The History of the Date through the Ages in the Holy Land[1]

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Introduction

The cultivated date (*Phoenix dactylifera* L.) has existed in the Holy Land at least since the Neolithic Age (6000-4000 B.C.), perhaps even before, when ancient man first took to sedentary life in Jericho, all along the banks of the Jordan and in the neighbourhood of the Dead Sea.

Because of their superior fruit, date palms of the Jordan Valley were famous throughout the length and breadth of the countries of this palm. There were palms along the coast as well, less important in that respect but tremendously impressive in their towering grandeur.[3] The northern littoral of the Holy Land was known as Phoenicia, and it may be that we have here the origin of the early name of the date in Greek, 'phoenix.' Pliny, in his Natural History (XIII, IX, 42), theorizes that 'phoenix' comes from the name of a fabled bird of Egypt—according to Herodotus, it is a bird of Arabia, but, according to Philostratus, a bird of India. The legendary phoenix cremated itself, yet lived on, or a second one arose from its ashes: exactly as a palm goes on growing after it is scorched on the outside or puts forth shoots at its base, perpetuating the date culture. The date palm is, indeed, regarded as a symbol of immortality, but it is a matter of speculation whether the bird was named for the tree or the tree for the bird. At all events, for the ancient Greeks and Romans, this northern stretch of Palestine was the 'Land of the Date,' Phoenicia.

Origin

The source of the cultivated date is still unknown: some say northeast Africa; others say Asia—in Iraq[4] and India, with its centre on the Persian Gulf; others, again, the Arabian Peninsula. Vavilov writes : "The origin of the date is in the mountains of northeast Africa, Ethiopia and Eritrea," whence it crossed to Egypt, North Africa, Israel and the countries more particularly identified with it—Yemen, Iraq, Northern India. Post gave an area from "North Africa through the Arabian Peninsula to northern India." Serranus, Olivier de Marseille and Johannes Eurenius, botanists of no less authority, ascribed the origin to Israel.[5]

A distinguished Jewish botanist, Warburg, in his *The Scientific Work of Aaron Aaronsohn* (1944), considers that the origin was along the banks of the Jordan and in the proximity of the Dead Sea, as the wild date is a denizen of rock-crevices and hillsides in that region.

Ancient Hebrew literature refers to the wild palm, with its short leaves. The Mishna (Sukkah, 3, 1) speaks of wild palms near the Mount of Iron,[6] not far from the Dead Sea and north of the Arnon, and authorizes their branches as ritually acceptable for

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[1] Rendered from the Hebrew by Marc Nuroc.

[2] Ministry of Agriculture, Jerusalem, Israel.

[3] It should be observed that from Haifa northwards, and also slightly to the south, the coastal palms yield an immature fruit, because there is not enough heat for ripening. In Jaffa, however, further south, and especially round Gaza, the fruit ripens but, even here, only in certain soft-date varieties which do not require many heat units.

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[4] It is of interest that the Hebrew name of the Tigris, which flows through a region that was and still is an important centre of date-cultivation, is Hidekel, and the second half of that name is plainly the Hebrew word for date; in Sumerian 'ideklat', and in Aramaic 'deqlet'.

[5] See Fruits d'Outre Mer (February, 1953), P. Munier, Sur l'origine du Palmier.

[6] Mentioned by Josephus, Wars, Book IV, VIII, 2, a place in Trans-Jordan "stretching out to the Land of Moab."

Fig. 1. Date seedlings on the river Jordan.

thatching booths at the Feast of Tabernacles. But it is very probable that the wild palms in question were trees that had escaped or were perhaps truly wild, all the way from India to West Africa.

Nor is there unanimity as to the forebears of the date as we know it. One view suggests *Phoenix sylvestris*,[7] a wild date of great age in the region of the Persian Gulf and as far as India; *Phoenix reclinata*, from Africa, and the prickly variety, *Phoenix spinosa*, are also claimants.

For thousands of years the palm and its date were highly valued by the inhabitants from India through North Africa to the Atlantic Ocean; it was a sweet fruit and, fresh or dried, fed them in all seasons, a part from the profit of countless uses of palm leaves and wood. No wonder the palm was holy. To the early Egyptians, it symbolizes life,[8] for did it not put out a new leaf month after month, whenever another grew old and withered? So they immortalized it in their temples, on columns, in murals.

In the Middle East, it was a symbol of fertility: Osiris is decked out in palm leaves and palm branches are in his hand; Ishtar, goddess of Mother-Earth and of love, and her Tyrian namesake, Astarte, divinity of lust and fruitfulness, are similarly portrayed.

For the Jews, too, the date was a token of sanctity: at the Feast of Tabernacles, they would say a blessing over it and decorate the booths with palm leaves: "And ye shall take you on the first day . . . branches of the palm trees . . . and ye shall rejoice before the Lord your God seven days " (Leviticus, 23, 40); ". . . that the Children of Israel shall dwell in booths . . . and that they should publish and proclaim in all their cities and in Jerusalem, saying: Go forth unto the Mount, and fetch . . . palm branches . . . to make booths. . . ." (Nehemiah, 8, 14-15). To this very day, during that Feast, Jews bless the four "species"—citron, palm, myrtle and willow—which the Bible (Leviticus, 23, 40)

[7] *Phoenix sylvestris* was introduced into Israel recently as an ornamental tree.

[8] By some, the palm was considered to be the biblical Tree of Life.

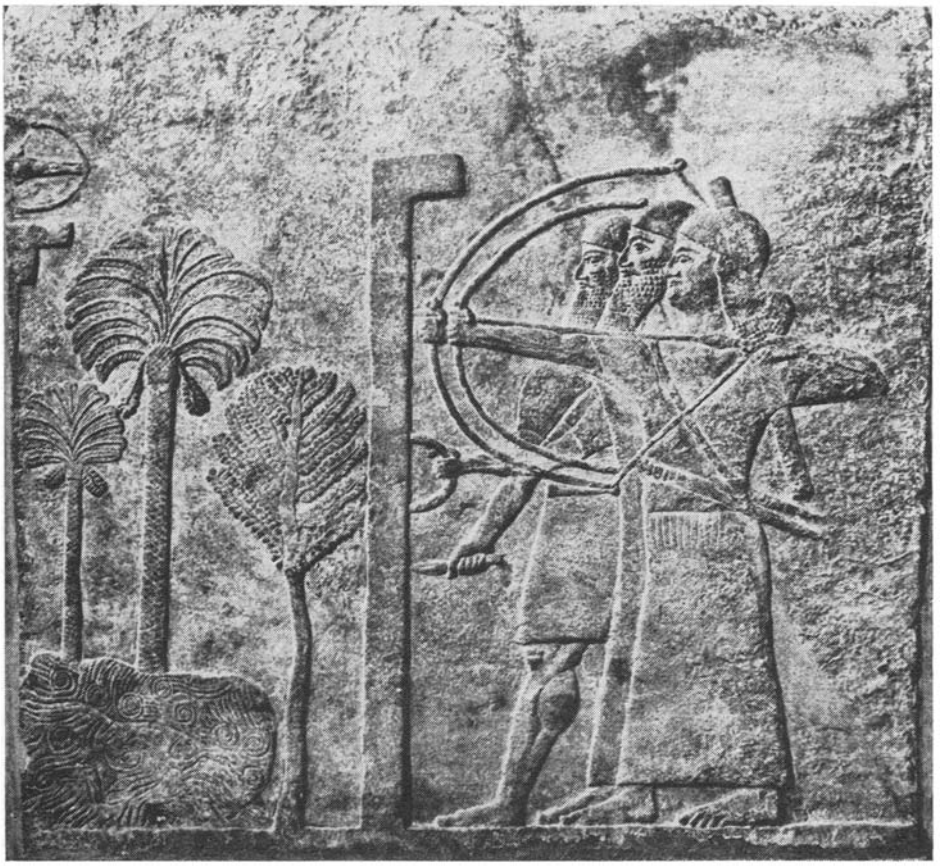

Fig. 2. Palms in Assyria-Nimrod (745-725 B.C.).

describes, and the modern booth, on many a balcony, is decorated with palm leaves, just as its prototype was 30 centuries ago. A Midrash, Tanhuma Emor, suggests that the palm was chosen for its likeness to man's spine, the myrtle for its likeness to the human eye, the willow as resembling the mouth and the citron as being heart-shaped.

