

2.29 inches, on January 16th, and 1.34 inch on the 18th. No rain fell from May 17th till October 5th, making a period of 171 consecutive days without rain. The fall of rain on December 2nd was 2.30 inches, and on the 3rd 1.57 inch fell. The heaviest monthly fall in the year was 8.43 inches in January, and the next in order 4.69 inches in December. The total fall for the year was 15.33 inches. At Jerusalem the total fall for the year was 17.42 inches.

ARCHÆOLOGICAL AND EPIGRAPHIC NOTES ON PALESTINE.

By Professor CLERMONT-GANNEAU, M.I.

17. *The Site of Mēpha'ath.*—Some time ago¹ I endeavoured to point out that the name of the biblical city Mēpha'ath, which had hitherto been sought in vain, had survived to the fourteenth century of our era among the ancient Arab geographers with its old name faithfully preserved under the form *Meifa'a*, a village of el-Belka, or Moab. In the course of my discussion I argued that in consequence of this there was every chance that the name, although wanting in our maps, might still be traditionally preserved, and that a careful search in the district of Hesbân might not fail to lead to its re-discovery, and at the same time might determine the exact locality of this Levitical city. Events were not long in proving the justice of my remarks, since, as a matter of fact, I now notice in a short itinerary quite recently published by Dr. Alois Musil,² comprising the country of Hesbân and the frontier of Moab, a place-name which appears to me to be the required toponym: *Nēfa'*.³ The name has merely undergone a slight alteration (N = M) in the mouth of the Bedawin, of which the vulgar dialects of Syria offer us more than one example.⁴ It is there,

¹ *Recueil d'Archéologie Orientale*, t. IV, p. 57, *seq.*; compare *Quarterly Statement*, 1902, p. 10.

² *Küsejr 'Amra und andere Schlösser östlich von Moab* (Vienna, 1902), p. 2 of the annexed fly-leaf.

³ A printer's error, to be corrected into *Nēfa'*, as explained below, p. 261, note 2.

⁴ The change might have been somewhat influenced by a popular etymology tending to associate the place-name in question with the frequently used root

accordingly, that it seems fitting, in my opinion, to localise the *Meifa'a* of the ancient Arab geographers, the *Mefa*¹ of the *Notitia dignitatum Imperii Romani*, the *Μηφα'αθ* of the *Onomasticon*, and finally the biblical *Mêpha'ath*. Unfortunately Dr. Musil gives no indication respecting the exact position of the place whose name in its then corrupt form had no value for him²; we shall not be slow, I hope, now that the importance of the place has been thus made manifest, to be informed upon this point. It will be a valuable datum for the determination of the situation of two other Moabite cities, Jahaz and Kedemoth, which are grouped with *Mêpha'ath* in Joshua xiii, 18,³ and have not yet been identified.

18. *El-Kahf er-Raḳīm and the Cave of the Seven Sleepers*.—Whilst perusing Dr. Musil's very interesting report, I had the pleasure of finding there entire confirmation of another conjecture which I had formerly made.⁴ From certain historical, geographical, and archæological considerations, I had proposed to place the scene of the Seven Sleepers, as described in the Coran and in the old Muslim traditions, at el-Kahf, also called er-Raḳīm, immediately to the south of 'Ammân. Now, as a matter of fact, Dr. Musil⁵ has collected a curious Bedawin legend, to the effect that in one of the rock-cut tombs of the remarkable cemetery in this locality, "once upon a time 90 saints slept for 40 years." This, as he himself has justly recognised, is evidently derived from the

رفع. The root *رَفَعَ*, however, exists in Arabic, and its derivative *مِيفَعَة* has the same general sense of "height, elevated place." In regard to this last-mentioned point, it is to be noted that, according to Herr Musil, the site of *Néfa* is of great strategical importance, which agrees very well with the indications in the *Onomasticon* and the *Notitia dignitatum*.

¹ *Mesæ*, to be corrected into *Mesæe*, the genitive or dative of *Mefa*.

² Since the above was written I have received a letter from Dr. Musil, which fortunately places me in a position to supply this want. The locality in question is situated about one mile east-south-east of the Khareibet es-Sûḳ on the map of the *Survey of Eastern Palestine*, to the north-east of the supposed Jazer, and hence almost due south of 'Ammân, where the Ordnance survey stopped. *Néfa* is a misprint for *Néfa*. It will be noticed that the latter vocalisation lends still more plausibility to my connection of the word with the *Meifa'a* of the Arab geographers, and consequently with the *Mêpha'ath* of the Bible.

