
The Towns of Israel: The Principles of Their Urban Geography

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THE TOWNS OF ISRAEL

THE PRINCIPLES OF THEIR URBAN GEOGRAPHY*

D. H. K. AMIRAN AND A. SHAHAR

SINCE ancient times the town has played a prominent part in the settlement pattern of Israel.¹ This is partly because the nucleated settlement pattern is characteristic of the way of life in Mediterranean lands, and partly because of Israel's position near the frontier between "the desert and the sown." Large settlements were necessary for security,² and the function of the Levant as an intercontinental crossroads of trade further strengthened the urban element. It is therefore not surprising that we should find some of the oldest towns of the Near East (and indeed of Western civilization) in this region.

In the third millennium before Christ a number of places in Palestine already had the rank of "town"; for example, Beth Yerach on the shore of Lake Tiberias (a regional precursor of Tiberias), Beth Shan, Megiddo, 'Ai (present-day Ramallah), Gezer, and Lachish.³ The status of Jaffa and Jerusalem as towns in the second millennium is also established.

In later history, towns often grew to considerable size, especially during periods of stable government and flourishing trade. In modern times, the revival of the country has brought about, within the framework of a large general increase in population, an especially rapid growth of urban population.

THE URBAN POPULATION OF ISRAEL

When the Survey of Western Palestine was carried out in the 1870's, about 120,000 people lived in towns.⁴ The estimated total population was

*The authors wish to express their thanks to Mr. N. Z. Baer, cartographer of the Department of Geography, The Hebrew University of Jerusalem, who drafted the maps and diagrams.

¹ For convenience, no distinction has been made in this paper between the regional terms "Israel" and "Palestine."

² D. H. K. Amiran: The Pattern of Settlement in Palestine, *Israel Exploration Journ.*, Vol. 3, 1953, pp. 65-78, 192-209, and 250-260.

³ The excavations conducted recently by Miss Kathleen M. Kenyon have established that Jericho was already a walled town in the seventh millennium before Christ (Kathleen M. Kenyon: *Digging Up Jericho* [Ernest Benn, London, 1957]).

⁴ C. R. Conder and H. H. Kitchener: *The Survey of Western Palestine: Memoirs of the Topography, Orography, Hydrography, and Archæology* (3 vols., London, 1881-1883). For the towns referred to see the table in D. H. K. Amiran and A. Shahar: *Estimates of the Urban Population of Palestine in the Second Half of the Nineteenth Century*, *Israel Exploration Journ.*, Vol. 10, 1960, pp. 181-183.

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between 450,000 and 500,000; thus about 25 per cent of the total population was urban. The urban percentage has gradually increased as the total population of Palestine has grown (Table I), and Israel has the doubtful privilege of holding third place in the world in ratio of urban population.⁵

The steady rise in the percentage of urban population has been largely attributable to the character of the new immigrants. Between 1882 and 1958,

TABLE I—URBAN POPULATION OF ISRAEL*

YEAR	TOTAL POPULATION	URBAN POPULATION	% URBAN
1922	757,182	297,223	39
1931	1,035,821	478,271	46
1958	2,031,672	1,496,425	75.9 ^a

* The figures for 1922 and 1931 refer to the mandated territory of Palestine; those for 1958 to the State of Israel only.

^a The urban percentage of the Jewish population of Israel is even higher, being 77.4. The large increase in the percentage of urban population between 1931 and 1958 is due in part to the reduction in size of the area to which the figures refer. The State of Israel comprises 20,255 square kilometers of land area, as against 26,305 square kilometers of mandatory Palestine, west of the Jordan.

1,439,989 Jews immigrated into Israel.⁶ Owing to the demographic and sociologic background of the Jewish people, these immigrants were predominantly urban and naturally tended to settle in towns. The ratio of the Jewish rural population has risen but slowly.

It is thus a matter of small surprise that the percentage of population living in the three main cities is very high indeed. The total population of Tel Aviv-Jaffa, Haifa, and Jerusalem as a percentage of the total population was 17.5 in 1922, 23.5 in 1931, and 35.5 in 1959. If we include the total population of the conurbations of Tel Aviv and Haifa, the percentage for 1959 is 50.6. The population of the conurbation of Tel Aviv reached more than 600,000 by the end of 1958, or 30 per cent of the total population of Israel; the population of the conurbation of Haifa was more than 240,000, or 12 per cent of the total. The population of Tel Aviv within the municipal boundaries is 383,000, that of Haifa 174,000 (1959). The difference between the numbers in the municipal areas and in the conurbations gives a clear idea of recent urban development in Israel.

The distribution of towns (Figs. 1-5) corresponds roughly with the dis-

⁵ In 1951, 82.9 per cent of the population of Scotland was classified as "urban" and 80.7 per cent of the population of England and Wales; Israel followed closely with 77.5 per cent (*United Nations Demographic Yearbook 1952*, New York, 1952, pp. 10-11).

⁶ *Statistical Abstract of Israel 1957/58*, Jerusalem, 1958, Table D 3 (p. 58).

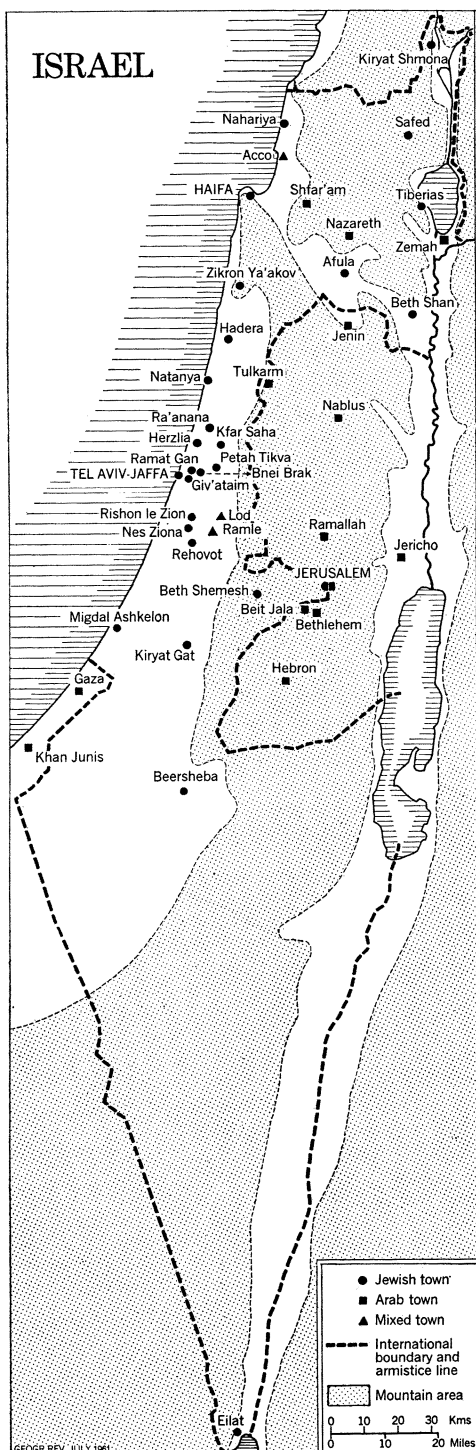


FIG. 1—Location map.

tribution of population. In consequence of the changes in the distribution of population, we observe a parallel change in the distribution of towns. Towns are found (1) along the central area of the mountains of western Palestine; (2) on the coastal plain, predominantly along the shore; (3) on the border of the arid zone, serving main traffic routes; and (4) on the highlands of eastern Palestine, east of the Jordan Valley, paralleling the towns in the first group. Although this last region has not been politically part of Palestine since 1920, it must at least be mentioned as part of the same geographical region.

