

## THE FERTILITY OF ANCIENT PALESTINE.

“For the Lord thy God bringeth thee into a good land; a land of brooks of water, of fountains and depths that spring out of valleys and hills;

“A land of wheat, and barley, and vines, and fig-trees, and pomegranates; a land of oil-olive, and honey” (Deut. viii. 7, 8).

THERE is probably no passage in the Bible which we recall more particularly, in speaking of the “ancient fertility” of Palestine, than the above. The question has over and over again been settled out of hand. It is stated that the cutting down of forests has caused a change of climate, and that decrease of rain has reacted on the land, making it barren. The present paper is intended, First, as an inquiry into what we know historically of the ancient condition of the country, of its ancient water-supply, cultivation, and seasons. Secondly, as a sort of abstract of the numerous observations made during the course of the Survey as to the decay of cultivation, and the disappearance of forests. It is only by going thus into detail that we can arrive finally at a good generalisation as to any change that may have occurred.

First of all, it may be remarked that no expression in the passage quoted is inapplicable to modern Palestine. The land is not said to be a beautiful or romantic one; the “lawns and forests,” which the Survey party were stated two years ago to have surveyed, are not noticed in the Bible; the palm-trees, which modern artists so freely introduce, are not noted; the good things of the earth only are enumerated; and it is said to be what it still is, or is at least capable of becoming, a *good* land.

The “brooks of water” (נהלי מים) are admitted by all scholars to be the present *Wadys*, filled in some cases by perennial streams, but generally dry in summer. The “fountains” (עינות) are the modern *Ayun*; the “depths” (תהומות), the deep blue pools which form the sources of many a stream throughout the country. The “valleys” (בקעה) or small plains, and the “hills,” are unchanged; wheat, barley, vines, olives, figs, and pomegranates are still the principal products of the soil; and the *Dibs* (דבש), translated “honey,” is the modern *Dibs*, a syrup prepared from the grape lees, which forms an important article of food among the peasantry.

There is probably no natural product of the country noticed in the Bible not to be found in modern Palestine. The question then arises, How far are we justified in supposing any great change to have occurred? It will be best to consider first the questions of climate and of water-supply, and then to take separately the various natural divisions of the country (all of which are noted in Scripture), and see how far a change in cultivation or in natural products is to be traced in each.

*Climate.*—The history of the Survey expedition will convince any reader of the *Quarterly Statements* that the climate of modern Palestine is extremely trying; yet the heat in summer is not very great, seldom

ranging above 95° in the shade; whilst in March, April, June, July, and August a west breeze blows nearly all day long. The dangers of the climate arise partly from the cold winds with hot sun in autumn, but principally from malaria due in great measure to want of proper drainage. When drainage has been accomplished, good water supplied for bad, and certain trees and plants (such as the sunflower and the blue gum or *Eucalyptus Globulus*) planted, a good deal has been done—as for instance by the German colonists—in rendering the climate of the plains less deadly in autumn. At *Beit Jibrin* is a stream called “the cursed water;” when this fails to dry up very early in spring fever is always expected to prevail, and in 1874 it is said to have carried off half the population of the village. No one seems to have seen that drainage might dispose of this water any year, and indeed my suggestion to that effect was met by the usual helpless fatalistic reply, “It comes from God.”

We have nevertheless traces in the Bible that the low country was always unhealthy. No famous city stood in the plains, all being close, either to the sea or to the hills, and the frequent notice of fever and of the blindness, caused no doubt by ophthalmia, show conditions similar to those of modern times.

*Water-supply.*—As regards the seasons also much speculation has been made, and the curious assumption that the “former and the latter rain” were distinct wet seasons has caused it to be supposed that the amount of rain is materially decreased, a supposition which has, however, no very proper foundation.

In Deut. xi. 11, Palestine is contrasted with Egypt as “a land of hills and valleys, and drinketh water of the rain of heaven;” and rain is promised “in his due season, the first rain and the latter rain” (ver. 14).