Palm leaves stood for peace and harmony, and any important or sacred building would be wreathed in them: "And he carved all the walls of the house round about with carved figures of cherubims and palm trees and open flowers" (I Kings, 6, 29); "And the greater house he ceiled with fir trees which he overlaid with fine gold and set thereon palm trees and chains" (II Chronicles, 3, 5).

And then, to mark military success, as we find in I Maccabees, 13, 53: "And they came with song and palm leaves, with harps and zithers and praised God, That had redeemed them from the hands of a hateful adversary." In II Maccabees, 10, 10: "And they took river willows and palm leaves and sang a song of praise and thanksgiving to God That had given them strength and salvation for the cleansing of the Temple;" and, also, in II Maccabees, 14, 6: "and the Levites brought a gift, one crown of gold and palm leaves and olive branches with which they would serve in holy ritual."

Christians, too, began to adorn their churches with palm branches in the first centuries of the Christian Era, as an emblem of righteousness, love and good harvests; and on feast days they bore palm leaves into their shrines. In the Gospels, the undercurrent of the symbolism is triumph: ". . . peo-

ple that were come to the feast, when they heard that Jesus was coming to Jerusalem . . . And they took branches of palm trees and went forth to greet Him and they cried, Hosanna, Blessed is the King of Israel that cometh in the name of the Lord" (John, 12, 13); ". . . the people clothed in white robes and palm leaves in their hands" (Revelation, 7, 9).

Moslems sanctified the palm no less. Mohammed declared it a holy tree: devout believers must not uproot that whereon they subsisted, in whose shade they dwelt, whose leaves and wood they turned to such good uses in their daily lives. The Arabs, in whose lands most of the world's date palms once grew and, indeed, still grow, have many tales of its importance to man. In one, these words, which became legendary, are attributed to Mohammed: "Honour the date palm, for it is the brother of your father. It is taken from the earth that remained after Man was created. The date palm resembles Man: it is tall and upright, it is male and female. He that cuts off the head of the date palm, shall die; he that wounds its heart, shall himself wither. If its offshoots are cut away, no others will come forth in their place. So, too, the hands of a man do not grow again if they are cut off. The date palm is covered with fibres like human hair. Is not Man then just like the date palm?" Another tale runs: "The first man cut his hair and clipped his nails and hid them in the soil of Paradise. At once, in that place, there sprouted and grew a date palm, it flourished and bore fruit. The man fell upon his face in the greatness of his wonderment. The angel Gabriel appeared to him and pointed with his finger at the date palm and said to the man—This tree was created from the same matter whence thou wast created, and it will sustain thee."

Besides the ritual and ceremonial services that the palm rendered to all creeds and the diverting folklore that it inspired, its fruit nourished man and beast and made a honey of its own; from its trunk a pleasant juice was extracted, either harmlessly sweet or headily fermented; its leaflets and fronds were woven into sleeping mats, donkey-panniers, planting-pots, baskets and brooms, sandals and fans. Its wood was carpentered into roofs or fences or even river craft; its eaves and trunks fed ancient, but never ritual, fires; its fibrous sheath was plaited into ropes, pillows and mattresses.

The Biblical Period

Date palms, we saw, were very common in Egypt and on the borders of the Holy Land. Their first ascription to the Holy Land in the ancient Egyptian literature is in Papyrus Anastasi IV, 12, 5, and Anastasi V, written during the reign of Rameses II (1298-1235 B.C.). The story is of an Egyptian officer assigned to Palestine. He describes his life at a lonely frontier post: "During the day, I sit and gaze as if I were hunting birds. My eye strains at the roads that lead to Palestine. At night, I sit beneath trees that bear no fruits for the eating. Where are the dates? They have none, they do not bear any. . . ."

About this time, the Hebrews, led by Moses, departed from Egypt on their way to Canaan. It is now that the first Hebraic mention of dates occurs, for the Jews rediscovered in Canaan a fruit with which they had become familiar in the Nile country. In the Wilderness of Sinai, they had seen the trees at springs where they camped. Of the date it is said: "its roots are in water and its crest in the sun," a poetical allusion to the moisture it requires to develop and the heat for its ripening. The oases of Sinai presented the conditions which equally fostered cultivation in Egypt, Mesopotamia and the Jordan Rift. So, Exodus, 15, 27: "And they came to Elim, where were twelve wells of water, and three-score and ten palm trees";[9] and Deuteronomy, 34, 3, of Moses' distant sight of the Promised Land from Pisgah: "and the plain of the Valley of Jericho, the city of palm trees, unto Zoar."

There is little doubt that the cultivated palm grew in the Holy Land earlier than that: witness the date-stones discovered in many excavations especially in and around Jericho, in strata of 1600 B.C. and before (John Garstang, *The Story of Jericho*, Plate XIX).

Although there must have been many palm trees in ancient Egypt, yet the Egyptians

[9] Seventy, as always, is the mystical determinant of plenitude.

were keenly interested in 'Palestine' varieties: most native varieties were soft; the Jordan kind were semi-dry. A wall painting in Karnak (1500 B.C.) illustrates flora brought back by a conquering Pharaoh. The palm is one of them, and we may infer that Thutmosis III took the opportunity to introduce certain cultivated varieties as yet unknown in Egypt.

Place names suggestive of the date were anciently popular[10]—". . . and also the Amorites that dwell in Hazezon-tamar" (Genesis, 14, 7). The meaning seems to be a place where many clusters of dates were cut and gathered from the palm trees. (In II Chronicles, 20, 2, we find Hazezon-tamar identified with Ein-Gedi.) Jericho and adjacent Zoar were dignified as "cities of dates" (Jericho in Deuteronomy, and also in II Chronicles, 28, 15; Zoar in Mishna Yabamot, 16, 7.) Ezekiel (47, 19) mentions a "Tamar" in the Negev, and again, in Judges, 20, 33, we find a "Baal-tamar," a date-palm sanctuary: "The Land of Israel is a Garden of Eden on earth, and Beth She'an (which was, and still is, rich in dates) is the gateway to Paradise." This extract from the Babylonian Talmud shows how important dates were in the region. Tamar was a name much given to women, in a very proper usage of its gracious and upright form (Genesis, 38, 6; II Samuel, 13, 1, of David's fair sister), and it is still a popular name in Israel.

Deuteronomy (8, 8) tells of the goodness of the Holy Land, its grains and fruits and honey; this refers to the honey of dates and not of bees: the Jerusalem Talmud (Bikkurim, Chapter 1, Mishna 3) says "honey that is dates," and Sifri (Chapter Tavo, 60) also states this explicitly.

That the Hebrews regarded the palm unreservedly as a status symbol of the righteous, honourable and beautiful is seen in the Songs of Songs (7, 7, F): "This thy stature is like to a palm tree"; and in Jeremiah (10, 5): "They (the idols) are upright as a palm, yet they speak not."[11] Joel (1, 11-12) lashes out at the slothful farmer: "Be ye ashamed, O ye husbandmen . . . Because the harvest of the field is perished . . . the palm tree also . . . even all the trees of the field are withered." His grouping of the date in this passage with wheat and barley, vine and olive, fig and pomegranate, again affirms the importance of the date to the Israelites.

Greece, Rome and Byzantium in the Holy Land

It was natural for Greek and Roman conquerors to praise the dates that they found in the Holy Land, for no date-palms grew in their own countries, and the Israelitish fruit was the finest in the Middle East. Judaea was renowned for its dates, and the distinction was handsomely perpetuated in numismatic designs. Herodotus (484-425 B.C.) has much to say (Book II, Chap. 6, paragraph 2): "In Syria (which, in this context, means the Land of Israel) where most of the dates are, it is claimed that they only grow in three areas, two of which are of salty soil and the fruit is good for storing (Beit She'an, the Jordan Valley, Jericho and the environs of the Dead Sea). But the dates that grow in other parts (Gaza and the coast) do not keep well and they rot, being soft, although they are sweet and can be eaten fresh."

The superiority of storage-quality and the distinction between semi-dry and soft dates in the zones indicated are still true today.

