ENGLISH SUMMARY

GEOGRAPHICAL CONDITIONS IN THE SHARON PLAIN AND THEIR IMPACT ON ITS SETTLEMENT

by Y. KARMON

The Sharon Plain shows three distinct geographical zones: the western zone, built of alternating parallel ridges of kurkar-sandstone with intervening alluvial valleys, the central zone, built of irregular hills of red sand, and the eastern zone, which consists of an uninterrupted alluvial plain. All zones enjoy the same type of Mediterranean climate, with winters which are specially mild because of the warming influence of the Mediterranean Sea, and with sufficient rainfall, which makes years of drought almost unknown.

Differences in settlement in the various parts of the Sharon stem mainly from differences in the qualities of the soil, water-supply and topography suitable for defence.

The soils may be grouped into two major categories: a. *The alluvial soils,* which are excellent as agricultural land, but tend towards formation of swamps in the western and central zones. The eastern zone is sufficiently drained, and served therefore in all periods of history as the main area of settlement, while the swampy soils were settled only in those historical periods in which the problems of irrigation were mastered, viz. in the Roman-Byzantine period and in the time of the British Mandate.

b. *The sandy soils,* which cover more than 60% of the total area of the Sharon, show two varieties: coastal sand dunes, and hills of red sand. Both types could not be put into agricultural use — not even in Roman-Byzantine times — until the Zionist colonization, which turned the red sand into the most fertile soil of the coastal plain by applying irrigation and chemical fertilizers, and by using it as the main area of citrus cultivation. In ancient and medieval times, the hills of red sand were covered by a dense oak forest, remains of which were still existing until the First World War.

Until the Zionist colonization, the water supply of the Sharon was dependent upon springs, which were scarce and concentrated in the swampy areas, i.e. in the areas unsuitable for agriculture. A number of springs exist at the food of the Mountains of Samaria at the eastern edge of the Sharon, and this fact strengthened even more the concentration of settlement in the eastern zone. The Zionist settlement in the time of the British Mandate discovered the rich aquifer of the

"Saqieh", at a depth of approximately 40–90 m., which occurs under the sandy soils, and became since the main source for the irrigation of the western and central zones of the Sharon. Therefore in the time of the British Mandate a geographic division occurred between Arab settlements, which were concentrated mainly on the alluvial lands in the east, and the Jewish settlements on the sandy or swampy soil of the west. By 1947 the area of the Sharon was almost equally divided between Jews and Arabs.

As for building material there was a great deficiency in the western parts, which lacked stones, except on the narrow kurkar ridges, and clay for the building of adobe houses. These materials too were found in abundance in the eastern Sharon.

Finally, as regards defence, only a few sites in the western Sharon were suitable for fortified towns, i.e. the places where a river forces its way through a kurkar ridge. The central zone, which lacks kurkar ridges altogether, was almost void of settlements, while the slopes of the Samaria Mountains provide many sites suitable for fortifications.

For these reasons, in all historical periods the eastern zone of the Sharon was the main centre of settlement and served also as the main international highway, while the central zone was the least developed and was mainly covered by forest. The degree of settlement of the western zone changed according to the importance of the coast and to the technical skill of the period. The Jewish colonization of our times changed all these values and made the western and central zones with their sandy or swampy soils the main centres of modern settlement.

TABLE 1

NUMBER OF SETTLEMENTS IN THE DIFFERENT PARTS OF THE SHARON AT VARIOUS HISTORICAL PERIODS

Period	*Western Zone*	*Central Zone*		*Eastern Zone*
		Red Sand	*Swamps*	
Early Bronze Age	3	—	—	2
Iron Age	8	—	—	22
Roman-Byzantine	28	7	21	33
	+ 2 towns			+ 2 towns
Crusaders	8	5	4	35
1800	4	4	—	13
1946 (Arabs)	6	5	—	17
(Jews)	31	37	6	4
1956 (Arabs)	1	1	—	8
				+ 8 (outside Israel)
(Jews)	38	48	9	31

TABLE 2

POPULATION OF THE SHARON

Year	*Arabs*	*Jews*	*Year*	*Arabs*	*Jews*
1914	20,000	200	1946	45,000	55,000
1931	34,000	9,000	1956	?	210,000
1936	40,000	30,500			

THE LARGE CITIES OF ISRAEL: A GEOGRAPHICAL COMPARISON

by D. H. K. AMIRAN and A. SHAHAR

Both for importance and size Jerusalem, Tel Aviv, and Haifa form a class by themselves among the cities of Israel. For many years Jerusalem was the largest city of the country, but already by 1930 it was outdistanced by Tel Aviv, and since 1950 even by Haifa. The conurbation of Greater Tel Aviv numbers today about 600,000 inhabitants, Greater Haifa over 220,000. The ranking of Tel Aviv as Israel's largest city, notwithstanding the obvious advantages of Haifa (port, ample land for building, basic industry, good access routes to the hinterland), is the result of the political limitations of the trade hinterland in the Levant as served at present by Haifa.