In the present time, rain in an ordinarily good year falls first at the autumnal equinox. During November frequent thunderstorms occur, and about Christmas the weather is generally stormy. In January the heaviest rains fall, and in February, sometimes, none at all; but the weather is never settled until after the vernal equinox and the early April showers are past. From May to September no rain falls excepting generally one heavy shower in June or July. The average rainfall can be computed from our meteorological returns. The amount differs greatly in different years. Thus, in the rainy season 1872-73, a continuous east wind prevailed, and scarce any rain fell until the end of February, whilst in 1873-74 not less than 40 inches of rain fell, and seven falls of snow occurred in Jerusalem. The average may be perhaps stated at about 25 inches, and in ordinary years is always sufficient, were it stored in the innumerable reservoirs which remain (requiring very little trouble to repair them), to prevent any danger of drought in summer. It has been remarked by a careful observer that, as a rule, the seasons occur in a cycle, becoming yearly wetter and wetter for a certain period, then growing drier and drier until a year of drought arrives.

We possess in the earliest of Talmudic writings—the Mishna, which was completed before 200 A.D.—notes on the seasons which, when compared, show that very much the same sort of climate then existed in Palestine.

Mishna Taanith, Ch. 1.

1. "From what time shall they begin the form of praise that the Almighty power is manifested in giving rain? Rabbi Eliezer said from the first day of the Feast of Tabernacles" . . . (the end of September, or about the autumnal equinox). Others place it a few days later.

2. Rain is not mentioned in prayer, but at the time of rain . . . . Until what time shall rain be sought? Until the Passover is finished. Rabbi Meir, however, makes the end of Nisan (March and April) the end, since it is said, "and He will cause to come down for you the rain, the former rain and the latter rain, in the first month" (Joel ii. 23).

3. In the third day of Marchesvan (October) shall they begin to pray urgently for rain. . . .

4. If the 17th day of Marchesvan (end of October) come without any rain having fallen, then shall they begin to celebrate three days of fasting. . . .

5. If the month Cisleu (November and December) begin and no rain have fallen, then there shall be three days of fast. . . .

6. If these prayers be not answered, then three more days of fasting. . . .

7. But if these days of fasting be not heard, then shall they leave off selling and buying, the building of houses, and the planting of trees, marrying and giving in marriage, and they shall leave off greeting one another . . . until the end of the month Nisan (March and April). For if no rain be given until then it is a manifest sign of the curse, since it is said, 'Is it not wheat harvest to-day' (1 Sam. xii. 17).

The above extracts show that the seasons at this time resembled those of the present time, and also that the Jews did not themselves consider the former and latter rain promised them to be separate rainy seasons.

Much that confirms this may be gathered from the Bible itself. We know that drought did occasionally occur for years in succession (1 Kings xvii. 1). The words used for the various hydrographic features are the same as those now in use, and no less than eight refer to various kinds of artificial receptacles for rain-water.

Not only does the geological structure of the country forbid us to suppose that parts now without springs were at a former period supplied by water now dried up, but the number of cisterns and reservoirs in dry districts all of undoubted antiquity would afford sufficient evidence that rain water was required at an early period in history.

The water-supply is a question of districts. No less than twelve perennial streams still exist in Palestine, and in some places, such as

the plains of Beisan (containing more than thirty good springs) and Nablus (boasting of seventy) there is no lack of water.

A glance at the various districts will show how perfect is the accordance between the facts of to-day and the biblical descriptions, but as far as climate is concerned we arrive at two conclusions :

1st. The seasons are unchanged ;

2nd. The character of water-supply is unaltered, but as to the comparative amount of the rainfall we have unfortunately no data to go upon.

We may now take in succession the various natural districts, commencing from the south.

THE NEGEB (rendered in the A. V., "South-Land"). This district extends round Beersheba, and both in extent and in the meaning of the name, "dry land," is almost equivalent to the later district of *Daroma*. Its natural limit on the north is the step in the country immediately north of Ziph, where the soft porous chalk is superseded by the hard limestone. The "upper and lower springs" (Judges i. 15), as identified by us, spring from the hard formation in the north-west corner of the district, but in all other parts the water-supply is from cisterns, as the rain sinks down to the base bed, and no streams or springs occur.

The district is principally pastoral and rich in cattle now, as it was in the time of David. (1 Sam. xxv.) The wells of Beersheba depend for their supply now, as when they were first dug, on the fact that the rainfall of the district finds its way to the sea beneath the surface of the ground.

