S; 1.60 E-W.		Northerly,	3.00
			2.10	1.20 high
			0.75 high	
			Southerly,	
			0.75	
			0.50 high	
12.			Northerly,	Northerly,
			2.10	1.10
			0.65 high	0.60 high
			Southerly,	Southerly,
			0.70	0.90
			0.45 high	0.50 high
13.			1.30	2.10
			0.75 high	0.80 high
14.	2.90 N-S; 1.50 E-W.	0.70	1.75	2.35
	0.40 thick.	0.95 high	0.90 high	1.15 high
15.				
16.		Easterly,		1.00
		1.10		
		0.80 high		0.90 high
		Westerly,		0.30 thick
		0.95		
		0.90 high		

Walls are generally of two or more thin slabs. Nineteen long walls were 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. They range from ground level to 1.15 m. high on the west wall of No. 14.

Only three cover slabs were measurable, hardly a fair sample.

Dolmen No. 7 is peculiar (Plate 12). John 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. It is unique in the three sites we worked.

Dolmens Nos. 8, 9, and 12 are not of the standard Damiya type either (Plate 13). They more 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.

There are three architectural styles at El Matabi. Dolmens 11, 14, and 16 (Plate 14), even 7 if one disregards the trailer for a moment, are reasonably close to the general style at Damiya. Others, Nos. 3 and 4 are good examples (Plate 15), are different indeed from those of Damiya, narrow, short, squat, and thin-slabbed, yet without question dolmens. The peculiar structures Nos. 8, 9, and 12 (Plate 13), have been discussed.

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 sixteen 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 to such an extent that it is not feasible to discuss floor slabs as significant features of the site without clearing all the dolmens.

The Um Sahn formation at El Matabi furnished the builders with shoddy material. The slabs are thin, friable, mis-shaped, altogether a very poor sort of construction stone. The high percentage of collapsed dolmens, 38 per cent, is 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.

Iron Age sherds were identified by Rafik Dajani at 12 dolmens. Both he and Dr. Awni Dajani identified a sherd from No. 12 as Chalcolithic. We found microlithic blades and even a Levalloisian flake on the surface of the site. Again, there was no acceptable association of artifacts with dolmens.

SUMMARY

Tangible results of the 1962 work in Jordan are:

1. Maps were made of each of three dolmen sites.
2. General descriptions were prepared 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.
5. Three distinct architectural styles were identified at El Matabi.
6. Surface collecting at the sites gave no clue as to their age or the culture of their builders.
7. Terraces are commonly associated with dolmens.
8. Most dolmens have been vandalized.
9. The only relationship 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.
10. Style of construction of dolmens is probably conditioned less by cultural motivation than than by available building stone.
11. Dolmen sites have been used by men for one purpose or another since at least Neolithic times.

DIRECTION OF 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, relationships of dolmens to terraces, relationships among the dolmens at each site, and relationships among the dolmens of the sites.
 - c. Prepare detailed descriptions and isometric drawings of each dolmen.
 - d. Collect artifacts assiduously from each site since while they may not have immediate 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 split 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 location of sites noted in literature. 1962's work proved such work must be carefully planned 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 work.
3. Map, excavate, and describe sites in addition to the three worked in 1962, and study them in terms of knowledge of Damiya, El Quttein, and El Matabi.

BIBLIOGRAPHY

- Broome, Edwin C., Jr., THE DOLMENS OF PALESTINE AND TRANSJORDANIA.
Ph.D. thesis. Brown University. May, 1940.
Ms. I, i-iv, 1-71. II, 172-287. 5 maps.
- THE DOLMENS OF PALESTINE AND TRANSJORDANIA.
Journal of Biblical Literature. LIX (59). 1940.
479-497.
- Conder, Claude R., THE SURVEY OF EASTERN PALESTINE... I. London, 1889.
1-304. 219 figs. 1 map.
- Daniel, Glyn, THE MEGALITH BUILDERS OF WESTERN EUROPE. New York, 1958.
1-142. 33 figs.

- Glueck, Nelson, EXPLORATIONS IN EASTERN PALESTINE. I. The Annual of the American Schools of Oriental Research. Vol. XIV for 1933-1934. 1934. 1-113. 58 figs.
- II. The Annual... Vol. XV for 1934-1935. 1935. 1-202. 84 figs. Map in end envelope.
- III. The Annual Vols. XXV-XXVIII for 1945-1949. 1951. Part I: Text. i-xix, 1-423. 130 figs. 1 map. Part II: Pottery Notes and Plates. 1951. 425-711. 163 figs.
- Harding, G. Lankester, THE ANTIQUITIES OF JORDAN. New York, 1959. 1-206. 41 figs.
- Schumacher, Gottlieb, ABILA OF THE DECAPOLIS. London, 1889. 1-51. 16 figs. Map.
- NORTHERN 'AJLUN. London, 1890. 1-207. 66 figs. 3 maps.
- Tristram, H. B., THE LAND OF MOAB. London, 1874. 1-408. 42 figs. map.
- Wheeler, Mortimer. STILL DIGGING. New York, 1956. 1-236. 17 figs.

MAP REFERENCES

- Archaeological Map of the Hashemite Kingdom of the Jordan. Sheet 1. Amman. 1:250,000. 1949.
- Geological Map of Jordan (East of the Rift Valley), The Hashemite Kingdom of Jordan Sheet 1. Amman. 1:250,000. 1956.
- Highway Map of the Hashemite Kingdom of the Jordan. Sheet 1. Amman. 1:250,000. 1949.
- the dolmens of Jordan
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