MOUNTAIN TOWNS VERSUS PLAIN TOWNS

A number of factors have contributed to the development of towns in Palestine since ancient times. Prominent in the past were regional centers, towns located on important roads, and towns containing places of worship. For security and political reasons, towns in the mountains developed more steadily than those on the coastal plain, and they do not show the strong fluctuations in population and importance so evident in the coastal towns. Apart from towns such as Bethlehem, whose im-

portance is religious, most of the mountain towns are located along one of the ancient highways, at more or less regular intervals. This clearly reflects their former importance for trade and traffic along the central longitudinal highway of Judea.⁷

The coastal plain of Palestine has suffered great vicissitudes. In periods of prosperity the plain was frequently the major economic area of the

TABLE II—COASTAL-PLAIN AND MOUNTAIN TOWNS*
C. P., Coastal-plain towns. M., Mountain towns.

	1875		1922		1931		1944	
	C.P.	M.	C.P.	M.	C.P.	M.	C.P.	M.
Number of towns	4	6	7	6	10	6	14	7
Total population	41,500	65,700	117,065	117,945	229,625	152,023	540,350	244,920
% of total	38.7	61.3	49.8	50.2	60.2	39.8	68.8	31.2

* The figures for 1875 were compiled from the estimates made by the "Survey of Western Palestine" (see text footnote 4 above). The figures for 1922 and 1931 are based on census returns, those for 1944 on official estimates based on the regular "Registration of Population." Later figures are not included because data for Jordanian towns are not available.

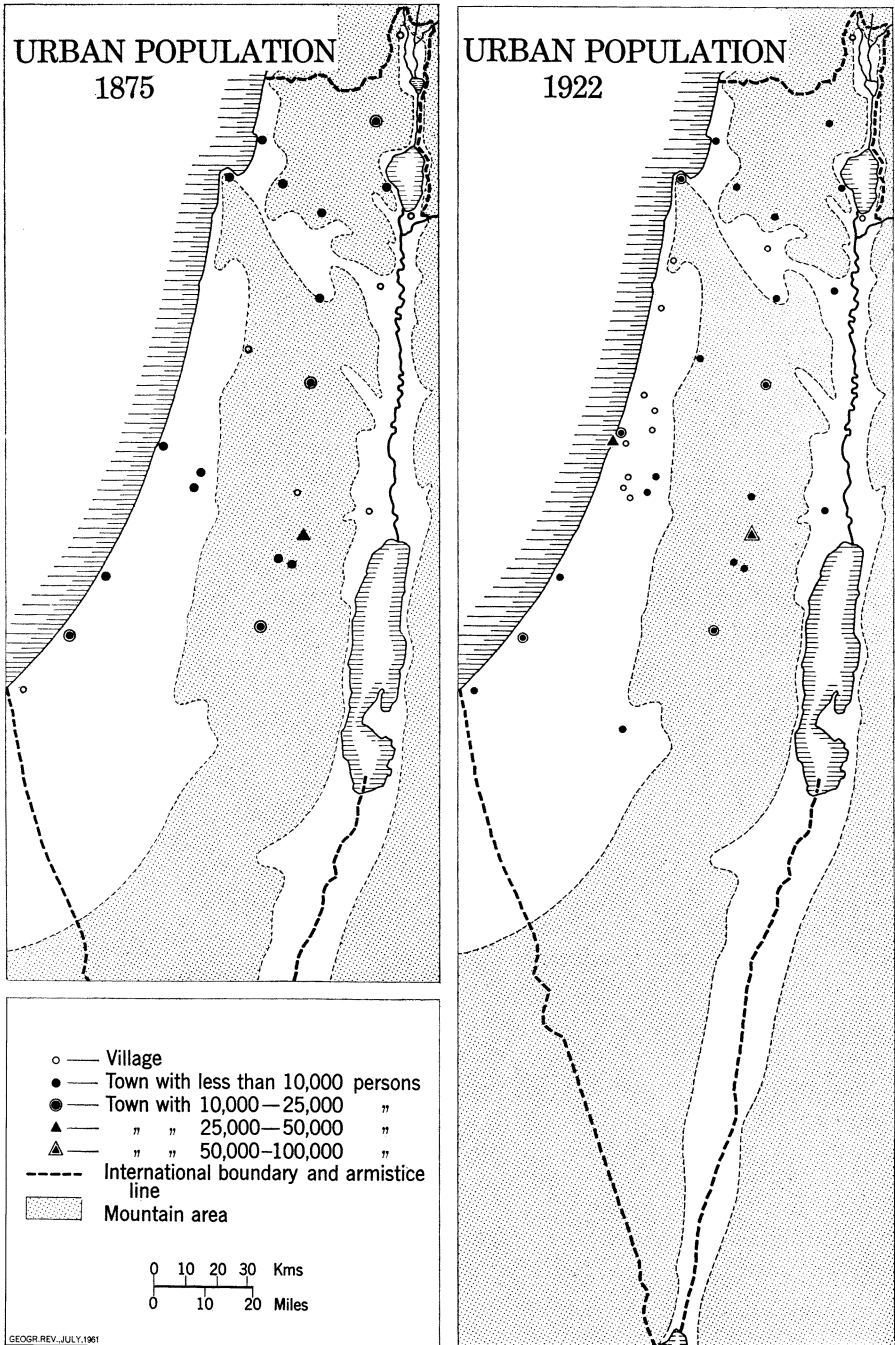
country. If international trade declined or came to a standstill, the coastal towns lost most of their importance. The situation was often aggravated by a worsening of security, which in turn led to a gradual decline of cultivation on the plain, deterioration of its drainage, and infestation by malaria. To cite just one instance, Caesarea, the capital of Palestine in Roman times, had at its most prosperous period a population of considerably more than 100,000. Yet for long periods in its later history the place was uninhabited, and today Caesarea is no more than a village. Even Jaffa, often one of the most important towns of the coastal plain and today the nucleus of the largest conurbation of the country, was for long stretches of time nothing more than a village. No town in the mountains underwent such violent fluctuations in importance as these.

At present, when the main economic emphasis is on the coastal region, the coastal cities are the major urban agglomerations of Israel. Table II shows clearly the gradual transition in the importance of the towns of the coastal plain as compared with the mountain towns.