The only biblical expression, apparently not in accord with the idea of the unchanged character of the district, is the notice of the "Wood of Ziph," possibly explained by the discovery of *Khurbet Khoreisa*. (See *Quarterly Statement*, January, 1875, p. 44).

THE JESHIMON. This district is the wilderness on the west of the Dead Sea, and the name itself, "Solitude," shows its character to be unchanged. Shut out from the western breeze by the high range of the watershed, and deprived of springs by the character of the soil, it is, and must always have been, a desert, where the "partridge" and the "wild goat" alone inhabited the dry and rugged rocks.

THE SHEPHELAI, or "low ground," applying the word to the whole of the low ridge between the high watershed range and the plain, consists principally of soft limestone, and is the richest part of the country, abounding in olives and in corn, receiving the sea breeze and supplied with numerous springs, especially near the outcrop of the hard limestone. The "sycamores," which are noticed as distinctive of this district, still remain in many places. The "terebinths" of the valley of Elah (*i.e.*, terebinth) are still some of the finest in Palestine. The great number of ruined sites agrees with the large proportion of towns mentioned as having existed in the district, and the continual Philistine raids in spring time to "rob the threshing-floors" are accounted for by

the good character of the crops. The Shephelah is, and must always have been, one of the most productive districts in the country.

**THE HILLS.** This term is applied in the book of Joshua only to the higher watershed range, consisting of crystalline limestone, capped in parts with the softer chalky strata. At the junction of the two formations springs are always found; but where the porous stone prevails they are few and small. This is perhaps a part of the country which has altered most. We may divide it into three districts.

1st. The *Jebel Khūlūl* or Hebron Hills. The main product is the vine, which flourishes better at this altitude, and requires the soft autumn mists which sweep the hills (4,000 feet above sea level), to bring the grapes to full proportions. Hence, round Hebron, and again on the rugged slopes of Hermon and in the high Galilean hills, the vine flourishes still, but the numerous vineyard towers and rock-cut wine-presses show this cultivation to have materially decreased. A map showing the ancient cultivation of the vine might easily be made from the materials now afforded by the great Survey.

It is in this district that we first encounter the question of forests in the "Forest of Hareth," and the notes on this subject may be here summed up.

The Hebrew words translated *wood* or *forest* are three, as below:—

**CHORESH** (חֹרֶשׁ), "a wood." From a root apparently meaning "tangled." (Gesenius s.v.) The word occurs in the forms *Khoreisa*, *Harāsheh*, and *Hirshel*\* on our Survey sheets. The idea does not necessarily imply timber trees, but rather copse or underwood such as still exists, and is called *Hish* by the peasantry.

**JAAR** (יַעַר), possibly preserved in the name *'Armah* for the plural form. This word occurs in connection with Hareth (1 Sam. xxii. 5), and in the name Mount Jearim † (Josh. x. 10). The A.V. renders it "forest." The root has, however, only the meaning "luxuriant growth," and does not imply timber trees. It might be rendered "wilderness" according to the old use of the word. This may be compared with the more dense thickets of lentisk and dwarf-oak (with occasional scattered pines on the high ground), which clothe the western slopes of the hills.

That the amount of this kind of forest has materially decreased and is still decreasing there is no doubt. The main causes are the continual destruction of the trees for firewood, the stupidity of the peasantry in

\* *Khārbet Hirshah* represents the Hebrew Charashim, which is translated in the A.V. "Valley of Craftsmen," but the root is the same.

† In Joshua xv. 10, we read, "Mount Jearim which is Chesallon." The ruin of *'Armah* is close to the side of the valley, two miles south-west of Chesallon (*Kesla*). If it represents the Hebrew יַעַר יְרִימ, we have only to suppose the loss of Yod and a slight change to the Arabic adjective form. The word, however, has a meaning in Arabic—viz., a *vineyard*. Mount Jearim probably gave its name to Kirjath Jearim, but between the two lay Mount Seir, evidently the present *Batn es Saghr*, the Ghein standing for (ע), and the position being what is required for the boundary line.

mutilating growing trees by cutting off the roots or burning off the branches, and the want of all laws for preservation of this valuable spontaneous growth. In the year 700 A.D., Arculphus mentions a pine forest, between Hebron and Jerusalem, in the very neighbourhood of Hareth (*Kharâs*\*) which has now entirely disappeared, leaving only traces in one or two stunted solitary trees.