³ Cf. Jeremiah xlvi, 21, where *Mêpha'ath* again occurs with Jahaz.

⁴ *Recueil d'Archéologie Orientale*, t. III, p. 293, seq. (§ 54, *El-Kahf et la Caverne des Septs-Dormants*).

⁵ Musil, *op. cit.*, p. 14, note 1.

celebrated Christian legend, only the number of persons has been increased, and, by way of compensation, that of the years is diminished. I endorse the geographical identification which Dr. Musil has deduced all the more willingly, as I had already been fortunate enough to establish it without the aid of the testimony of this popular tradition, which now confirms it materially in the most opportune manner.

19. *Discovery of Sykomazon.*—Hitherto one has searched in vain for the site of this episcopal city of *Palæstina* 1^a, whose name appears in the ecclesiastical lists as well as in the subscriptions of divers councils, under the varying, and sometimes even faulty forms, *Ἐγκωμαίων* (George of Cyprus), *Συκαμάζων* (Hierocles), genitive *Συκαμαζόνος*, *Συκομαζόνος*. Its existence had also been confirmed by the Mosaic map of *Mâdeba*. From a private communication which I owe to the kindness of Dr. Musil, I am glad to be able to announce that he has succeeded in discovering this city near the Wâdy Ghazza,¹ faithfully preserved in the Arabic name *Sûk Mâzen*. *Sûk* (سوق) should correspond to the Aramaic שוק, which, too, has the same meaning ("market"); *Mâzen* is very likely the same name as that of *Mâzin* (مازن), the ancient eponym of Ghassanides. Have we here really a trace of the presence of the famous Arab tribe which ruled in Syria before Islam?

20. *Three New Archaic Israelite Seals.*—I have received one after the other, and from different sources, communications respecting three engraved gems (A, B, C) which enrich our store of seals, so interesting for ancient Hebrew epigraphy. Until recently these little monuments were represented only by rare specimens, but now they seem to multiply little and by little, and, if it continues at this rate, we shall soon foresee the day when they will form a veritable *Corpus* of the highest importance, not only for Hebrew archæology and philology, but often even for biblical exegesis, properly so called.

¹ In a second letter Dr. Musil has been kind enough to give me more precise information respecting the position of *Sûk Mâzen*. It lies to the south-east of Deir el-Belaḥ (south of Gaza), in the neighbourhood of the Wely Sheikh Hamûda of the large English map. The position practically coincides with that ascribed to *Συκομαζών* on the mosaic map of *Mâdeba*.

A. After casts communicated by the Committee of the Palestine Exploration Fund, and executed from an impression made by the Rev. J. E. Hanauer, of Jerusalem.¹ The original was found, so we are assured, at Deir Abân, a village situated to the east of Jerusalem. But one must accept with reserve such details regarding the provenience of small objects, which can be carried so easily from place to place. This seal has gone the round of the markets of Jerusalem, and could have passed from hand to hand² before finding a buyer.



INSCRIPTION ON AN ARCHAIC ISRAELITE SEAL.

Amethyst, ellipsoid, convex, the greater axis measures about 0·012 m. (*cf.* the measurement of the gem B); whether the stone is pierced I know not.

Upon the convex face, in an elliptical frame, two lines in Phœnician character are very delicately engraved. They are separated by a double stroke, an arrangement which is frequently met with upon seals that are strictly Israelite, and of the older epoch, thus often forming a criterion which helps to distinguish them from similar Phœnician or Aramæan seals. The letters present all the characteristics of the archaic Hebrew writing, and this diagnosis is confirmed by the nature of the proper names, which indubitably belong to the Jewish stock:—

למעשהוהו משלם

“To Ma’aseyah[ahû] (son of) Meshullam.”