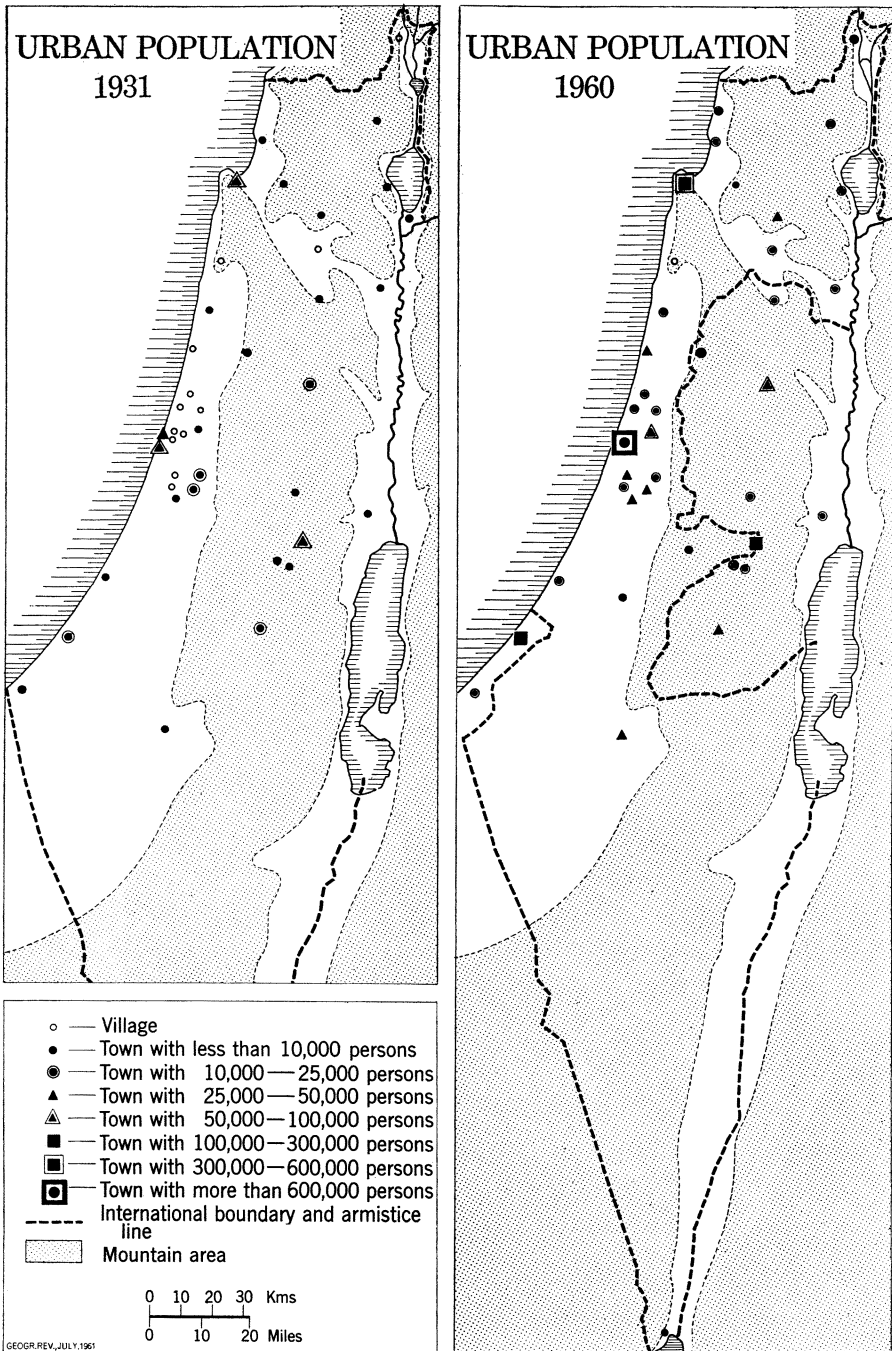
THE MOUNTAIN TOWNS

The mountains of western Palestine have strongly dissected flanks to the east and west, with a relatively undissected area in the center, usually re-

⁷ Compare the "Atlas of Israel" (Dept. of Surveys, Ministry of Labour, and the Bialik Institute, The Jewish Agency, Jerusalem), Sheet XIV/1, Road Development (1957). (Text in Hebrew.)



FIGS. 2 and 3—Distribution of urban population in Israel, 1875 and 1922.



FIGS. 4 and 5—Distribution of urban population in Israel, 1931 and 1960.

ferred to in the literature as the "Judean Plateau." The mountain towns are uniformly located on this plateau, spaced at roughly the same interval of about forty kilometers. The historian must judge whether the decisive reason for the equal spacing was a day's caravan ride or the average sphere of influence of the towns for trade and services to their rural hinterlands.

In the determination of the exact sites of the various towns, the road pattern seems to have been of great importance. Jerusalem, largest of the mountain towns, is located, as many have noted, at the intersection of the major north-south mountain road with the road that comes up from the coast at Jaffa and leads east into Trans-Jordan, crossing the Jordan Valley at the first place north of the Dead Sea where the rift valley can be crossed and making use of the small oasis town of Jericho as a convenient staging point. However, at times Jerusalem was "replaced" by a more northern competitor, Gibeon, when the east-west road led over a more favorable route.

In determining the reasons for the location of Hebron, the largest town in the Judean mountains south of Jerusalem, a number of points must be considered. Here the Judean highland attains considerable width and becomes plateaulike, with the hills of the "Higher Shephelah"⁸ interposed at the unusual height of 400-500 meters. The general elevation of the region, about 900 meters, results in a high average annual rainfall. The central part of the highland here is convenient for the formation of a center for an area of dense agriculture, and Hebron, therefore, has always had the character of a rural town.

Hebron is located at the south end of the main highroad of the mountains of western Palestine. Going south, the traveler has a choice of two routes: the first leads south to Beersheba, with connections beyond; the second leads west and southwest to Beit-Guvrin, Gaza, and, ultimately, Egypt. When Beersheba and the Negev relapsed into insignificance, this second route became the more important. Hebron, not far from the border of permanent settlement, grew especially large. This is in keeping with the large size of the villages in the area and uncommon in other parts of the country;⁹ it is also characteristic of border areas in general.

On the outer periphery of the urban center of Jerusalem, at distances of ten and sixteen kilometers respectively, are the secondary towns of Bethlehem and Beit Jallah to the south and Ramallah to the north. Their impor-

⁸ A foothill zone between the Judean mountains and the coastal plain; cf. D. H. Kallner and E. Rosenau: *The Geographical Regions of Palestine*, *Geogr. Rev.*, Vol. 29, 1939, pp. 61-80, especially Fig. 1 (p. 62). For most of its extent the Shephelah does not exceed 350 meters in height.

⁹ For further details see D. Amiran: *The Geography of the Negev and the Southern Boundary of Settlement in Israel*, *Bull. Israel Exploration Soc.*, Vol. 20, 1956, pp. 108-117. (In Hebrew.)

tance changed with the general fluctuations in the importance of the mountain towns.

In the mountains of Samaria the largest town is Nablus. This town, which superseded ancient Sichem, grew up on a site of obvious advantages. Here the central north-south valley, carrying Samaria's major highway, is joined by the deepest and broadest transverse valley of Samaria. The towns on the Judean highland, in keeping with the general pattern of siting of settlements,¹⁰ are on elevated sites, but in Samaria, with its many basins and broader valleys, the chief town of Nablus stands on a low site, in a deep valley. The smaller towns of Jenin and Tul-Karem show a slight variation of the same type of location; they are located where important valleys issue from the Samaritan mountains onto the adjoining plains.

Obviously, the religious significance attached to some of the towns had a strong influence on their growth. This is true particularly of Jerusalem and Bethlehem, and to some extent of Hebron. The principle is also exemplified by Nazareth in Galilee, whose religious and subsequent political importance seems to have been decisive in its growth. Any analysis of the network of roads leading through southern Galilee shows clearly that topography would permit a number of shorter and more convenient routes than the roads leading from Nazareth.

THE LARGE TOWNS OF THE COASTAL PLAIN

We have already noted the pre-eminence of the coastal plain today.¹¹ Here is found not only the largest concentration of urban population in Israel but also the largest number of towns (Tables II and IV).