ETZ (עץ), a "tree." The root has the meaning of "strength," and applies to timber trees (Josh. x. 26); but does not imply forest, as it is often used of solitary trees. The trees of Scripture, oak, terebinth, fir, sycamore, cedar, box, olive, fig, and acacia, are still the trees of the country. The timber forests of Sharon and Galilee will be noted later on. The solitary sacred trees now existing are more than once noted in the Old Testament.

The conclusions naturally arrived at in this question are:—

1st. The character of the wooded growth is unchanged.

2nd. The districts covered by "wood" have on the whole materially decreased.

2. The second Mountain District is that of the *Jebel Kuds* or Jerusalem Hills, including the mountain possessions of Benjamin.

The western slopes are throughout thickly covered with copse, but the watershed plateau is quite bare of timber trees. There is, however, a good deal of good corn land, of olive and fig gardens, and the proportion of springs is large. That the country was bare, and round Jerusalem ill supplied with water, at least as far back as the middle ages, we gather from the graphic account by William of Tyre, of the suffering experienced by the Crusaders whilst besieging Jerusalem in 1099 A.D. Very little is said in the Talmud of the fertility of Judæa, and, indeed, the praises bestowed on Galilee suggest the comparative fertility to be unchanged. The vines of Judæa were, however, better than those of Galilee, and the corn of Ophrah (*Taiyibeh*) was so famous that to "Carry corn to Ophrah" was a Jewish proverb equivalent to "Carrying coals to Newcastle." Michmash also was famous for its corn, and the olives of Tekua are mentioned. Not a single stump is found at Tekua itself at the present day, but the site was considered sufficiently valuable to be made church property in the twelfth century. The willows of Motza (*Beit Mizzeb*, near *Kolonia*) were brought to Jerusalem, and the site still possesses its stream surrounded with trees. The Talmud, however, states the seasons to have been later in the hills than in the Shephelah, which is naturally still the case.

The third mountain district is the *Jebel Nâblus*, or "Mount Ephraim." Parts of this district are the most rugged and desolate in Palestine, but it is well supplied with springs, and abounds in figs. The wood which once existed near Bethel has disappeared, but a trace of this may perhaps be found in the name *Bâtn Harrâsheh*.

SAMARIA.—The district north of Shechem receives little illustration

\* As proposed by me.

from either the Bible or the Talmud. Yet it is now the richest part of the country. The villages are well built of stone, the long olive groves flourish better than in Judæa, and the corn of *Wady Sh'atr*, "the valley of barley," is abundant and good. Shechem itself, with its seventy springs, its gardens all down the long narrow valley, its murmur of water and profusion of fruits, is the natural capital of Palestine. There are signs also of greater former cultivation. The parable of the man who "planted a vineyard and set a hedge about it (of stone or of thorn), and digged (in the rock) a place for the wine fat, and built a tower" (dry-stone, for a watchman), Mark xii. 1, is continually illustrated in the midst of dense copse or wild hill desert, showing the decay of the ancient vine cultivation. The ancient terraces cut out of the soft limestone, or built up with retaining walls against the sides of the harder rocks, show an extent of corn cultivation, of vineyard and olive yard which has now perceptibly shrunk. On the north, as we approach the plain of Esdraelon, the villages are very large, and the peasantry are rich compared with those of other districts.

THE JORDAN VALLEY.—Here again we find an entirely different climate to consider. The Jordan valley is now a wilderness, the climate in autumn is deadly, and in summer the heat makes it uninhabitable.

Josephus specially notes the richness of its soil, and calls it a *θεῖον χάριον*, or region fit for the gods. Herod the Great planted in it palm trees, which required, however, irrigation by an aqueduct, still existing, as found by the Survey party; and as late as 700 A.D. groves of palm, now only represented (except at Beisan) by solitary individuals, are noticed by Arculphus. The crop of rich herbage and gigantic thistles in spring attest the soil to be still unchanged. The change in climate is most probably due to the cause assigned by the late Mr. Drake (*Quarterly Statement*, April, 1874, p. 75), in the decay of that elaborate system of irrigation by aqueducts, which dates back at least to Byzantine and Roman times, and which we have carefully laid down on the Survey sheets.