At the end of the first line the *he* and the *waw* are partially destroyed, either by some fracture which the stone may have suffered, or by some imperfection on the impression; enough remains, however, for the restoration to be certain. The name *Ma’aseiah(û)*—“work of Jehovah”—has already been met with upon

¹ [See also Mr. Macalister’s note, pp. 242, *et seq.*]

² From a private communication from Father Sejourné, it appears that the gem has also come under the notice of the Dominican Fathers, who are to publish it in the *Revue Biblique* (see the July number, p. 435).

an ancient Israelite seal which I published some while ago.¹ It was widespread among the Jews. In the Bible it is borne by a score of persons, either in the fuller form, such as it is here, or in the more or less abridged forms, *מעשי, מעשיה*. The name *Meshullam* is not less frequent. In the genealogy of a certain priestly family in 1 Chronicles ix, 12, one finds the names Ma'asai and Meshullam separated by only two generations. Considering the persistence with which certain proper names recur alternately in the same family among the Semites, we may well ask if the possessor of our seal might not have belonged by chance to that of which the chronicler speaks. Granted that the names *שלם* and *משלם* seem to have been sometimes confounded, it is possible also to think of other similar comparisons, but it would be rash to push this too far. Finally, I may remark that this seal offers us another example of the frequent habit, which prevailed formerly among the Jews, of omitting the word *בן*—"son"—before the patronymic. The practice is now well established, though no trace of it is to be found in the Bible.

B. An impression, which I owe to a kind communication from the possessor of the original, E. N. Adler, Esq., through the kind intervention of M. Moïse Schwab, of the *Bibliothèque Nationale*.

B.



ARCHAIC ISRAELITE SEAL (enlarged double the size of the original).

Lapis-lazuli, with spangles of gold, ellipsoid, convex above, flat underneath, in the shape of a scaraboid; the greater axis measures

¹ *Recueil d'Archéologie Orientale*, t. II, p. 27: "To Yahmolyahû (son of) Ma'aseyahû." The gem belongs to the Cabinet des Médailles, at Paris.

about 0·012 mm. (*cf.* the measurement of the gem A). The stone was not pierced, consequently it should have been fixed in a metallic mount to form a signet ring. Upon the flat side, in an oval frame, are two lines of Phœnician letters, presenting all the characteristics of Israelite writing, and separated by the usual double stroke:—

לעמדיהו בת שבנידו

“To ‘Amdyahû, daughter of Shebanyahû.”

The name of the father is well known in the Bible. It has already appeared upon a similar seal, viz., that discovered by Sir Charles Warren in the excavations at Ophel,¹ and in the abridged form שבני, upon a gem in the Louvre.² It is also to be read upon three older stamps on the handles of terra-cotta vases, found in the latest excavations of Tell el-Judeideh, near Beit Jibrîn.³ These stamps were certainly executed with the help of sigillary gems similar to ours. The name in question is Theophorous, composed of the Divine name Jehovah (Yahû) for the second term, and for the first the element שבן—whether the latter is verbal or otherwise is uncertain, the true etymology is still obscure⁴; in any case it is probably to be connected with the biblical names שבנא and שבנה, which are, perhaps, mere contracted forms.

The difficulty of finding an etymological explanation of this proper name might lead us to ask whether in several, if not in all,

¹ *Cf.* Clermont-Ganneau, *Sceaux et Cachets Israelites, Phéniciens, et Syriens* (Paris, 1883), p. 12, note 1 (Pl. I, No. 3): “To Haggai, the son of Shebanyahû.” The Breslau scholar, Levy (*Siegel und Gemmen*, p. 45, Pl. III, No. 15), incorrectly read: שבנייה, with the omission of *waw*, although on the stone this letter is certain.

² לשבני עבר עיון. “To Shebanyaû, servant of ‘Uzzyaû.” The legend incorrectly read by de Longpérier, Blau, and later still by Ledrain, should be thus rendered; *cf.* Levy, *op. cit.*, Hebr. No. 8.

³ *Quarterly Statement*, 1900, p. 219, Pl. VII, Nos. 2 and 4: שבנייהו (son of ‘Azar-yahû); No. 6: (Menahem, son of) . . . (שבני) — in the latter example the reading depends purely upon a hypothetical restoration which I previously proposed in my course of lectures to the Collège de France, in the place of that suggested by Mr. Bliss (*ibid.*, p. 221): לבנה. Lidzbarski (*Ephem. f. Semit. Epig.*, i, p. 183) had independently reached the same conclusion as myself.