The three largest cities along the coast are, from north to south, Haifa, Tel Aviv-Jaffa, and Gaza. The fact that the distances between them are roughly equal is merely coincidental; the main reason for their locations is geographical. Haifa is located on the only major embayment in the coast of Israel.¹² Jaffa was built on a small hill on the coast, with a marked promontory suitable for a fortified town and a small harbor, partly sheltered by a row of reefs. Gaza is a border town in a much more pronounced form than Beersheba and Hebron. It is located near the limit of the permanently settled area and is the major bridgehead and staging post on the ancient road leading from Palestine and the Levant through the Sinai desert to Egypt.

¹⁰ "Atlas of Israel" [see footnote 7 above], Sheet XI/2, Sites of Settlements (1958). (Text in Hebrew.)

¹¹ See also Y. Karmon: Geographical Aspects in the History of the Coastal Plain of Israel, *Israel Exploration Journ.*, Vol. 6, 1956, pp. 33-50.

¹² The change in the location of the major port on the bay from Acre to Haifa deserves inquiry for itself and is not to be discussed here.

It is important to note that although the three cities are situated on the coast and although in the past the harbors of Jaffa, Tel Aviv, and Gaza were active, there is a basic difference between the major activities of the three cities. Today, Haifa is the only city with a first-class harbor and the only one in which the harbor plays a leading part in the urban economy. The case of Tel Aviv is strange: the largest and economically most important city in the country, it is situated on the coast, and yet the sea is not an important factor in its economy. Tel Aviv, as it were, turns its back to the sea. Gaza does the same, only more so, for the city stands on the landward border of the dune belt, more than three kilometers from the coast. Gaza in recent times has been the bridgehead of an intercontinental desert route, but its role as a seaport is slight. This situation is significantly different from that in past periods when Jaffa was the most important port of Palestine, much more so than Acre, which served as the main northern port instead of Haifa. Gaza played a minor role at certain times, mainly as a harbor for grain exports from the southern coastal plain and in earlier periods as one of the main outlets of the important caravan routes.

With Gaza now outside the territory of the State of Israel, and the lighterage ports of Tel Aviv and Jaffa of little significance, the need for a port on the southern Mediterranean coast of Israel became acute. This need was accentuated by the active development of the southern part of the country, including the *mise en valeur* of the mineral resources of the Negev. It was therefore decided to construct a deep water port at Ashdod, twenty-four kilometers south of Tel Aviv and fifteen kilometers north of the ancient town and harbor of Ashkelon (Ascalon). Construction is under way, assisted by a loan from the International Bank for Reconstruction and Development. It is expected that Ashdod Port will start operating in 1964.¹³

The relations between Tel Aviv and Haifa are interesting. Historically, the advantage of Tel Aviv is that it continues the activity of the port of Jaffa, one of the most ancient ports in the Levant, which formerly served as the port of Jerusalem, the capital. Haifa has—or had—the disadvantage of being a young town without any maritime tradition. Tel Aviv has the further advantage of a much more central location than Haifa. Nevertheless, it must be considered peculiar that the physical advantage of Haifa—the

¹³ Mention must be made of the small port of Eilat at the head of the northeastern gulf of the Red Sea, Israel's direct outlet to the Indian Ocean. Eilat was founded in 1949 and underwent considerable development after the opening up of the Straits of Tiran in the Sinai campaign late in 1956. Eilat, with a population of more than 5000, handled in 1959 more than 130,000 tons of cargo, mainly fertilizer and general cargo. This was more than one-third of the cargo handled by Tel Aviv and Jaffa. Actually the ratio is even higher, since the large oil shipments imported through Eilat are not included in the figure for that port.

configuration of the coast that made the establishment of a good harbor possible—did not outweigh the advantages of Tel Aviv.

THE SMALLER TOWNS OF THE COASTAL PLAIN

Apart from a few towns founded mainly as administrative centers (for example, Ramle), the minor towns of the coastal plain belong to two main groups: service towns and towns that developed from rural villages. Between them occur transition and development.

Natanya may be cited as an example of the first group. Natanya was founded in 1929, about halfway between Tel Aviv and Haifa, on land that was available for purchase. Here the town developed as a secondary market

TABLE III—POPULATION OF THE SMALLER COASTAL-PLAIN TOWNS

	1922	1931	1944	1958
Nahariya	—	—	1,300	14,000
Hadera	540	2,135	7,520	23,650
Natanya	—	253	4,900	36,000
Herzlia	—	1,217	4,200	23,500
Petah Tikva	3,032	6,880	17,250	49,000
Rehovot	1,242	3,193	10,020	29,550
Rishon le Zion	1,396	2,525	8,100	24,400
Kfar Saba	14	1,395	3,800	17,100
Nes Ziona	319	1,012	1,600	10,900

center and subsequently a center for light industry, including diamond cutting and polishing and also fruit canning. The beautiful situation on the shore also permitted its development as a resort. During World War II the British military authorities built one of the largest leave camps in the Near East here, and today Natanya is dotted with modern hotels.

The more numerous towns of the second group, of which Petah Tikva, Rehovot, and Hadera are the best examples, started as normal rural villages. They gradually grew in size, became market centers, and acquired some small agricultural industry. In this way they outgrew rural status both in size and in function, until at last they were granted legal urban status (Table III).

The spacing of these towns, which grew out of villages, does not follow the same rules as those governing the spacing of the towns proper. These former villages are frequently found at much closer intervals, and the agricultural value of the surrounding land seems not to limit the growth of their built-up areas. These towns, like all the other towns of the coastal plain, are located in the most productive part of Israel, largely in the citrus-growing region. Their continued expansion is making serious inroads into the available citrus-growing land (Fig. 6). The danger has become especially

TABLE IV—POPULATION AND RANKING OF ISRAELI TOWNS*

1875			1922			1931			1944			1959		
TOWN	POPULATION	RANK	TOWN	POPULATION	RANK	TOWN	POPULATION	RANK	TOWN	POPULATION	RANK	TOWN	POPULATION	RANK ^b
Jerusalem	21,000	1	Jerusalem	62,578	1	Tel Aviv-Jaffa	101,840	1	Tel Aviv-Jaffa	260,000	1	Tel Aviv ^c	617,300	1
Gaza	18,000	2	Tel Aviv-Jaffa	47,709	2	Jerusalem	90,503	2	Jerusalem	157,080	2	Haifa ^d	252,400	2
Nablus	13,000	3	Haifa	24,634	3	Haifa	50,483	3	Haifa	128,000	3	Jerusalem ^e	160,000	3
Hebron	11,000	4	Gaza	17,480	4	Gaza	21,643	4	Gaza	34,170	4	Petah Tikva	50,000	4
Safed	10,000	5	Hebron	16,577	5	Hebron	18,437	5	Hebron	24,650	5	Beersheba	39,500	5
Acco	9,000	6	Nablus	15,947	6	Nablus	17,498	6	Nablus	23,250	6	Natanya	37,000	6
Jaffa	7,500	7	Safed	8,761	7	Lod	11,250	7	Petah Tikva	17,250	7	Rehovot	29,600	7
Lod	7,000	8	Lod	8,292	8	Ramle	10,347	8	Lod	16,780	8	Rishon le Zion	26,000	8
Nazareth	5,700	9	Nazareth	7,424	9	Safed	9,441	9	Ramle	15,160	9	Nazareth	25,000	9
Bethlehem	5,000	10	Ramle	7,312	10	Tiberias	8,964	10	Nazareth	14,200	10	Herzlia	24,600	10
Haifa	4,250	11	Tiberias	6,950	11	Nazareth	8,894	11	Acco	12,360	11	Hadera	24,400	11
Ramle	3,000	12	Bethlehem	6,658	12	Acco	8,165	12	Safed ^a	11,980	12	Acco	24,000	12
Jenin	3,000	13	Acco	6,541	13	Bethlehem	7,320	13	Tiberias ^e	11,310	13	Ramle	23,000	13
Tiberias	2,500	14	Ashkelon	5,097	14	Khan Yunis	7,251	14	Khan Yunis	11,220	14	Ashkelon	22,700	14

* The figures for 1875 were compiled from the estimates made by the "Survey of Western Palestine" (see text footnote 4 above). The figures for 1922 and 1931 are based on census returns, those for 1944 and 1959 on official estimates based on the regular "Registration of Population."