This fertile part of the Jordan valley, where semi-tropical plants are cultivated, and where in the middle ages the Crusaders built sugar-mills, still standing in ruins, where indigo and cotton, every species of vegetable, and even the vine, may be cultivated, does not include the immediate neighbourhood of the river, where the ground is too salt to produce anything, but the plain at the foot of the hills, watered by fresh streams from numerous beautiful springs. Hence Josephus in another passage describes Jordan as "flowing through a desert," which at first sight seems hardly in accord with his glowing description of the gardens of Jericho.

The river itself flows in a jungle of tamarisks, which, however, only exist in the immediate proximity of the water.

The Jordan valley must always be unsuited to Europeans, but could certainly be cultivated by natives or by the negroes, who constantly take refuge in it. The nomadic tribes retreat in summer to the lower slopes

of the surrounding hills, and pasture their flocks throughout the whole length of the plains.

It seems probable that this district was always separated from the cultivated hill district by a strip of desert, for the conditions of water supply and of exposure only to wind from the east, which now apply to the eastern slopes of the Judæan and Samaritan watershed, must always have existed. Hence in this intervening district we find no biblical cities, and in it is included the "wilderness of Beth-aven" (Josh. xviii. 12), and perhaps the wilderness of Judæa, where John the Baptist was brought up (Luke i. 80). These slopes in spring furnish, however, pasturage for the flocks of the villages above.

Sugar was also grown at some time (probably the twelfth century) near *Beisân*, where the petrified stalks of the sugar-cane are still to be seen.

PHILISTIA.—Of the agricultural character of Philistia we hear little. The soil is very rich, and good crops are obtained near Gaza by merely scratching the ground. The olive groves here are as old certainly as the Mohammedan conquest, and according to tradition date back to the time of Alexander the Great. The gardens of Ascalon and Jaffa, where orange, lemon, and banana flourish, are famous. Yet in this district springs hardly ever occur, and artificial supply in ponds and cisterns must always have existed. The palm here grows in cultivation, but the only wild palms we have met in Palestine are those in the Jordan Valley east of *Beisân*. Many villages, such as *Deir el Belah* and *Mejdel* on the sand near the coast, have groves of tall date-palms, but the fruit is very little esteemed.

The great enemy to cultivation in these plains is the fine sand of the dunes along the coast, said to advance a yard a year,\* having south of Jaffa an average breadth of four miles, and slowly covering the gardens of Ascalon, where vines may be seen apparently growing in sand but really rooted in good soil beneath. Since the Christian era these dunes must have crept inland at least a mile, and in many cases more rapidly, but in 1,100 A.D. Ascalon already stood in the sand which now extends about one mile east of it, but is two miles and a half broad a little farther south. In the north this encroachment has been successfully checked by planting a belt of firs.

SHARON.—Probably no district has changed more than this plain stretching from Jaffa to Carmel. The ancient irrigatory system has been destroyed, and the passes cut through the solid wall of cliff near the sea for drainage are partly choked so that swamps have formed within. Cæsarea stood in the sand already in the fourth century, but now the dunes extend three and a half miles east of it. Farther north the wall of rock checks the sand, which forms a strip only half a mile wide.

Yet more, the disappearance of timber forest is here an indisputable fact. This forest of Sharon (or of "oaks," according to Reland's deriva-

\* See *Quarterly Statement*, 1871, pp. 83, 84, "Captain Warren in Philistia."

tion of the word) existed in the middle ages. The wood of Assur (or *Arsuf*) is noted in the chronicles of Richard I., and is still represented by open country scattered in some parts quite thickly with oaks of moderate size, but farther south "the forest of Saron" is only represented by the stumps of trees thickly posted, from which numerous low bushes are sprouting. The forest has been cut down and the "*Ingens Sylva*" of Strabo is only represented towards the north end of the plain by open woodlands near the hill slopes of the Carmel range.

LOWER GALILEE contains four districts, which may be taken in succession, namely: 1st, the plain of Esdraelon; 2nd, the hill country of Zebulon; 3rd, the land of Gennesareth; 4th, the Carmel ranges.