THE LOAD OF THE LOWER JORDAN

by I. SCHATTNER

The Jordan River carries much more load than most rivers of a similar size, in consequence of the peculiar nature of its bedrock and the processes making it available as a river charge. A very characteristic feature of the Jordan is the high degree of autogeneity and autochthonity in the river's load acquirement. That is to say, an exceedingly high percentage of the load comes from the erosional activities of the river itself or is derived from its own valley and its nearest surroundings. The load is essentially supplied from a very specific source-area: an extensive and morphologically very complex badland-zone on both sides of the Lower Jordan dissected by innumerable gullies, runlets and rills. Another peculiar feature is the great amount of load supplied to the river by gravitative mass-movement: slip-offs, slidings, slumpings, free fall and rolling down of material into the alluvial valley of the Jordan. Major slip-offs (sometimes caused by earthquakes) have even several times stopped the river flow for many hours. These ways of load ac-

quirement provide the river with considerable amounts of material to be carried by its flow even in the prolonged dry season. The processes involved in this mass movement are very variegated and individually much more discernible than in other climatic-morphological zones. They play a decisive part in the continuous recession of the bluffs that border the Lower Jordan with only minor interruptions along all its course.

Conversely, the load-amounts brought into the river by its major and medium affluents are disproportionately small. The main cause for this is the break in gradient sustained by the tributaries when they leave the mountainous area to enter the broad, flat rift valley-floor. As a corollary to this, vast fans are built up at the entrances of the tributaries into the rift valley, and these use up most of the coarse load carried by the tributaries. Another load-trap is caused by the considerable height-difference between the rift valley-floor and the floor of the alluvial valley of the vigorously incising Jordan. In order to overcome this difference the tributaries build-out secondary fans into the alluvial valley of the Jordan. Over these they reach the main river in braided channels along which they deposit most of the coarse load that they are still capable of carrying across the rift valley-floor during their flood-stages.

There are along the Jordan some conditions that are in themselves unfavourable for meandering, particularly its relatively steep overall-gradient which still causes intensive vertical erosion. These conditions seem to be fully compensated by the large amounts of fine-grained load carried by the river in its full-bank and flood-stages. With all the capacity accorded to the river by the steep gradient and the extreme high rise in discharge during these stages, it is compelled to deposit vast amounts of its load along its course. Thus processes are initiated and maintained which (according to the newest notions about the factors and about mechanism of meandering) are essential for the development of meanders.

THE CAVES IN THE BETH-GUVRIN REGION

by Y. Ben-Arieh

The author investigates the numerous bell-shaped caves and cisterns in this region; they have one opening in the centre of their roof and spread out regularly on all sides. The average diameter of the opening is 1.00–1.20 m., the depth of the cavity 5–7 m., the diameter of the base 5–6 m. Usually the opening in the roof is the only way of access. The caves are mostly formed by joining several such cisterns; the separating walls have often been lost. There are thousands of such cisterns in the area, which is composed of Eocene chalkstone. There is clear evidence of stone-cutting in their sides. In the writer's

opinion these cisterns are man-made throughout, by an opening being made in the nari cover, and then widened out in the softer chalk-stone. The purpose of these excavations was neither water-storage nor the making of dwelling caves but the quarrying for chalk to be used in making cement and plaster for building purposes.

PHYSIOGRAPHIC ASPECTS OF THE TULEILAT EL-ʿENAB

by D. SHARON

Experts on the problems of ancient agriculture in the Negev agree today that the stone heaps (known also as tuleilat el-ʿenab) have been piled up by the ancient farmers, when the latter were clearing slopes of their dense cover of stones. It is a fact, however, that at present the same slopes are again covered by wash of local rock, forming a single layer. Under this cover is found a more or less clean soil, mixed with rock fragments.

The author suggests that after having been removed, the stone-cover regenerated itself. The clearance of the ground disturbed the morphological equilibrium of the slope, exposing it to erosion; through differential action the rock fragments were left on the slope, thus forming a new cover. This cycle ended when equilibrium was re-establish; while the cycle lasted, the slopes retreated slightly, because the bare surface soil was eroded.

The proposed cycle explains the presence of a well-developed stone cover on slopes which must have been cleared of stones in the past. Moreover, it explains the fact why the topmost soil layer is somewhat higher under the ancient mounds than outside them.

As the slopes thus treated drained down into the cultivated valleys below, vast amounts of earth seem to have been transported from the slopes to the fields.

THE ANCIENT AGRICULTURE IN THE ʿAVDAT AREA

by Y. KEDAR

1. The area consists of four topographical units: a. mesas; b. slopes; c. flood plains and river terraces; d. stream beds. The ancients suited the agricultural and military installations and their dwellings to each of these units.

Fields are to be found in three valleys of this region: ʿAvdat, Zin, Dibshon.

In the Zin Valley there are . . .	1,673.3	dunam
In the ʿAvdat Valley	4,492.2	"
In the Dibshon Valley	476.5	"
On the plateau	130.0	"
In all there are in the ʿAvdat area . .	6,772	dunam of fields.

The town of ʿAvdat (53.3 dunam in area) was built on the co-ordinate 1283 0226 over the Zin Valley; it overlooked the various routes of the region. It was built partly on a plateau and partly on a slope (here c. 410 dwelling caves were hewn out).

In the "Miscellanea", there are two notes by Y. Kedar connected with agriculture in the Negev, and a short report on a survey on the Safed area by A. Shahar.

תיקוני טעויות

עמ' 149: צריך להיסיף במקרא: 5. ללא שינוי.
עמ' 154: שורה 9 מלמטה צ"ל לוח 6 במקום 7.
עמ' 172, הע"ה 14 צ"ל: *ZDPV*