Hippocrates (460-360 B.C.) esteemed the Judaean dates highly as medicine; Theophrastus (370-285 B.C.), in his *Research into Plants* (Part II, Chapter 6, paragraphs 2, 5, 7 and 8), writes enthusiastically: "Wherever date-palms grow abundantly, the soil is salt, both in Babylon, they say, where the tree is indigenous, in Libya, in Egypt and in Phoenicia. While in Coele-Syria (Palestine-Jordan Valley) where are most palms, only in three districts, they say, where the soil is salt, are dates produced which can be stored; those that grow in other districts do not keep but rot, though when fresh they are sweet and men use them

[10] Some Bible scholars claim that place-names like Elath and Elim come from "elah", meaning date; but that Hebrew word refers to pistacia, and not to palm or date. It is also mistaken to suggest that Beth-any signifies "the house of the date," for that is clearly "beth-te'ena," "house of the fig"; Bethany is in an area where figs grew, not dates.

[11] The Authorized Version seems in error in translating the phrase as "they are like a pillar in a garden of cucumbers and speak not."

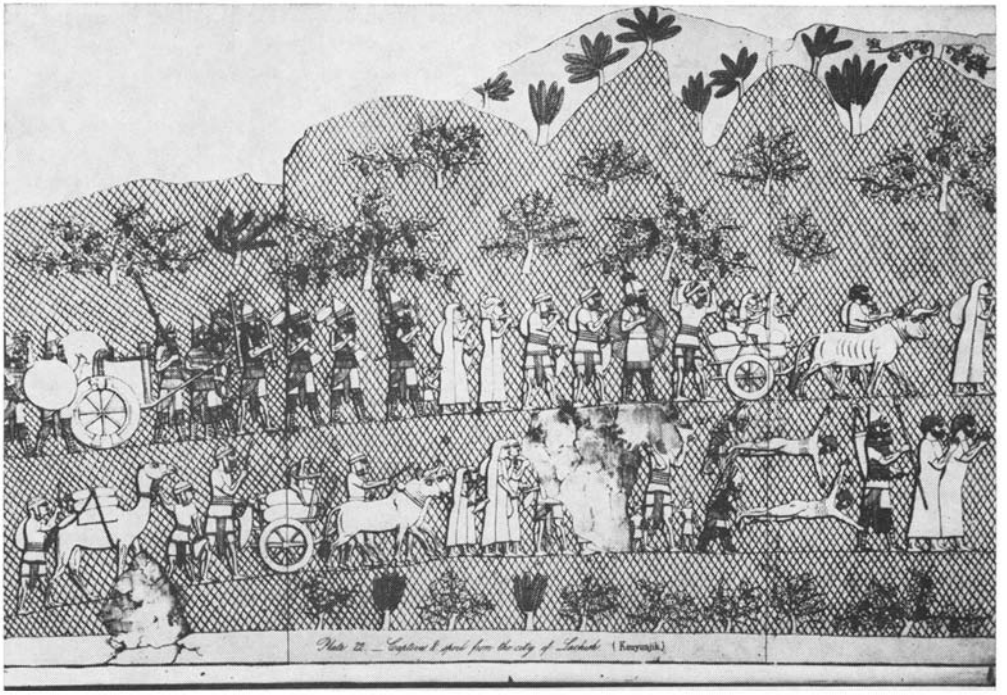

Fig. 3. The siege of Lachich (Israel) from a bas relief at the palace of Nineveh (700 B.C.).

Fig. 4. Impression of a cylinder-seal of Darius, King of Persia (522-486) B.C.). British Museum, London.

for eating at that stage . . . However, some say that the people of Syria (viz. Palestine, the only part of 'Syria' that can produce good dates) use no cultivation, except cutting out wood and watering, also that the date-palm requires spring-water rather than rain-water; and that water is abundant in the (Jordan) Valley in which are the palm-groves. And they add that the Syrians say that this valley extends through Arabia to the Red Sea and that many profess to have visited it and that it is in the lowest part of it that the date-palms grow (that is, around the Dead Sea). . . . Again in Syria and Egypt there are palms which bear when they are four or five years old, at which age they are the height of a man. . . . The only dates that will keep, they say, are those which grow in the valley of Syria, while those that grow in Egypt, Cyprus and elsewhere are used (eaten) when fresh."

This explains why dates from Israel were so prized and were shipped to Greece in preference to the Egyptian and Cypriot fruit that rotted on the way.

The Letter of Aristeas (Third Century B.C.) records an officer Ptolemy Philadelphus (277-270 B.C.), saying: "Much labour is given to agriculture . . . The land (Judaea) is planted with innumerable palms and other fruit trees."

The historian Diodorus (60 B.C.) in Book XIX, Chapter C, paragraph 98, remarks: "The Dead Sea region is extensively planted with date palms wherever there are water-courses."

Plutarch (46-120 A.D.) says that Mark Anthony gave Cleopatra the date district of Jericho as a gift and that Augustus enjoyed a Judaean date called "nicolvisin." The Hebrew scholar and poet Ben Sira (about 200 B.C.) (Chapter 24, 15) anticipates these Roman panegyrics: "I was exalted as a palm tree on the river (the Jordan)." And, as we should expect, Josephus (37-85 A.D.) gives biblical references and precedents for the importance of the date in Israelitish history, and minute descriptions of Jericho and the Dead Sea: "Here (in Jericho) is the richest region of Judaea in which are grown many date palms of excellent quality" (Antiquities, Book XV, Chapter IV, paragraph 2); "Moses bade them build booths for every family, and they celebrate the Feast of Tabernacles for eight days, during which they offer sacrifices and thankofferings to God, carrying in their hand a branch of myrtle and willow and bough of palm leaves with a citron besides" (ibid., III, X, 4); "Moses pitched his camp after his troops had gone down to the Jordan in a great plain facing Jericho, a city blessed and fruitful for the growth of palm-trees and rich in balsam" (ibid., IV, VI, 1). There is an almost parallel passage in IX, 1, 2: "And they pitched their camp at Ein-Gedi, situated on the shore of the Lacus Asphaltitis . . . where the best date-palms grow"; "And Solomon commissioned from Tyre from the skilled Hiram . . . pillars about which there was filigree interwoven with small palms of brass . . . engravings of palm trees within a pattern of two hundred pomegranates" (ibid., VIII, III, 4 and 6).

Josephus cites Jericho and its dates (Antiquities XVIII, II, 2, and Wars II, X, 1) in connection with Salome, wife of Herod, and with Julia, wife of Augustus, citations that indicate fame and popularity. The second passage reads: "For Salome bequeathed to Julia . . . Jamnia and Phasaelis and Archelias, . . . all with great palm groves upon them."

Wars I, VI, 6, mentions a despatch that reached Pompey the Great as he campaigned in the neighbourhood of Jericho, "a place among the most prolific in Judaea with earth abundant in dates and balsam"; and in the following Book IV, Chapter VIII, paragraphs 2-3, there is shrewd commentary on the ways and need of cultivation, varieties and date honey: "Those plantations of palm trees that are near its banks are more flourishing and much more fruitful, whereas those that are remote from it are not so flourishing and fruitful. . . . There are in it many sorts of date-trees that are watered by it, different from each other in taste and name; the better kinds, when pressed, yield an excellent honey not much inferior in sweetness to other honey . . . so that he who should pronounce this place, wherein are plenty of palms very rare and of most excellent sorts, to be divine would not be mistaken." In Book III X, 8, occurs the disquisition on the influence of cold and heat in horticulture. It ends with the counsel (speaking of Gennesareth and its nature, its

Fig. 5. Jewish coin (69-70 A.D.) (Photo by A. Bernheim, Jerusalem).

'well mixed' temperatures): "there are palm trees which are nourished well by the warmth of the sun."

Then the logistical Josephus adds, in Book VII, VIII, 4, concerning Masada, that the Jews used to keep emergency rations in their fortresses, and dates were stored for lengthy periods and were most nutritious: remarkable were the great quantities of foodstuffs stockpiled in the strongholds and stored for many a day: "wheat in plenty was laid up, ample for the needs of the beleaguered for a long time, and wine and oil in abundance, as well, all sorts of pulses and dates heaped up together."[12]

Hebrew exegesis written between the Second Century B.C. and the Fourth Century A.D. confirms the date's significance in the Holy Land and Babylon, Persia and Egypt. We see that the Jordan Valley and the Dead Sea region, with their unchanging warmth, are still centres of the cultivation, so much so that Tosefta (Shevi'it 7, 11, and Jerusalem Talmud, Shevi'it, 9, 2) pronounces: "Date palms are the trademarks of valleys," whereas the trees in other places merely furnished leaves for this or that "industrial product." Hill-top palms were barren, and the sneer "You are a mountain palm," as the Midrash, Sifra, Tazria,' tells us, became a by-word for the man of little and profitless wisdom. The Mishna (Bikkurim 1, 3 and 10) makes it clear that mountain dates might not be taken as first-fruits to the Temple, but only valley dates, which were acceptable for offering and prayer; Tosefta (Bikkurim, 1, 5) is specific:

[12] Confirming the account of Josephus, date-stones were found in Masada and the caves of Ein-Gedi in that area (Yadin Expedition, 1963).