First. The soil of the great plain is extremely rich, being partly composed of volcanic scorïæ and basaltic *débris* derived from the numerous craters east and west of the plain. Its present name, *Merj Ibn 'Amir*, signifies "the meadow the son of cultivation," and the district is also called the *Belâd Haritkeh*, or "ploughed land." The whole plain is watered by the numerous springs on the north-east and west, coming from the crystalline beds at the foot of the hills. The principal products are corn, cotton, tobacco, sesame, and millet, or *durrah*, maize, and lentils, horse lentils (*kursinneh*), with every kind of edible vegetable. The olive groves on the west are numerous, but on the east scarce any trees exist. The palm flourishes in the gardens of *Jenin*, and an occasional specimen exists at one or two of the villages. The northern half of this plain was bought some four years ago by a Greek called Sursuk, twenty-two villages and their land being obtained (how it is not exactly known) for the sum of £20,000. His serfs have considerably improved the cultivation under good management, and if the title be secure the property must be of immense value.

Second. The hills of Zebulon include the plateau of the *Buttaûf*, and show three kinds of country. First the barren white hills round Nazareth, with a formation porous and chalky, letting all the water sink through and producing a poor soil. Second, to the west of Nazareth low ranges covered more thickly than any other part of Palestine with oak woods, especially along the course of the great *Wâdy el Melek*. This is one of the most picturesque parts of the country; a clear shallow stream flowing over flat ledges of rock, an open corn valley, and on either side low hills densely covered with oak trees, in which innumerable doves and other birds have found a home. Third. The *Buttaûf*, a fine open plain of soil, even richer than Esdraelon, with the same products. There is a curious story in the Talmud respecting the country of Zebulon.

"Tradition says that Zebulon lamented only to have obtained, by lot, mountains and sea-shore, whilst Naphtali possessed vines and fertile fields. But if Kitron were Sepphoris, and therefore a town in the possessions of Zebulon, what reasons for complaint would there have been. The neighbourhood of Sepphoris (*Seffûrieh*) is very fertile to a distance of sixteen square miles, and it flows with milk and honey." (Tal. Bab. Megilla 6 a, as quoted by Neubauer, Geog. Tal. p. 191.)

Notwithstanding the objection here raised, there is scarce a doubt that Sepphoris did lie in the land of Zebulun. Its reported fertility agrees with its present cultivation.

The Talmud divides Galilee into three districts; Upper Galilee above Caphar Hananiah (*Kefr 'Anan*), where no sycamores grew; Lower Galilee below (*i.e.*, south of) Caphar Hananiah, which produces sycamores; lastly, the country of Tiberias (*Mish. Sheviith IX. 2*).

The third Galilean district is the *Land of Gennesareth*, including not only the immediate neighbourhood of the lake, but also the *'Ard el Hümma*, or "hot country" (perhaps originally "Land of Hammath"), a rich district, in which now stands the modern *Beit Jenn*, probably representing, as I have pointed out in a former paper, the ancient Chinnereth, and the later Gennesareth. This country all belonged to the tribe of Naphtali, and its richness is specially noticed in the Talmud. "The Land of Naphtali is everywhere covered with fruitful fields and vines, the fruits of this land are famous for their sweetness." (*Tal. Bab. Megillah, 6 a.*)

Josephus also specially describes the country of Gennesareth: "Its soil is so fruitful that all sorts of trees can grow upon it, for the temperature of the air is so well mixed that it ages well with those several sorts, particularly walnuts." The passage is too long to be quoted in full (*cf. B. J. III. x., 7, 8*).

Beth Shan was included in this district,\* and was so fertile in corn that the seed of a *saah* (2 gallons) produced 70 *Kor* (nearly 70 qrs.), according to R. Meir (*Tal. Bab. Ketuboth, 112 a*). Rabbi Simon ben Lakish said, "If Paradise is to be found in Palestine, its gate is at Beth Shan" (*cf. Midrash, Bereshith, Rabba, ch. 98*).