^a In 1959 Tiberias ranked fifteenth and Safed twenty-fourth among the towns of Israel.

^b Because of the unavailability of exact figures for the Jordanian towns, the exact ranking for the year 1959 was compiled only for the Israeli towns.

^c Conurbation.

^d Greater Haifa.

^e Israel only; for the Jordanian part of Jerusalem, 104,000 should be added.

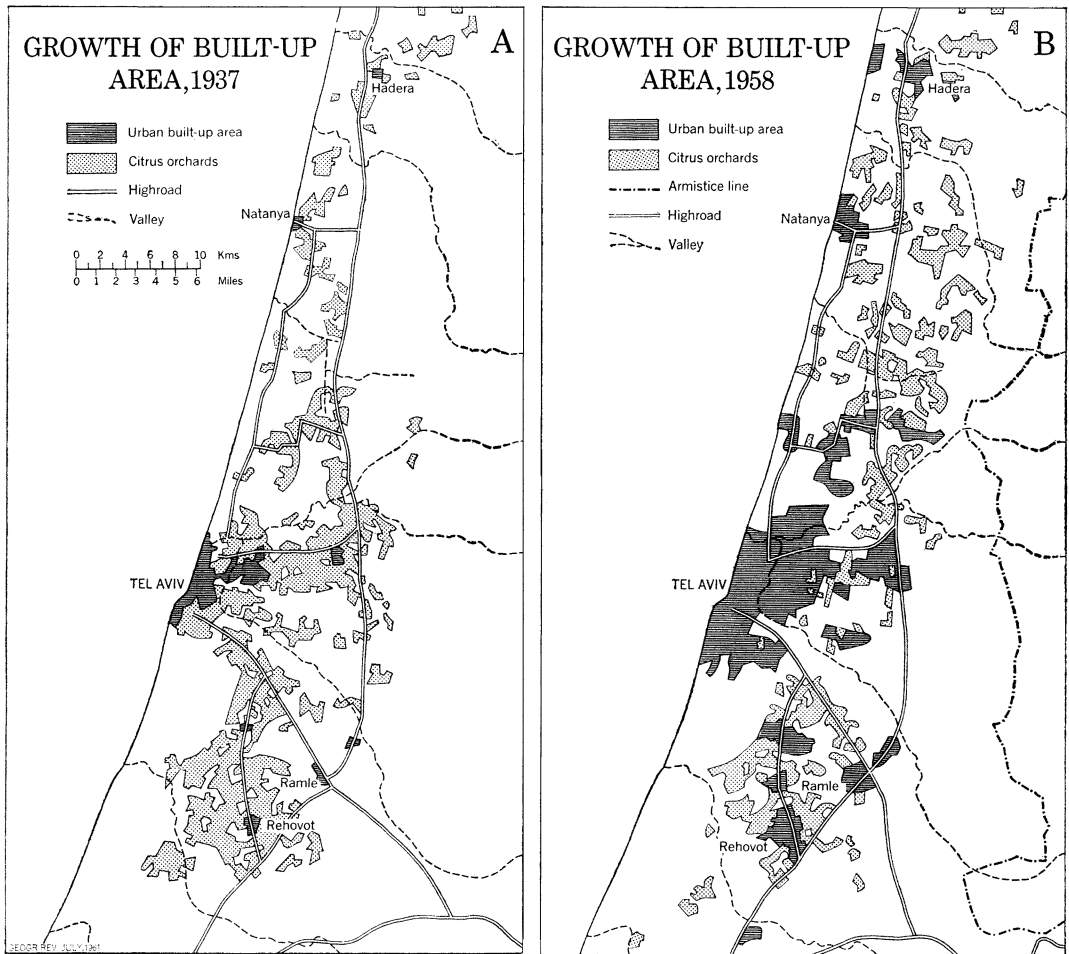


FIG. 6—Growth of built-up area in Israel, 1937 and 1958.

severe in the conurbation of Tel Aviv, around Petah Tikva, between Rishon le Zion and Rehovot, and around Herzlia.

THE PRIMATE CITY

Within the short span of the present century, the role of “primate city” has been held by both the most important mountain town, Jerusalem, and the most important coastal town, Tel Aviv. In keeping with the generally high degree of urbanization in Israel and the predominance of the coastal plain in its economy, Tel Aviv has lately attained a degree of primacy never before achieved in the country. It is significant that not only has the role of the country’s most important city passed from Jerusalem to Tel Aviv,

but even at the beginning of the present century mountain towns held a much higher rank in the urban hierarchy than they do at present. Whereas in 1875 four of the five top-ranking cities were mountain towns, by 1944 three of the five top-ranking cities were cities of the coastal plain (Table IV). Since then, the trend has been intensified.

Jerusalem lost its primacy among the cities of Palestine about 1930, after having held first place for many centuries. Since 1930, Tel Aviv not only has become the primate city but has outdistanced its competitors at an ever-increasing pace.

The slow development of Jerusalem arises from its nature as an administrative, educational, and religious center (Fig. 7). Set in the mountains of Judea, the city has no natural resources to draw on other than land suitable for fruit orchards and the amenities of a highland climate (Fig. 8). It has to obtain its water and power outside the region.¹⁴ The drawing of the political frontier between Israel and Jordan in 1948 through the city of Jerusalem bisected its regional hinterland. The city's function as a trade center was severely curtailed, and commercial activity along the main roads crossing here was interrupted. The best illustration of the present position is the fact that the head offices of Israeli banks and business companies are now in Tel Aviv instead of Jerusalem. The city today, both in Israel and in Jordan, occupies an acutely peripheral position. However, the Israeli government has recently made efforts to establish a number of minor industrial plants in Jerusalem, including clothing, electronics, pharmaceutical, and plastics factories and the country's largest pencil works.

The rapid and pronounced development of Greater Tel Aviv in recent years as compared with the much slower development of Greater Haifa would seem to contradict the geographical factors in the regional environments. A generation ago, most planners who gave attention to the development of major towns in Palestine were of the opinion that Haifa would

¹⁴ There are only two very small springs in the area of present-day Jerusalem. One of them, the Gihon, or Virgin's Fountain, was instrumental in determining the site of the Old City. Although even in the time of King Herod the Great, immediately before the beginning of the Christian era, Jerusalem was supplied through an aqueduct from the so-called "Solomon's Pools," to the south at an air-line distance of twelve kilometers, the town subsequently had to rely for its water supply for most of the time on rain water collected in cisterns. According to Turkish law, the construction of a cistern for every house was mandatory. Only in the present century was a regular pipeline supply made available. Today, Jerusalem obtains its water supply through two modern pipelines from the coastal plain some forty-five kilometers to the west. The water is pumped to an altitude of more than seven hundred meters. The Jordanian part of the city is supplied from the springs in the Wadi Qelt to the east of the city, from which Jerusalem obtained its water until 1935.

Jerusalem still retains the small power station of the Jerusalem Electric and Public Service Corporation, but was linked a few years ago to a country-wide electric network.