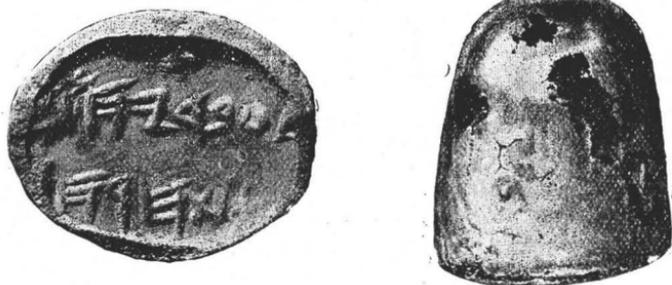
⁴ The Editor draws my attention to Nöldcke’s ingenious suggestion in the *Encyclopædia Biblica*, col. 3286 (§ 39), viz., to point שבנייה, *Shābanīyah*, “Yah has brought me back.” The vocalisation of the Septuagint transliterations (Σωβενία and Σουβία) may be adduced in favour of this proposal.

of the biblical passages where שבניהו occurs, it ought not to be corrected into שכניהו or שכניה (Shechanyahû or Shechanyah), another very common name, the formation of which, on the other hand, is perfectly clear—the meanings of the root שכן being satisfactorily established. In fact, the confusion, which is rendered extremely easy by the close resemblance between ב and כ in the square character, actually occurs in at least one instance (*cf.* Nehemiah xii, 3, with xii, 14, and x, 14). But the evidence of our seals explicitly attests the existence, and at the same time the comparative frequency, of the name שבניהו.

The feminine name עמדיהו is quite new. One may, indeed, hesitate respecting the value of the third character, and prefer to see in it a *resh* instead of a *daleth*; עמדיהו could then be a name related to that of עמרי 'Omrî. But the tail of the letter is too short for a *resh*, and appears to be rather that of a *daleth*. The name could, therefore, be regarded as a compound of the Divine name Jehovah (Yahû) with the verbal element עמד in the sense of "stand erect, endure,¹ assist, protect, strengthen," &c. It is even legitimate to ask whether the name should not really be resolved into יהו + עמדי (י), *Immâdî-yahû* "Jehovah (Yah) is with me."²

C. A stone, for a communication concerning which I am indebted to the courtesy of my colleague and friend, M. Schlumberger, who acquired it quite recently from a Syrian merchant.

C.



ARCHAIC ISRAELITE SEAL (enlarged to double the size of the original).

¹ *Cf.* Psalms cii, 27, אַתָּה תַעֲמֹד, "Thou dost endure" (v. 26, *cf.* R.V.)—addressing the Almighty.

² In this case there would be some grounds for the view that עַם, in similarly compound biblical proper names, in spite of the Massoretic punctuation, should, on the same analogy, be sometimes explained as the preposition עִם.

Bluish-chalcedony, cone-shaped, octagonal, height 0·017 m., pierced transversely. The form as well as the material of the gem point to the Aramæo-Persian age, in agreement with the criterion which I have previously formulated.¹

Upon the base there are two lines—not separated by the usual double stroke—of Phœnician characters, affecting somewhat an Israelite appearance,² but to a less marked degree than in the case of the preceding seals. The letters do not slope, but are almost vertical; the engraving, too, is not so fine.

לעבדיהו [בן] שחרחר

“To ‘Abdyahû, son of Sheharhor.”

The *lamed* at the beginning of the first line is slightly damaged, the *beth* at the end has been destroyed by a fracture. The *nun* at the beginning, and the *resh* at the end of the second line have suffered equally from the same fractures, but the restoration which I have made is certain.³ The very peculiar shape of the *shin* will not be overlooked; the cursive appearance by itself is an indication that the inscription belongs to the Aramæo-Persian period.

The name ‘*Abdyahû* is thoroughly biblical, and needs no comment. It sufficiently characterises the possessor of our seal as a worshipper (lit., “servant”) of Jehovah, and consequently as an Israelite. In addition to this, it has also been met with elsewhere upon other seals of this type.

The name borne by the father is more interesting, and I have already found it upon an Israelite gem in the British Museum which I published long ago,⁴ where we read:—

לשחרחר בן צפניהו

“To Sheharhor, son of Sefhanyahû.”

This Sheharhor, to judge from his patronymic, must have been an Israelite, although the name which he himself bears does not occur in the Bible. This name, as I then showed, is to be

¹ *Sceaux et Cachets*, &c., p. 9.

² Note, in particular, the shapes of ה, י, and ב.