Fig. 6. Jewish coin (70-132 A.D.) (Photo by A. Bernheim, Jerusalem).

"The only dates brought as first-fruits are those from Jericho"; "No one prays except over (the superior variety called) kothbot." In the layers of first-fruits within the traditional basket borne to the Temple, dates were uppermost (Tosefta, Bikkurim, 2, 8).

Dates also were subject to peah (Mishna, Peah, 1, 5), but the Jerusalem Talmud (Mishna, Peah, Chapter 4, Halacha 1) gives a ruling of Rabbi Yehuda: "Soft dates, which do not keep, are exempt from peah, for the first of them tarried not for the last (in other words, it is not feasible to harvest all at once, for they do not ripen simultaneously), but whole bunches must pay it."

Propagation. Propagation was either by sowing stones or planting shoots. It appears that in the Holy Land, at any rate in the Jordan Valley, most groves were planted from shoots, for it was soon realized that only thus could the perpetuation of desirable varieties be ensured. The trees were cultivated for a given length of time, and, on aging, were uprooted, since they now ceased to put out new suckers and their yields fell away. "The palm does not renew its offshoots, and therefore the grower digs down and uproots it" (Babylonian Talmud, Taanit, 25a and b).

Varieties. Some varieties ripen later than others. Tosefta, Shevi'it, 7, 15, puts it well: "They eat dates until the last one is finished in Zoar." The Babylonian Talmud, Baba Kama, 59a, in a few words: "The palm of Aramaea and . . . of Persia," registers the source of certain foreign kinds, and goes on to say that the Babylonian (Aramaean)

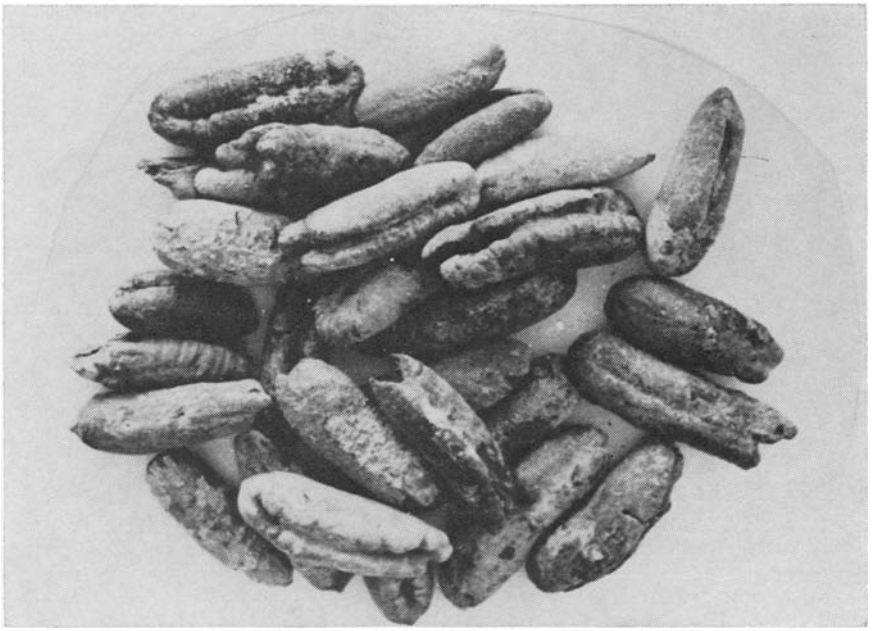

Fig. 7. Date seeds found in Ein-Gadi (1st-2nd Centuries A.D.),

dates were poor, used as fodder; but the Persian, were good and were not fed to cattle (Babylonian Talmud, Shabbat, 143a). The Hebrews claimed that the stones of Babylonian varieties were soft, those of the Persian hard (Babylonian Talmud, Shabbat 143a); there is no such distinction today. The Babylonian Talmud, Shabbat 29a, notes also that the Persian dates had free stones, while the stones of the Babylonian clung to the flesh. In the same place, 110b, we are told that the Persian dates had the further merit of medicinal properties.

In Bamidbar Raba, 3, 1, the Midrash enlarges on soft dates, the "niclosin" (a semi-dry variety), and the inferior kind (that drops off before it ripens) and the dry variety "solin," with a characteristic addendum: "Thus, too, it is with Israel, some were learned, some unversed in the law, and boorish, and just as there are soft dates that cannot be stored and others that bear fruit that can be kept safely, so was it with Israel in the wilderness, some entered the Holy Land, others did not."

The wild dates of the Holy Land must not be forgotten. There is in Mishna, Sukkah, 3, 1, mention of "zini (palms) of the Mount of Iron."

The variety "nishani" (Babylonian Talmud, Erubin 28b) is said to be a male date which produces embryonic fruit but not mature dates; Rashi comments that male palms yield only this unfertilized fruit that develops no further and never grows into real dates. Rashi also refers to the "taali" (Babylonian Talmud, Shabbat, 110a, and Baba Bathra, 22b) variety which grew both in Babylon and in Israel. Among the better varieties is 'ahini," in name resembling the important modern variety "hayani," extensively grown in Egypt and Sinai and described as a red date in the Babylonian Talmud, Sukkah, 35b and in Erubin 28b. The best varieties of Israel were the "tav," which Mishna and Talmud declare may not, on account of "superfine quality," be sold to idolaters; and the "hazzab" (or "hassad"), also too good for heathen buyers. So was the "niclivas."

The Mishna, Aboda Zara, 1, 5 and the Babylonia Talmud, Aboda Zara, 13b, mention "niclivas," "nicolas," "nicola" and "nicolvasin" indifferently, but always with appreciation: the Babylonian Talmud, Aboda Zara, 14a, is specific: "Rabbi Dumi an-

swered them—When you go thither (to the Land of Israel) and you say 'nicolas,' they will not understand you, but if you say 'curaiti'[13] they will and will show you that same variety." "Curaiti" is referred to also in the Jerusalem Talmud, Aboda Zara, Chapter 1, Halacha 39, and in Berachot, Chapter 6, Halacha 5, that tells a story of Rabbi Hanina Bar-Sisi, who had gifts of "nicolvasin" from the President of the Sanhedrin, and would put them aside until he had partaken of the meal and said a blessing over them, first and last. Tosefta, Berahot, 4, 12, mentions "kothbot," which prompted Rabbi Akiva to make the apt benediction over a dish of them brought to table. Some "kothbot," we learn, were qualified as "nimrot," seemingly a place-name (Nimrin), but it may suggest "tigerish" dates of good quality, with black and white markings. The Midrash, Bereshit Raba at Chapter 5, alludes to an exchange of gifts of "doriot" (this may be the current variety "deree") for "kothbot." The Babylonian Talmud, Baba Bathra, 124a, records the variety "shalfufa," of which the Akkadian name is "suluppu."

Pollination. The Hebrews learned the value and art of date pollination from Egyptian and Babylonian experts. They understood that there were male and female palms and that there could be no dates without fertilization. The ancient Egyptians thought that it was the male that fruited, the female providing only the pollen.[14] The Babylonians discovered the truth: that fruiting depended on fertilizing the female with pollen from the male. This the Hebrews, therefore, knew, and were skilled in the practice. "The men of Jericho," says the Mishna (Pessahim, 4, 8), "pollinate the palms all day even on the Passover Eve"; and so also Tosefta, Pessahim, 2 (3), 19. A spikelet of the male inflorescence was taken and tied above a spathe of female flowers. The wind would carry the pollen from one to the other, as is carefully and intelligently described in the Babylonian Talmud, Shabbat, 47a. But there were also Hebrew date-growers who regarded pollination as an "Amorite mode," a form of magic, believing that the female palm was sick and that the device was its way of imploring pity for its barrenness, so that passers-by might pray in compassion, when it would then bear fruit.