FIG. 7—The south-central part of Jerusalem, with the Mount of Olives in the background. The building with the tower is the Y.M.C.A. Behind it is the King David Hotel.



FIG. 8—Kiryat Hayovel, a western suburb of Jerusalem. Note the arid landscape.

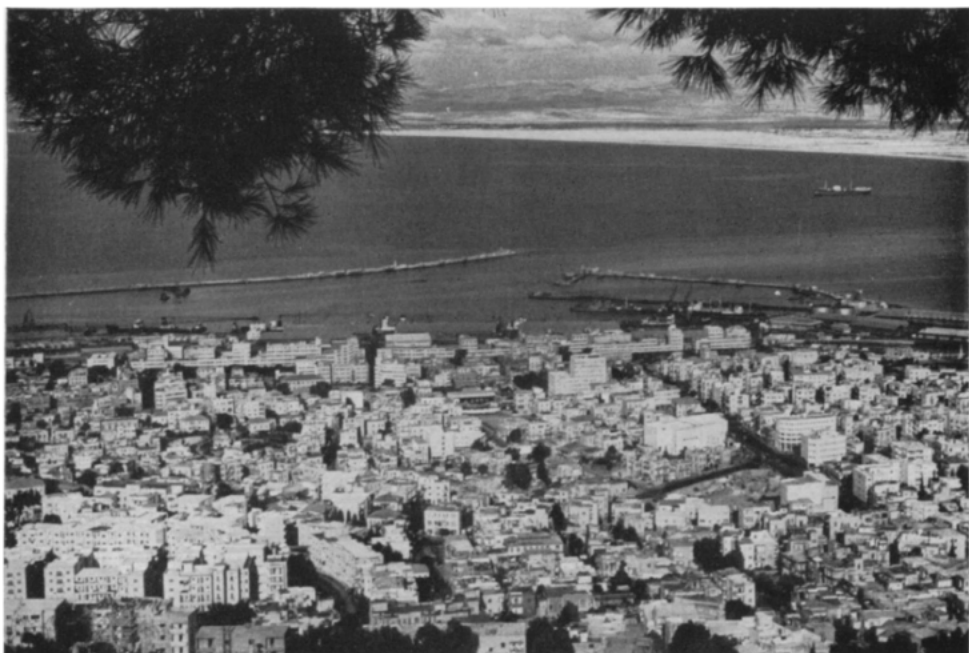


FIG. 9—The central part of Haifa, with the harbor in the background. This is the only major embayment on the coast of Israel.



FIG. 10—A recently built housing project in lower Haifa.

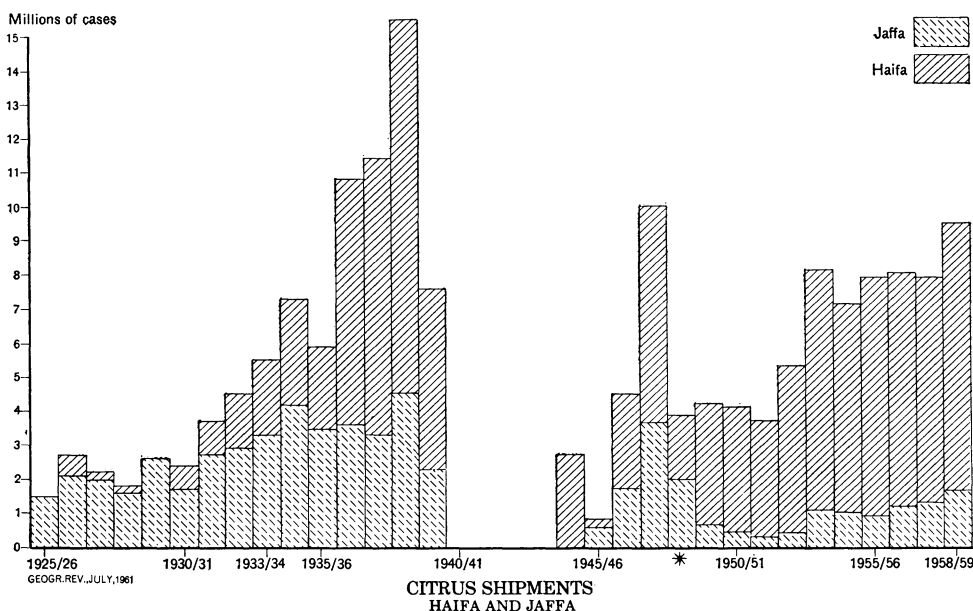


FIG. 11—Citrus shipments. Exports through Tel-Aviv are insignificant, except in 1948–1949 (*), when 771,940 cases were shipped; these are included with Jaffa. World War II interrupted citrus exports from 1940 to 1944.

emerge as the country's chief industrial town and its main center of international trade. The reasons for this forecast were many. Haifa is the only major port of the country (Fig. 9), and it has easy natural connections with the hinterland. A series of transverse basins permits the easiest access to the lands east of the Jordan rift valley and leads to the interior of the west Jordanian mountains. Haifa maintained regular connections not only with Damascus, the capital of Syria, but even with Iraq, and was the starting point of the railroad to Damascus and Trans-Jordan, which, as the "Hejaz Railway," went as far as Medina. Later, Haifa was selected as the Mediterranean terminal of the oil pipeline from the Kirkuk oil fields, and since 1939 it has had the largest refinery on the east shore of the Mediterranean. An extensive plain, reclaimed from swampland after World War I, is available for industrial development, immediately adjacent to the harbor and the central railway yards. Haifa, therefore, in contrast with Tel Aviv, could develop a coherent industrial zone, and it has, in fact, done so.

The resources of Tel Aviv-Jaffa appear at first sight to be much more meager. The chief natural resource of the surroundings is the valuable citrus soil. Citrus and its export (Fig. 11) were, in addition to port activities