Much change has occurred in this district. The northern slopes of Tabor are still covered with oak thickets, where the fallow deer is to be found, but Arculphus, in 700 A.D., mentions dense forests as surrounding the Sea of Galilee. Again, if we take Reland's derivation for the name Sharon—*i.e.*, "oak," we have indications that the *Ard el Hümma*, to which the title was applied in the fourth century, was once covered with forest. It is now almost entirely corn land, and the name only lingers in the ruin of *Sáróna* and the village called *Sírín*—*i.e.*, "thickets" or "thorns."†

The beautiful springs which exist in the district near Tiberias, the well-watered valley of the *Nahr Jálúd*, the wooded slopes of Tabor, and the rich corn land of the *'Ard el Hümma*, belong to a district still capable, by irrigation and cultivation, of becoming something approach-

\* "The territory of Beth Shan was called Chinnereth" (*Midrash Bereshith, Rabba, chap. 98*).

† The Samaritan Chronicle makes mention of an oak at Kirjath has Sirín, as late as the 16th century. When visiting the place in 1874, I cannot remember noticing any trees (*cf. Journal Asiatique, Dec., 69*). Kirjath has Sirín was not identified by Neubauer, but its being mentioned with Accho, seems to point to its being the modern *Sírín*.

ing the paradise which the Jews describe it as having been in the first centuries of the Christian era.

The fourth district of Southern Galilee is the range of Carmel, included in the possessions of Zebulon and Manasseh. This range divides off from the watershed south of the great plain, and runs north-west to the promontory on which the convent stands. The western slopes are very gradual, sinking into the plain of Sharon. The range includes three districts :

1st. That which culminates in the volcanic cone of *Sheikh Iskander* and which consists throughout of the crystalline limestone. It is now thickly clothed with copse of lentisk, dwarf oak, &c. (see *Quarterly Statement* for January, 1873, p. 10 and p. 29) the soil being partly basaltic. Here the roebuck finds a home, and many wild animals not existing in the open country. Here in the midst of the thickets we have also found ancient terraces and watchtowers, showing an *increase* of the wooded growth.

The 2nd district is called the *Belâd er Rûhah*, or "breezy land," being an open wold of soft chalky soil, all arable and quite bare of trees. The springs are few and small. On the west is an open oak woodland, part of the Sharon Forest.

3rd and last, Carmel proper is again sharply divided from the last by a great feature—*Wâdy el Mâleh*—and the crystalline limestone again crops up. The expression in the Song of Songs, "the hair of thy head like Carmel," applied to Solomon's Egyptian bride, might be thought to refer to the sort of curly undergrowth which covers the whole mountain, and pours down the watercourses a stream of green vegetation. The "fruitful field" is now all rock and thicket, but the luxuriance of wild growth attests the natural fertility of the soil, and the country is coveted by the German colonists, whose possessions at the foot of the mountain lie in a far less fruitful territory. Ancient wine-presses are still to be found on the top of the ridge, but cultivation is now confined to the immediate neighbourhood of the two Druse villages of *'Esfia* and *ed Dalieh*.

In this district, therefore, we find the reverse change to have taken place to that of Mount Ephraim, the wood having extended farther than it did in the time of Jewish prosperity and cultivation. The only indication of *timber* on Carmel is in the dwarf pines along the ridge.

Only two districts in Palestine remain to be noticed, and these still unsurveyed.

UPPER GALILEE is the most picturesque and probably the healthiest part of Palestine. The vine is still cultivated, as for instance at *Kefr Birim*, whence the German colonists obtain grapes for the manufacture of a very fair kind of red wine. The woods of Bania, which are so often noticed by William of Tyre, are still in existence, as can be seen in the Fund Photographs. The country lay all within the possessions of Naphtali, and its fertility appears to have exceeded that of Judæa, though its wine was not considered by the Talmudists to be equal to

that of the Hebron hills, nor was it so abundant (Tal. Bab. *Nazir*, 31 b.)\*

PHœNICIA includes the land of Asher, the low hills of soft limestone, and the tract of sand along the coast. Here the palm flourishes more abundantly as it obtains water and sand, the two requisites for its proper growth. Thus at Haifa we find a long grove beside the Kishon, and at Acre, Tyre, and Sidon it also flourishes.