The Babylonian Talmud, again, Pessahim 56a, goes into detail: "How is this pollination done? . . . the grower brings a fresh myrtle branch and juice of the green fruits of laurel with barley flour mixed with date-pollen that has not been more than forty days in store. All the ingredients are mixed and boiled, and injected into the heart of the (female) palm-spathe. Every (female) palm that is no further away than four cubits is fertilized. In trees that are further away, the blossom dries up at once (for lack of pollination)." It adds that Rabbi Aha, son of Raba, says: "a soft inflorescence branch of the male palm-spathe is inserted into a fissure of the female palm."

Theophrastus, Enquiry into Plants, II, VIII, 4, and Herodotus, Persian Wars, I, 193, agree: "The process is thus performed: when the pollen in the male flower is ripe, they at once cut off the spathe on which the inflorescence is, just as it is, and shake the bloom and dust it over the female (flowers), and, if this is done to it, it retains the fruit and does not shed it" (Theophrastus). Herodotus says: "The natives tie the fruit (flower) of the male palms, as they are called by the Greeks, to the branches of the date-bearing palms (the females), to let the gall-fly enter the dates and ripen them and thus prevent the fruit from dropping. The male palms, like the wild fig-trees, have usually gall-fly in their fruit."

Herodotus, who incidentally mentions that the Babylonians used dates as a source of bread, wine and honey, is writing from his recollections of fig-caprification. Today, it is considered that pollination, in the date palm, is done by the wind alone.

Long after, Linnaeus (1707-1778 A.D.) summarizes the problem: "They take a sprig or two of male flower and introduce it into the sheath of the female or else they take a whole cluster of the male and sprinkle its meal or farina over several clusters of the female."

Date-growers in the Holy Land knew that

[13] The Elder Pliny uses both terms but regards them as the names of two different varieties.

[14] An outline of the History of Agriculture in Egypt, by Dr. Mamoun Abd-el-Salam (1938), p. 36.

Fig. 8. A Roman coin "Judea Capta" (a Jewess mourning under a palm) (70 A.D.). (Photo by A. Bernheim, Jerusalem).

pollen of certain male-palms was incompatible and of others compatible; the latter were marked, and it was only their pollen that was used in pollination. "There was a palm tree in Hamathan which bore no fruit. A skilled date-grower went by and saw it. This tree, he said, is yearning for pollen of Jericho. When they pollinated it with such flowers it fruited" (Midrash, Bamidbar Raba, 31). In other passages (Bamidbar Raba, 3, 1, etc.), we find pleasing elaborations of the tale, how no local pollen helped, how a passing expert explained that the tree longed in its heart for Jericho (pollen), and how the valley pollen instantaneously cured it.

Fruiting of the date. There could be no fitter introduction to this section than the Midrash, Vayikra Raba, 3, 1: "The palm tree bears fruit, even so do the righteous bear fruit."

The Talmud (Babylonian, Bechorot, 8a) fixes the interval between blossoming and ripening at twelve months. Both Mishna and Talmud confirm that the fruit was gathered all in one picking, the harvesters climbing up the trees with ropes and cutting off whole bunches; only rarely, at the start of the season, were single dates gathered. Carobs and olives, too, were harvested all at once. The Mishna (Maasaroth, 1, 2) explains that it was at the beginning of their ripening that the dates were picked: the ripening was noticeable when they bulged and when cracks and corrugations appeared on them.

How the date palm was used. "Nothing goes to waste in it," Midrash, Bereshit Raba, 41, 1, pronounces; "dates for the eating, fronds (lulavim) for prayer and praise, leaves for thatching booths, bast for the

Fig. 9. A Jewish coin (132-135 A.D.).

making of ropes and sieves, and its trunk for ceilings."

Tosefta, Shabbat, 17 (18), 7, sketches in a few words the popular entertainment of guests: "A man just takes what he finds in his house and serves it . . . walnuts, dates." Date-porridge was a frequent dish but not on the Sabbath; we are warned (Babylonian Talmud, Shabbat, 37b) that it would go bad overnight. "Havitza" (date-cakes) (ibid., Baba Bathra, 99b) and "terimah," ground and spiced dates (Tosefta, Maasaroth, 82, 2) were also produced. As for date-honey, its copiousness and quality were the early sign-manual of the Holy Land and are often mentioned in the Mishna and Tosefta. Domestic consumption was as important as export.

If one took a vow of abstinence from honey, one might still eat date-honey; or if one abstained from dates themselves, their honey was not forbidden (Mishna, Neddarim, 6, 9).

The difference between the more expensive bee-honey and date-honey is well explained in Jerusalem Talmud, Peah, Chapter 7, Halacha 4: "Rabbi Hanania sold bee-honey but also kept date-honey. Once some muleteers came, and unwittingly he sold date-honey. A few days later the same muleteers passed by and he said to them: Let me not exploit you unduly, you should know that the honey I gave you was from dates."

An intoxicating liquor can be made from dates. Tosefta, Maasar Sheni, 2, 2, advises: "Do not immerse dates in water to produce date-beer"; but the Babylonian Talmud, Baba Bathra, 96b, contents itself with putting date-beer on a par with barley-beer and wine in the right to the proper blessing: "All takes place in accordance with God's word." The sap that flowed from the severed

top of the palm quenched thirst (Mishna, Shabbat, 14, 3), and the stones of the fruit were fed to cattle and were burned as fuel.

The fruit and its honey were recommended as purgatives, and, like old wine, the fruit had a reputation for bestowing virility; the Babylonian Talmud, Shabbat, 110b, says that a sick man should be sweated by draughts of a solution of Persian dates in water.[15] The Babylonian Talmud ascribes a row of virtues to the date: heating, satisfying, purging, strengthening the body. But we are not to eat dates at all hours: They are good in the morning and evening, bad in the afternoon, but at midday there is nothing like them for dispelling moodiness, stomach-ache and haemorrhoids."

Pests. The only reference in the Mishna (Terumot, 7, 11) is to "wormy" dates.

The value of the date. Mishna and Talmud mark this by blessing the lucky bargainer who pays dried figs for dates (Babylonian Talmud, Erubin, 29b) and by exemplifying their nourishing quality: "Rabbi Kahana went to the market and saw starving people, feeding on date waste. He was told that there was famine throughout the world, so he prayed and the rains came."

But the value of a palm tree depended, in the end, on its yielding a minimum harvest: "a tree that bears at least a qab (slightly more than two litres) must not be cut down" (Babylonian Talmud, Baba Bathra, 26a).

Parables and similes in ancient Hebrew literature liken Israel to the date palm, most notably Psalm 92, 12: "The righteous shall flourish like the palm tree." The Midrash (Bereshit Raba, 41, 1) explains that, like the character of a righteous man, the palm has neither hollows nor ridges. Not less graphic are the following passages: "In days of old the Sages of Israel saw in the date palm and its fruits a symbol of nobility and loveliness. When Aaron and Moses stood before Pharaoh, it is said that their mien was of ministering angels: in stature like the cedars of Lebanon, their eyes like the roundness of the star Venus, and their beards like date-clusters upon a palm tree" (Yalkut, Exodus 181); "The Almighty banished Israel to Babylon but to feed on dates there and occupy themselves with learning" (Babylonian Talmud, Pessahim, 87b); "Just as this palm tree is lovely to behold and all its fruits are sweet and good, so is the son of David beautiful and all his works are sweet and good before the Lord" (Pirkei Rabbi Eliezer, 19); "As the hearts of palm and cedar point to Heaven, even so does the heart of the righteous point towards the Holy One, blessed be He" (Midrash, Bereshit Raba, 41, 1).

Roman authors speak much of date cultivation in the Holy Land. The geographer Strabo (63-20 B.C. writes): "Here is a 'phoenikon,' an expanse of plantations of date palms and other fruit trees. The principal growth in Jericho is the date, and the groves are over a hundred stadia (17 kilometres) long, watered throughout from springs. The fruit is better than the Babylonian, and only here do you find the special variety 'caryotae' (cf. 'creiti' and also 'cureiti' supra), which, in summer, contains a large quantity of strong 'wine.' The income from the grove is very high indeed ('Geography,' Books XV and XVI) . . . and the Jews have forbidden the too extensive planting (of the better kind) so as to keep up the price" (Book X, Chapter 7). The Elder Pliny states: "In other respects Egypt is of all the countries in the world the best adapted for the production of unguents, although Campania with its abundance of roses runs it close. *But Judaea is even more famous for its palm trees* (XIII, VI, 26); Next to these the most famous are the caryotae, which supply a great deal of food but also of juice, and from which the principal wines of the East are made: these strongly affect the head and to this the date owes its name (pig-headed). . . . But not only are these trees abundant and bear largely in Judaea but also the most famous are found there, and not in the whole of that country but specially in Jericho, although those growing in the valleys of Archelais and Phasaelis and Livias in the same country are also highly spoken of. Their outstanding property is the unctuous juice which they exude and an extremely sweet sort of wine-flavour like that of honey. The

[15] Herodotus (III, 24) records an Egyptian use of date-wine for drinking and for embalming as well.