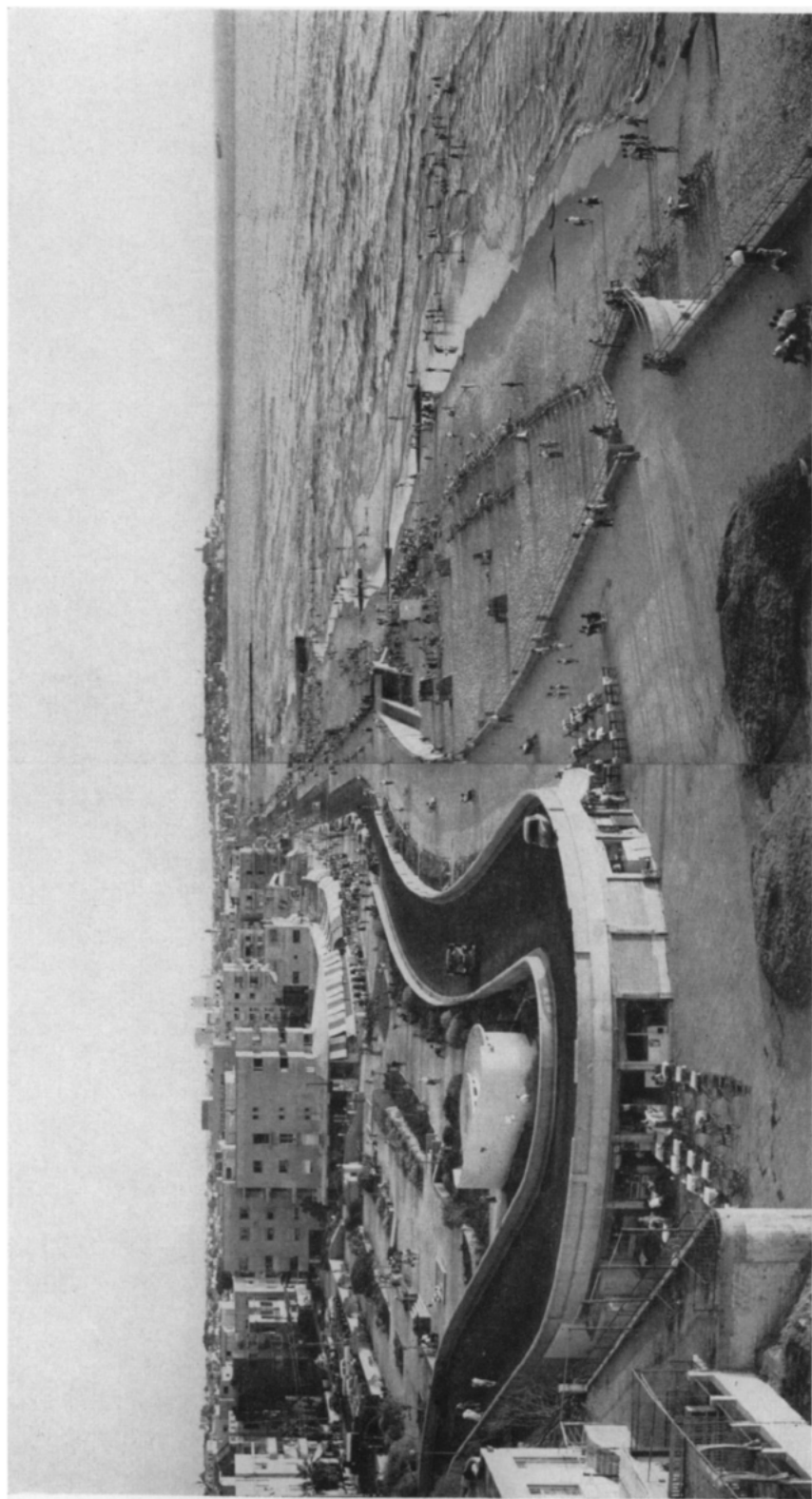


FIG. 12—The beach at Tel Aviv, with the cape of Jaffa in the background. Jaffa is built on a fossil dune ridge.

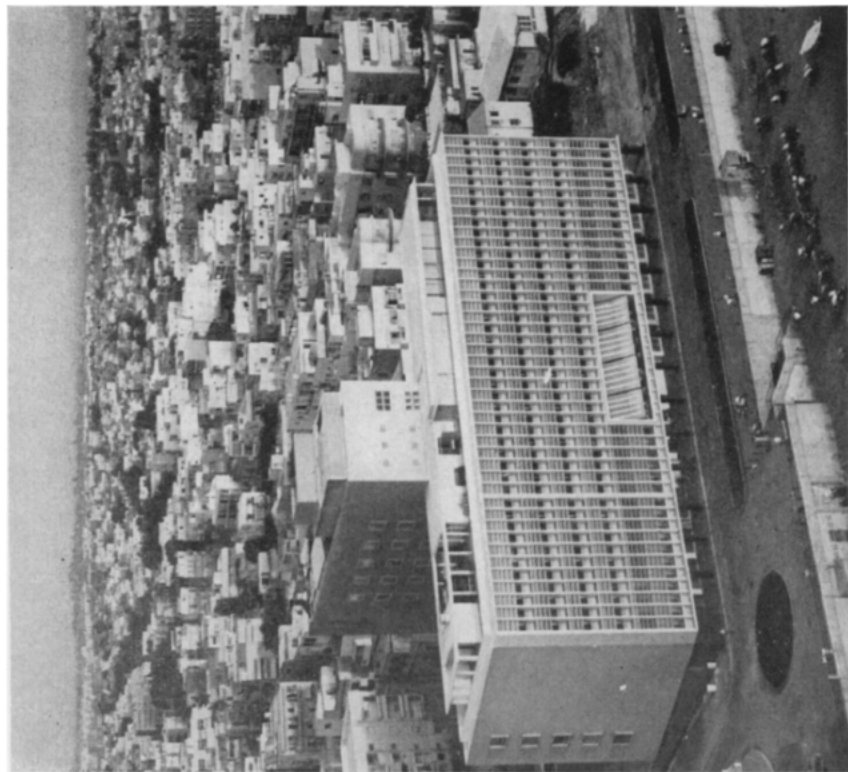


FIG. 13—Part of Tel Aviv, showing the Dan Hotel on the beach front.



FIG. 14—Arlosoroff Street, typical new residential area in northern Tel Aviv.

for Jerusalem, major factors in the growth of Jaffa about the turn of the century. Tel Aviv had little else in the way of environmental inducements. Even as a roadhead it had priority only for Jerusalem and its surroundings, including the area to the east, and was far outdistanced by Haifa in ease of approach to the farther hinterland. In view of all these factors, it appears remarkable that Tel Aviv has developed into a much larger city than Haifa, and that the Tel Aviv conurbation more than doubled its population between 1945 and 1957. On closer analysis, however, there seem to be reasons for this peculiar development.

Tel Aviv (Figs. 12-14) was founded in 1909 as a Jewish "garden city" near Jaffa. Its founders wanted to create a Jewish town outside the congested ancient town of Jaffa and not subject to the political control of Jaffa's Arab municipality. This policy subsequently brought to Tel Aviv, which was until 1947 the only large entirely Jewish town in Palestine, a great influx of immigrants, many more than settled in the mixed cities of Haifa and Jerusalem. This immigrant population brought to Tel Aviv a valuable reservoir of technical and managerial manpower and a considerable amount of capital. Conditions were now favorable for the development of a large number of industrial and commercial enterprises in which the availability of specialized manpower was a decisive factor. At first, most of the plants were of moderate size, but, gradually, larger establishments were founded. Today the industrial labor force of the Tel Aviv conurbation is more than two and one-half times greater than that of Haifa. This trend was strengthened by the tendency of many Jewish community organizations to establish their headquarters in the purely Jewish city of Tel Aviv; the General Federation of Jewish Labour (the Histadrut) may be cited as a leading case in point.

The increasing primacy of Tel Aviv since 1948 seems also to be linked with the changes in the political geography of the entire region that followed the establishment of the State of Israel. Although under the British mandate political preferences had already somewhat hindered trade development between Haifa and its broad hinterland, the closure of the land frontiers of Israel in 1948 put a stop to wider traffic and trade. Furthermore, Haifa now began to feel its slightly eccentric location in the national framework of Israel; Tel Aviv had the advantage of being more centrally placed. In so small a country (20,255 square kilometers) with so small a population (roughly two millions) the primate city attaches much of the more important national trade, which thus bypasses Haifa. Hence, in recent years, the economic development of Haifa has been markedly slower than that

of Tel Aviv. But it should be stressed that Haifa still maintains its geographical importance as the center of heavy industry in Israel, and it has the only integrated metallurgical plants in the country.