Dr. Tristram has long ago observed that the palm can never have grown in numbers in the hills where exposed to frost. In the plains and low ground only do we find such names as Kirjath Sannah and Tumrah (*i.e.*, "town of palms" and "place of dates"), and no passage in the Bible makes mention of palms in districts where they cannot grow at the present day.

The orange, lemon, and banana also grow best along the coast, the latter especially at Sidon. The Talmudists, commenting on the verse relating to Asher, "let him dip his foot in oil" (Deut. xxxiii. 24), say that the oil ran like a stream. (Siphri, *Deut.*) "It is easier to bring up a legion of olive trees in Galilee than a child in Palestine" (*Bereshith Rabba*, ch. 20). The oil of Gush Haleb (*el J'ish*) was more abundant than that of any other part of Palestine (Tal. Bab. *Menachoth*, 85 b). That of Tekú'a, in Judæa, was, however, considered better in *quality* than any Galilean oil (*Mishna Menachoth*, viii. 3). The same passage places the Samaritan oil of Regueb (probably *Rújib*) in the second category.

Olives also grew at Netopha (*Umm Toba*) near Tekú'a, whence the derivation of the word meaning "dropping" (*Mish. Pes*, vii. 1).

From these passages we infer Galilee to have been the most fruitful in oil. At the present day the finest groves exist in the Samaritan low hills, but the Talmud never admits the Samaritan country to have been as fertile as the land of Israel.

The Crusaders undertook the cultivation of sugar in the lowlands of Phœnicia. Thus William of Tyre mentions plantations in a plain well-watered and irrigated by aqueducts as existing near Scanderion (the modern *Iekanderána*), south of Tyre, as late as 1124 A.D.

The whole of Palestine from Dan to Beersheba has thus been traversed, and the notes preceding are sufficiently minute to allow some sort of conclusion to be drawn. These deductions, which appear to me to be the natural outcome of the facts collected, may be briefly summed up as follows:—

1. The climate of Palestine is capable of great improvement by drainage, but has always been to a certain extent malarious in the plains. These, and especially the Jordan valley, will always be unfitted to European constitutions, but may be made salubrious for the indigenous population.

\* Major Wilson remarks: "In North Galilee some of the hill-tops are still covered with roots of old forest trees, and in 1865 much charcoal was being prepared there for the Damascus market."

2. The seasons in Palestine are unchanged, and there is no evidence of any very remarkable falling off in the amount of rain, though the data are not sufficient for a definite conclusion on the subject.

3. The spontaneous growth resembles in character that mentioned in the Bible. In some districts it has greatly decreased, in others it has spread; woods of timber trees have decreased in extent, but still exist in part of the districts formerly occupied by them.

4. Cultivation and drainage have both been neglected, and the richness of the soil makes it certain that very little labour would make an enormous change in the productiveness of the country.

5. The present water-supply answers exactly to that described in the Bible, in the Talmud, and in Josephus, and depends entirely on geological formation.

6. The north of Palestine is and has apparently always been more fruitful than the south.

7. The Judæan hills are unchanged in appearance, at least since the twelfth century, and were probably always the most barren-looking of all the districts. The deserts to the east and south appear also to be unchanged.

To sum up, the change in Palestine is one of *degree only and not of kind*. The curse of the country is bad government and oppression. Justice and security of person and property once established, Palestine would become once more a land of corn, vines, and olives, rivalling in fertility and in wealth its ancient condition, as deduced from careful study of such notices as remain to us in the Bible and in the later Jewish writings.

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## NOTES ON THE LANGUAGE OF THE NATIVE PEASANTRY IN PALESTINE.

In the course of conversation with travellers in Palestine I have always found it considered an extraordinary fact that the names of so many ancient sites should remain unaltered to the present day, when the language has apparently been changed from the Canaanite, or the Hebrew, to the modern Arabic. The study of the immense number of topographical titles which we have now accumulated, and which is necessary for the preparation of the final name indexes of the Survey, gives very clearly the reason for this preservation of ancient names. It is well known to those familiar to the country that whatever else they may be, the Fellahin, or native peasantry of Palestine, are not Arabs; and if we judge from the names of the topographical features their language can scarcely be called Arabic.

It is not indeed merely that tradition has handed down, more or less imperfectly, the memory of a few ancient names, but that *the whole*