'nicolai'[16] date belonging to this class is not so juicy but exceptionally large in size, four put end to end making a length of eighteen inches. . . .' Of the many drier dates, the finger date 'dactylis' forms a class of its own—it is a very long, slender date, sometimes of a curved shape. The variety of this class which we offer to the honour of the gods is called 'chydaeos' (common) by the Jews . . . (XIII, IX, 44-46) . . . on the west side of the Dead Sea is the solitary tribe of the Essenes, which is remarkable beyond all the other tribes in the whole world as it has no women . . . has no money and has only palm-trees for company . . . (V, XV, 73) . . . next in honour to the vine and the olive comes the palm. Fresh dates are intoxicating, though causing headaches less when dried, and they are not, so as can be seen, beneficial to the stomach. They relieve a cough and are flesh-forming food. The juice of boiled dates used to be given . . . to restore strength and to assuage thirst. . . . The dates called 'caryotae' are applied with quince, wax and saffron to the stomach, bladder, belly and intestines. They heal bruises. The kernels of dates if burnt and the ashes washed take the place of spodium and are an ingredient of eyesalves. . . ." (XXIII, LI).

When one reflects that all this was written when Rome dominated all date-growing lands and every Senator knew precisely how valuable the date was, any doubts of Judaea's pre-eminence in this regard must vanish. Conversely, the symbolic meanings and economic importance of the date at home, apart from its merit as a paying commodity of export, find expression on the coinage of Simeon and successive Hasmonaean kings, not to mention the minting of the Roman Emperors themselves. Horatius Flavius (First Century A.D.) in Epistles II, 2, versifies the main source of Herod's State revenue—the date of the Jordan Valley, "Herodis palmatis pinguibus" (from the rich palm groves of Herod). Cornelius Tacitus (55-120) writes of the sparse rainfall of Israel, its fertile soil, its agricultural produce not unlike that of Rome and how, except for the balsam and dates which the Empire lacked, its vegetation, too, is similar. All this in his *History* V, 6, with a lyrical outburst, "the soaring palm trees and the grace of their superb uprightness." The fondness which the Emperor Augustus had for "nicolvasin" dates from Judaea is respectfully noted by Greek authors, primarily Athenaeus of Naucratis, and Jewish; this variety was made into loaves and cakes of that name.

The better date groves of Judaea were owned mostly by the ruling class and the rich. So universally renowned were these that Virgil, Georgics III, could say: "Primus Idumaeas referam tibi, Mantua, palmas"—Let me be the first to present to thee, my birthplace Mantua, the palms of Idumea (Edom, a poetic licence for all of Palestine). The minor poet Stratius commiserates with a conquered land, its palm groves in alien grasp, still planting Idumean woods that shall not profit itself (Sylvae, V, 2).

The physician Claudius Galen (130-200), who did professional research into the flora of the Holy Land, praises its dates, of surpassing value in his prescriptions for diet and as a drug (Book IV C 19 of his monumental treaties *De Simpl. Medic. Facult.*).

Pausanias, a Greek traveller of the Second Century, contrasts the date of Judea, which he visited, with the Ionian: to him the Ionian are inedible, the fruit from Israel is more delicate and sweet and retains its savour and beauty. Eusebius of Caesarea (260-340) makes mention of the local palm, but, as explained, it was purely ornamental. Pompeius Trogus writes in his *Historiae Philippicae* of "a fruitful, smiling wood in the vale of Jericho, planted with date palms."

Galius Julius Solinus, in the Third Century, presumably a freedman of the imperial household, claims (*Collectanea Rerum Memorabilium*, XXXV, 9) that the people of Judaea live on dates and that, though Ein-Gedi is no more, its glory still abides in splendid glades and magnificent groves, unspoilt by time or war.

An anonymous *Totius Orbis Discriptio*, of the Fourth Century, picks out Jericho as the place of the palm tree called "nicolvas," and

[16] Allegedly after the philosopher Nicolaus of Damascus, who, visiting Rome with Herod the Great, presented the finest dates to Augustus (Athenaeus, XIV, 22).

of even a smaller one, and a third kind used for mat-making.

St. Jerome (345-420) does not fail us, either, for Zoar and its date are recorded by him; and Theodorus (circa 530) writes: "In Lubis (near Jericho) palms grow whose fruit is big: the name is nicolvas." Antoninus Placentinus Martyr (circa 570), in his *Journeys,* adds Tiberias to the customary citing of Palestine on dates, and discusses the date-wine of Jericho as a specific against ague.

Procopius, a Greek historian of merit, who was, like Eusebius, born in Caesarea (Sixth Century) has a word about Elath (Eilas) and the palms that throve on the coast there and in the neighbourhood; the Arab Abu-Harib sent a parcel of dates from there to the Emperor Justinian and was appointed superintendent of the groves as a reward.

The Arab Period (636-1099)

According to Moslem tradition, God created the date palm from dust left over after Adam was made, and Arabs consequently call it the "Tree of Life"; even nowadays, there is a superstition that the variety "hayani," a name plainly derived from the Semitic word for "life," is especially life-giving, and childless Arab women still swallow "hayanis" to cure their barrenness.

Adamnanus, Abbot of Iona, telling of the travels of the Bishop of Arculf (623-704) in *De Locis Sanctis,* refers to vast groves of palms between Jericho in the Jordan Valley and Elisha's Spring—sixty stadia long, twenty stadia wide, an unbroken stretch of delightful garden, "its divers kinds of palms embellish and enrich it." Ibn Hudadbeh (about 864), an Arab traveller, speaks of the dates of Zoar: "A type called 'al-anquila' (which is a typically Arabic inversion of 'nicola'), tastier and lovelier than any I saw in Iraq or anywhere else. They are saffron-hued and no part need be thrown away; four of them weigh a rotl." Ibn Hauql (about 978) corroborates this.

The Arabs were great admirers of the date, for, in the desert zones, dates sustained them. The Caliphs were given Ten Commandments of Mohammed whenever they went forth to do battle, to govern their conduct in conquered territory. One was. "Neither shall ye cut down palm trees nor burn them." Istahari (about 951) mentions the great date groves in the Jordan Valley, and Al-Maqdisi (about 985) saw groves near Haifa, Caesarea and Ramla, and at Beth-She'an, "dates . . . and date-honey"; he was particularly excited at what he found in the district of Jerusalem (including Jericho), "fruits not ordinarily grown together: citrons, almonds, dates, walnuts, figs and dates, citrons and bananas." Jericho, it seems, was prolific in dates, citrons and bananas. He mentions palms in Elath, and coming to the palms of Bethlehem, says: "Here Jesus was born and here he found the lonely palm. For the most part dates do not ripen in this region, but in Bethlehem it symbolizes a miracle." This was repeated by Yakut (about 1225), by the unknown author of a book on Al Marsid (1300), by Ibn-Batuta (about 1355) and by Salim-ad-Dahiri (about 1467). In 1047, the Persian Nasiri Husru records palms at Haifa and Caesarea and, in 1063, Antaki, describing the Ghor valley between Jericho, Beth-She'an and Tiberias, speaks of villages, streams and date palms.

The Crusaders (1098-1291)

This period damaged the Holy Land in many ways, as Arab rule had done; plantations suffered most. Yet insecurity, taxation and wantonness still left many palm trees standing. Fulcher of Chartres, in his book on the First Crusade *Gesta Francorum Iherusalem Peregrinantium* (1101-1127), says: "Segor, pleasantly situated and very rich in the fruits of the date-palm, very sweet to taste and which we lived on, for we could get nothing else."