THE EMERGENCE OF CONURBATIONS

As late as 1931 the total population of the largest cities of Palestine—Tel Aviv-Jaffa, Jerusalem, and Haifa—amounted to only 23.5 per cent of the country's population. Even the largest of them had less than 10 per cent. Since then, Greater Tel Aviv has steadily increased its lead, and since the

TABLE V—TOWNS OF THE TEL AVIV-JAFFA CONURBATION

	DATE OF FOUNDING	1922	1931	1948	1958	MUNICIPAL AREA (sq. km.)
<i>Nucleus</i>						
Tel Aviv	1909	32,524	54,973	248,261	380,000	50.11
Jaffa	Ancient town	15,185	46,867			
<i>Inner circle</i>						
<i>N. E. sector</i>						
Ramat Gan	1921	—	975	17,182	77,000	10.60
Giv'atayim	1922	—	723	9,635	26,000	3.25
Bnei Brak	1924	—	956	8,834	36,600	7.10
<i>Southern sector</i>						
Holon	1933	—	—	9,568	40,000	19.50
Bat Yam	1936	—	—	2,331	21,000	7.20
<i>Outer circle</i>						
Ramat Hasharon	1923	—	312	1,107	9,600	15.30
Kiryat Ono	1939	—	—	377	8,800	3.34
Or Yehuda	1950	—	—	—	12,000	5.14

establishment of the State of Israel it has accumulated in its urbanized area more than 30 per cent of the total population. In fact, within the last fifteen years the towns of the Tel Aviv area have been amalgamated into one large conurbation (Table V).

This conurbation shows trends of development typical of conurbations in general. The population of its peripheral members is increasing at a more rapid rate than that of Tel Aviv itself, and the weight of Tel Aviv proper in the whole conurbation is steadily being lowered (Figs. 15 and 16). Within the last fifteen years a Central Business District has developed in Tel Aviv. It shows a clear northward trend, following the movement of the center of population of the conurbation. A growing part of the population is moving from the inner nucleus of the conurbation to its outer towns. Figure 6 shows the extent to which the conurbation of Tel Aviv is transferring land from agricultural to urban use. This is the first time that a conurbation has emerged in Israel.

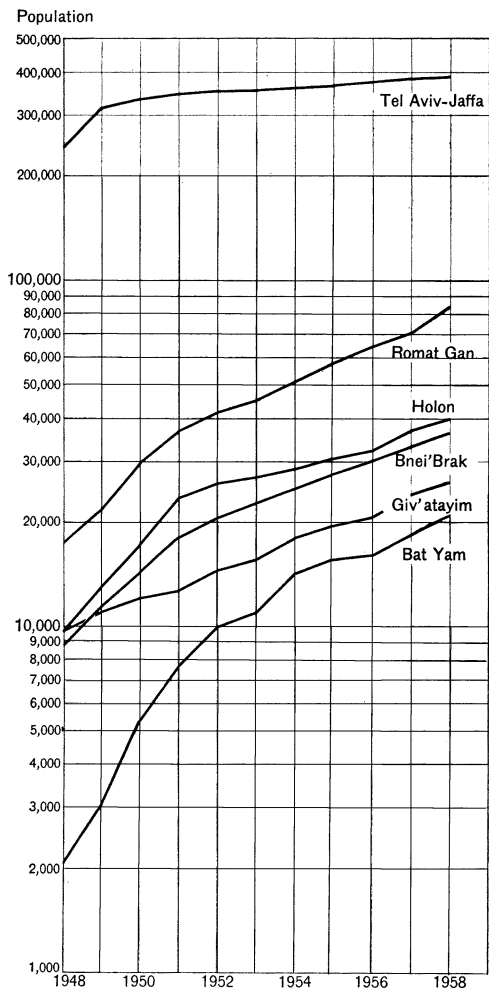
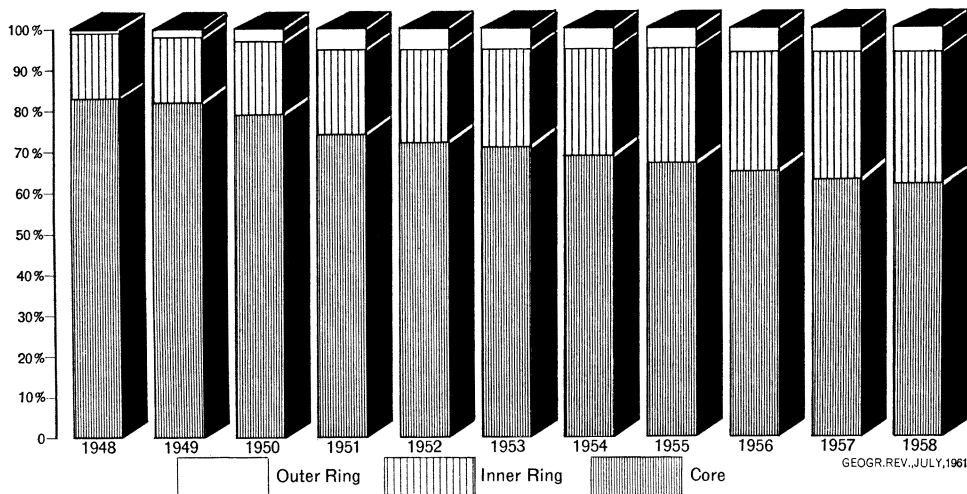


FIG. 15 (left)—Growth of population in the Tel Aviv conurbation.

FIG. 16 (below)—Percentage of population in the component parts of the Tel Aviv conurbation.



Considerable development has occurred in Haifa too, and here as well the outlying settlements are forming one organic urban area with the city of Haifa. Greater Haifa includes today (estimates for 1959) the following settlements: in the northern sector, Kiryat Yam (9900 inhabitants), Kiryat Motzkin (10,000), and Kiryat Bialik (9000); in the northeastern sector, Kiryat Binyamin (5600) and Kfar Ata (14,000); in the eastern sector, Neshet (8300) and Kiryat Tiv'on (9200); and in the southern sector, Tirat Hacarmel (12,400). Altogether, Greater Haifa contains a total of some 252,400 persons.

In contrast with Tel Aviv, most of these settlements were founded as "dormitory towns." Acco (Acre) is not yet an integrated part of the Haifa urbanized area. But it will be only a few years before these two towns together form the second conurbation of Israel.¹⁵ The present Greater Haifa, through its leapfrogging of outer towns, takes in much agricultural land and includes a number of villages that still retain in full their rural character and occupation. If the urbanization of the Haifa area continues at its present rate, these rural tracts may well be transferred to urban land use unless the planners can channel development in other directions.

The conurbation of Tel Aviv is not the only urban agglomeration of the central coastal plain of Israel. Others are found in the adjoining area. They extend to Herzlia and Kfar Saba in the north, to Petah Tikva in the east, to Lod and Ramle in the southeast, and to Rehovot in the south. All these urban agglomerations are located within a circle the radius of which is only twenty kilometers from the center of Tel Aviv. Today less than one kilometer of rural land separates the fringe of the built-up area of Tel Aviv and that of Petah Tikva; the same is true for the border of Tel Aviv and Rishon le Zion. The total population of all these towns on the central coastal plain around the conurbation of Tel Aviv was in 1959 about 238,000, more than 11 per cent of the total population of Israel. Thus in an area amounting to 5 per cent of the area of the country is concentrated (including the Tel Aviv conurbation) more than 40 per cent of the population. All these towns can be reached by bus from Tel Aviv in one hour. All of them contribute, in a varying degree, to the commuting population of Tel Aviv, and the increasing urbanization of the surrounding area will soon bring an increasing number of them into the Tel Aviv conurbation.

¹⁵ It must be mentioned that during most of the historical period Acco was the main town of the region and its harbor the most important one in the whole country. The historical rivalry between Acco and Haifa was decided in 1929-1933 by the construction of the modern port in Haifa.