In 1102, Saewulf saw dates in Jericho; in 1106, Bishop Daniel, the Russian, saw dense groves in Beth-She'an and was impressed by the richness and fertility of Jericho with its numerous palms (*Vie et Pélérinage*). Albertus Aquensis (also of the Twelfth Century) wrote a *History of Jerusalem* in Latin about the First Crusade, but he finds space in it for the dates of Jericho. Al-Idrisi, in 1154, describes craft on the Dead Sea conveying cargo, different varieties of dates included, from Zoar to Jericho and elsewhere, and William of Tyre (1130-1190) writes of the great groves of Zoar, using the Crusader name for them—palmer or "paumier." When, in 1190, the soldiers of Richard the

Lion-Hearted were stricken with malaria in the swamps between Acre and Haifa, it was no consolation to them that they shivered amidst countless palms, in an area known as "Palmaraceae." References to these groves throughout the Twelfth and Thirteenth Centuries are enough to refute the theory that Napoleon or Ibrahim Pasha planted them.

Jacques de Vitry, Bishop of Acre (1210-1240), quotes (in Book I, Chapter 85) Josephus and earlier writers with approval on the lovely, profitable dates of Zoar, but says: "The trees are now very rare in the Land of Israel, being found, in number, in Zoar and Jericho only; and the fruit is exported, as it always was." Yakut (1225), we may add, found only two palms in a Beth-She'an once famed for its dates, and even those were of the "hailj" variety, fruiting every second year. Jacopo da Verona (about 1230) in his *Liber Peregrinationis* tells of a spring that watered a great garden beside the monastery of St. Jerome; he tasted its dates and they were very good. Near Halyn (Elam) he counted more than 70 fruiting palm trees and a large plantation stretching for five and more miles, with many springs on the hillsides: infinitely more trees than the Jews beheld in their staging at the oasis some three thousand years before. At the monastery of St. Catherine on Sinai, by his report, there were enough trees to supply dates for the monks over a twelvemonth. Burchard of Mt. Zion (about 1280) notes the groves of Ginossar and Ein-Gedi.

From the Mamelukes to the Twentieth Century

It is now that the agrarian economy of Palestine really began to collapse. Most of the coastal palms disappeared; only few survived in the Jordan Valley and, as time went on, they thinned out even more. El-Kazawini, in 1308, can still mention dates, bananas and sugar cane in Jericho. Abu el-Fida, in 1321, found a handful of palms in Gaza and in the Ghor, El-Qalqasandi, in 1418, could, unhappily, say: "There are now no more fresh, or even dried, dates to be got (in Palestine)." Bertrandion de la Brocquière (1432 and 1433), however, observed gardens full of date palms in Tiberias and at Acre, where he was given a whole bunch of dates. Meshullam Menachem of Volterra, in 1481, found the Jews of Jerusalem eating honey of carobs, dates and bees, yet Obadiah of Bertinoro (see *Letters of Palestine* by Avraham Yaari) writes in 1488: "I found no date-honey here (in Palestine) nor dates. At Jericho, city of palms, a reliable person told me that only three date palms are left and they bear no fruit." Eight years earlier, Felix Fabri (1480 and 1483) saw an enormous tree, but a solitary one, at Ramla, weighed down with clusters. Majir-ad-Din al Hambali (1496 and 1499) apparently saw more than a single tree in Ramla and many others in Gaza.

In the travel book of Moses Bassola of Ancona (1521), there is an account of a large movement of Jews from Spain and Portugal to Palestine. The Turks already ruled there, and an improvement in farming was perceptible, for some of the newcomers settled in villages and rainforced the earlier communities of Jewish husbandmen, especially in Upper and Lower Galilee; Bassola refers, in particular, to the many palm trees of Tiberias.

Pierre Bélon, touring Palestine in 1553, reported perspicaciously "The dates in Gaza ripen late. These dates rot readily. It is already three months since the dates of Egypt and Arabia matured, yet in Gaza they are still green." He is led to challenge the extravagant eulogy of Palestinian dates by Hebrews, Greeks, Romans, Arabs and Crusaders, dates once so highly esteemed, so healthy and appetizing, so sought after by Roman and Crusader kings alike. Was it a revolution of climate or taste that brought about their present mediocrity, or were they always as poor as he now experienced? "True, distinguished men have lauded the date of Jericho, but from what I have seen (at Gaza), there never were very excellent dates here, for I do not believe that the climate has changed since then" (Observations C II 86 321). But as respects Jericho, his inference was unsound: the climate of Gaza is suitable only for soft dates, and the conditions which made the dates of Jericho and the Dead Sea area so justly famous in antiquity are absent.

Bishop Bonifacius of Dalmatia was a visitor to the Ginossar Valley in the Sixteenth

Century and came across two palm trees in the ruins of Capernaum; these Quaresmus mentions a century later (*Palestine* by S. Munk, 1845). De Monconys notes date palms in Tiberias in 1647. Doubdan (1651) mourns the lost grandeur of Ein-Gedi: "there is no vestige of palms and all is wilderness." Frère Eugéne Roger, 1663, sees signs of recovery: "The Land grows all the trees we know in France, and carobs, pistachio, bananas, sycamore and dates also"—dates in Tiberias outstandingly, but in Jericho, Gath and Ekron, too.

Thomas Shaw, 1738, writes learnedly of date-fertilization in his *Travels and Observations relating to the Levant*: "It is well known that there are male and female and that the fruit will be dry and insipid without a previous communication with the male. In March-April, a string or two of the male flowers are inserted into the sheath of the female or they sprinkle the meal over several clusters of females. One male is sufficient for 400-500 females. The date is at its best at thirty and continues for seventy years and then starts to decline, bearing 15-20 clusters each year, weighing 15-20 lbs. . . . I really saw two or three (palms, in Jerusalem), their fruit rarely ever comes to maturity and is of no other service than (like the palm of Deborah) to shade the sanctuaries or supply the solemn processions with branches."

Abbé Mariti, in 1767, is detailed about varieties, pollinization and propagation in his *Travels through Cyprus, Syria and Palestine*: "Pliny, the naturalist, has reckoned forty-nine species of palm trees. Some that I saw were extremely tall, others were less tall and had thicker trunks. Some bear a fruit without a stone; others a soft fruit of oblong shape; some a large and exceedingly hard fruit. Mathioli, on the authority of Theophrastus, assures us that the male and female palm trees are equally fruitful, but this is not believed in Syria (Palestine), where the barren trees are called males, so necessary for the fructification of the rest. If these are taken away, the fecundity of a whole plantation may be destroyed. The palm tree is propagated by planting those offshoots that spring from the root or by sowing date-stones or a part of the germ of the top called the brain. It requires a warm climate and a moist, sandy, soil, impregnated with nitre. When it is newly planted, the roots are surrounded with salt and ashes, to give it vigour and forward its growth; but great care must be taken to remove from it all fat or putrid substances as they are very prejudicial to the palm. There is no tree known which is so durable and hardy as the palm. Braving all the severity of the weather, it preserves its original vigour for several centuries. It has become the symbol of everything great and wonderful among men. It signifies victory, triumph, durability, innocence, justice and particularly the fertility of Judaea."

M. C. F. Volney, in 1783, writes of numerous palms from Gaza to Rafa, that make an Egyptian scene; and of good dates grown at Jaffa.

In the Eighteenth Century, nearly all the groves of the Jordan Valley vanished, and Gaza and Khan Yunis were now the main areas of cultivation; in 1816, we learn from Irby and Mangles, and, in 1833, from E. Robinson, that there were palms in Tiberias, a solitary tree in Jericho, not a single one in Zoar or Ein-Gedi; to J. S. Buckingham, in between (1821), Jericho was absolutely bare. These many divergences of observation at Jericho reflect merely the extent and interest of individual visits; the basic surmise is that, if palms still grew there in the 1820's and 1830's, their number was small. The same would doubtless apply to Ein-Gedi, where, in 1838, Robinson and Smith, struck by the contrast with palms of bygone years, say that no trace of palms could be seen. In 1847 John Wilson confirms our thesis: "A stunted and languishing date tree was the only memorial of the city of palms," in words almost identical with those used by John Gadsby the previous year. H. B. Tristram, in 1866, may be cited at length: "There is the impression that the date-palm is now scarce in Palestine. This cannot be said of the maritime region or any of the more sheltered cultivated districts. It does not exist in hilly country where the climate must always have forbidden its growth, but we have seen it in Sidon, Acre, Haifa. Even about Nazareth there were many trees laden with dates. In Jenin they are the feature of the scenery. (Speaking of Jericho) Above all the last palm has gone and its graceful feathery crown waves no more over the plain

which once gave to Jericho the name of the City of Palm Trees. . . . (Concerning the Dead Sea) Trunks of trees lay tossed—a great proportion were palms, many with their roots entire. These must have been tossed for many years before they (were) washed along its shore. The timber is saturated with brine, it scarcely burns. They are wrecks of generations, perhaps of centuries past accumulating here from days when the city of palms extended into groves to the edge of the river. . . . (Concerning Ein-Gedi, but he is writing later now) Not a palm in the area which was once a forest of palms. . . . (Concerning the shores of the Dead Sea) Not a palm remains in these lonely recesses though the shores are fringed with the gaunt trunks of this tree washed down the Jordan and from the other side . . . on breaking this soft incrustation (thick layers of carbonate of lime) we found great masses of palm trees quite perfect and even whole trees petrified where they stood, growing as it were to the rock, entire from the root of stem to the last point of frond. . ." No sign of leaves or trunk are found today in Ein-Gedi or along the Dead Sea. How they disappeared is hard to understand.

A. P. Stanley, the great explorer and journalist, reports finding, in 1871, a clump of five isolated date palms at the point where the Jordan flows into Lake Kinneret, standing there on the shore's brink as though to welcome the entering waters.

Victor Guérin, in 1884, testifies sadly again to the dearth of palms in Jericho, whereas Lawrence Oliphant, in 1886, saw many in Acre: relics, as he comments, of Crusader times, and three hundred (he is precise) in bearing in the Yarmuk Valley. In his own words: (Acre) "The plain is as unhealthy now as it was then, and the date-groves, which are its most striking feature, must have existed then for they are mentioned in the records of the year 1230 A.D. . . . (The Yarmuk Valley) . . . dense thicket of tropical underwood above which a grove of at least 300 date trees."

Lortet, in the same year as Guérin, writes that on the way from Acre to Haifa, "at the foot of the hill, a forest of palms encompasses the city. These trees are on the northern fringe of the date-ripening zone . . . and the fruit is bad and not fit for ordinary consumption."[17] Lortet, naturally, discusses Jericho; he finds it hard to understand why the people of Jericho do not revive a cultivation in which they could prosper exceedingly, but eventually understands that the burdensome taxation on fruit-trees was the cause. He can but lament that arbitrary governors should allow a fruitful land to revert to desert.

The Modern Period

During the British Mandate, there were, in all Palestine, in 1930, only 250 dunams (60 acres) bearing fruit, largely in and around Gaza, and of varieties suitable only for eating fresh—"hayani" and "bint-aisha," for the most part. The groves in Haifa, Acre and Jericho, whither the palm had modestly returned, were mainly seedlings, and their fruit was worthless.

Gradually, the area became greater: in 1935, it was over 2,000 dunams, a decade afterwards, 3,000, still concentrated in Gaza, but with beginnings in the Jordan and Beisan Valleys. Of this, one-twelfth was owned by Jews: as far back as 1920, Jewish farmers had shown interest in the revival of date-growing, importing finer varieties from Egypt, Iraq, Persia and the United States. Difficulty in propagating the palms slowed up the process of extension. As propagation depends on the small number of shoots of palm trees (seeds are not used), it was essential to raise these shoots carefully each year for planting; if there were no large groves, this supply was limited. Hence, the recourse to foreign importations, and, in this regard, the Settlement Department of the Jewish Agency, the Mandatory Administration and Ben-Zion Israeli, pioneer and expert in the kibbutz of Kinneret, did excellent work. From Egypt came the varieties "zaghlul," "samani," "amhat;" from Iraq and Persia, "halawy," "khadrawy," "gantar," "barhee," "zahidi," "maktoom," "deree" and "sair." From the United States, also, "halawy," "khadrawy," and "deqlel-noor," a widespread variety of North African origin.

Import went on. At the instance of

[17] This is still true, and we do not nowadays recommend date plantations in that area.

Fig. 10. Hayani dates (1960), palm near Sea of Galilee.

veteran growers in the Jordan Valley, the Israel Ministry of Agriculture and the Palestine Jewish Colonization Association introduced several thousand shoots from the United States to develop plantation in the Valley, in Beisan and especially in the Arava (Negev); by 1955-1956, 60,000 shoots were brought from the Persian Gulf and set out in a great nursery in the Beisan Valley to be planted wherever sub-surface water was available at no great depth or where irrigation could be provided.

Date-cultivation is of paramount importance in certain parts of Israel where conditions do not favour the usual field-crops but where the palm can easily make itself at home. For the date-palm will subsist on brackish water or saline sub-surface water of more than 3,000 milligrams of chlorine per litre; it sends its roots down into reservoirs of that sort and, once its roots get to them, can do without further irrigation. Moreover, it adapts well to the hottest climates. No wonder that date-cultivation is so significant for areas where, otherwise, perplexing problems of settlement confront the farmer.

The date is not hard to look after: but, being bi-sexual (dioecious), it needs artificial pollinization. This is done today precisely as it was done long ago.

The local varieties may be divided into three classes: 1) soft dates that do not keep well, are best for eating fresh, do not call for many units of heat, and can yield satisfactorily on the southern coast; 2) semi-dry dates (mostly Iraqi-Persian varieties, much in demand) that store well after good drying,

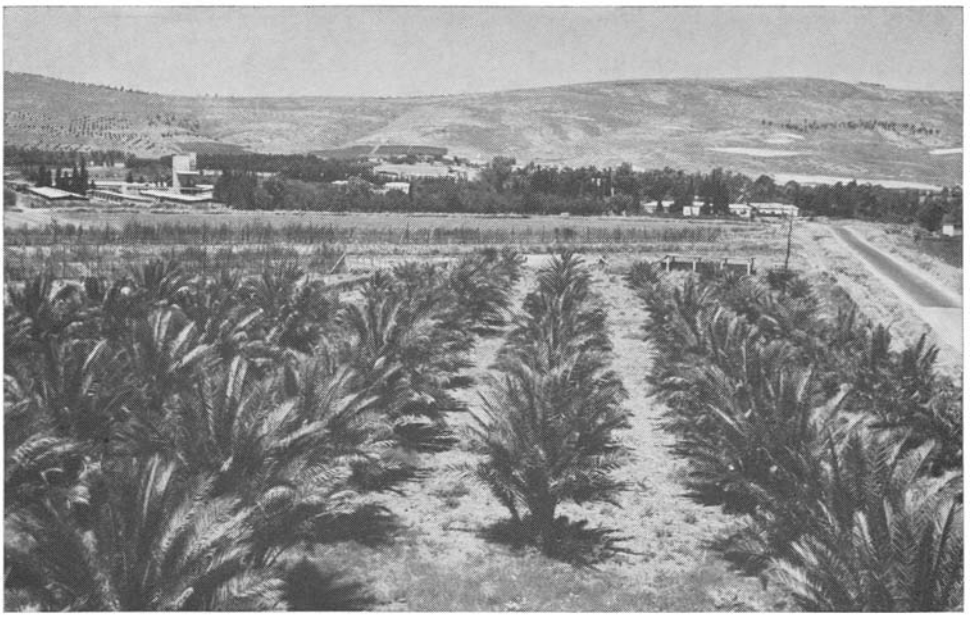

Fig. 11. A young plantation of dates in the Jordan Valley (1962).

need more heat to ripen than the soft kind, and grow in the Beisan and Jordan Valleys; 3) dry dates that require a very high degree of heat and so thrive in the Arava. The proportions in Israel (1963) are: soft dates, 21%; semi-dry, 52%; dry, 27%. The Israel varieties are: "khadrawy," 37%; "hayani," 21%; "zahidi," 16%; "halawy," 10%; "daqlel-noor," 8%; "barhee," 3%; "sair" and others 5%.

In 1963, the total area of date-groves was about 3,000 dunams, 900 in bearing, the remainder still too young to fruit.

Expansion will depend on the availability of more shoots from the many young trees that have meanwhile come to maturity; by 1968, the area is expected to be 4,000 dunams.

Yields are about a ton to the dunam: in 1962 the aggregate yield was 650 tons, and it is not unreasonable to predict a figure of 2,600-2,800 for 1970, fresh and dried; the "fruit-basket" of Israel should contain about 1.5 kg. per capita, and the all-in requirement for a population of three million will be 4,500 tons. An unremitting but necessarily gradual enlargement should regain its ancient glory for the palm tree, and the rich and flattered fruit will once more occupy its becoming place in the economy of Israel.