³ Strictly speaking, it might suggest itself to restore a *resh*, in which case we should have the Aramæan word רב, “son.” But this I strongly doubt.

⁴ *Sceaux et Cachets*, &c., p. 38, No. 41. [Brit. Mus., No. 1032.—ED.]

explained by the feminine שְׁחֶרְחֶרֶת, "brown" or "black," which appears in the famous passage, Canticles i, 5, 6: *nigra sum sed formosa*, &c. It is derived from שָׁחַר "brown" by a regular process of reduplication¹ which is found in the formation of adjectives expressing colour, and answers to our names Brown, Braun, Lebrun, &c.

The seal in the British Museum presents essential affinities with the one now under consideration. It, too, is a cone-shaped octagonal stone of chalcedony, the writing is perpendicular and not sloping.² These two little relics may very well be almost contemporary, and may belong to the same Aramæo-Persian circle. If to these striking resemblances we add the recurrence in each of a rare proper name of so peculiar a formation, it may not be too rash, perhaps, to suppose that there is a close connection between the two seals, and that in our 'Abdyahû, son of Sheḥarḥor, we may recognise the very son of Sheḥarḥor, son of Şephanyahu.

The natural connection with the passage in Canticles above cited appears to me to raise incidentally a most interesting question. I cannot help being struck with the persistence with which the writer there plays upon the words שְׁחֶרְחֶרֶת and שְׁחֹרָה. Granted, on the one hand, that our two seals have established with certainty the existence of an Israelite masculine name *Sheḥarḥor*, we may now ask ourselves whether, perchance, it is not possible that the corresponding feminine form of this adjective may not likewise have been employed as a proper name, and that the true name of the beautiful Shulammitte was not *Sheḥarḥoreth*.

21. *Greek Inscriptions from Beersheba*.—(a) I have already had occasion to study, a short time ago,³ a fragment of a Greek inscription discovered at Bîr (or Bîâr) es-Seba', the ancient and famous Beersheba, a fragment of which the editor, Professor Sellin,

¹ Compare אַרְמֶם, "reddish," יִרְקֶק, "greenish." Some philologists, on the other hand, attribute to this reduplicated form an intensive sense: "very black" (instead of "blackish"), "very red," &c. We may compare the analogous principle in the reduplication of the last radical in the ninth and eleventh forms of the Arabic verb, which are employed to express colours (*e.g.*, أَصْفَرَّ, أَصْفَارَ, "to be yellow").

² Among the palæographic differences we may note the separation of the two lines by the double stroke, and the form of the *heth* with two bars instead of three.

³ *Recueil d'Archéologie Orientale*, t. IV, pp. 162 seq.

could make nothing.¹ I showed that it was the *débris* of a piece of Christian epigraphy which was to be restored: . . . ἵπὲρ ἀναπαύσεως Σιλβανῶ . . . —“for the repose of Silvanus . . .” Apropos of this, I reminded my readers of the foundation of an important monastery near to Gerar by the celebrated Silvanus, the so-called “father of the monks,” and I discussed the possibility of drawing from this inscription a new argument in favour of a thesis which I had previously put forward,² namely, that the situation of Gerar, and, generally speaking, of the region of the *Salton Gerariticon*, was to be sought, not, as was ordinarily supposed, at *Umm el-Jerâr*, a few miles to the south of Gaza, but very likely in the direction, and perhaps even in the very proximity, of Bir es-Seba’.

The Committee of the Palestine Exploration Fund have been kind enough to forward me now a new fragment of a Greek inscription from the same place. It presents a close likeness to the preceding. It is, as it seems, a fragment of a sarcophagus; one can still distinguish the remains of a large crown sculptured in relief, in the midst of which there was once, perhaps, a cross. Underneath, upon a wreath, there runs an inscription of one line, of which only a few carefully graven letters remain³:—

[. . . ἵπὲρ ἀναπ]αύσεως Ἰωάνν[ου . . .]

“For the repose of John.”

This, it will be seen, is the same formula that I had proposed to restore in the other inscription, and perhaps it is possible that here, too, we have an example of the epitaph of some one or other of the cenobites of the monastery of Silvanus. It is earnestly to be wished that researches upon this point could be prosecuted; there would be the chance of discovering other epitaphs more complete than this, which would give us positive evidence respecting the monachal condition of the dead persons, which, indeed, would be of great importance for the solution of the topographical question of Gerar, as I have stated it.

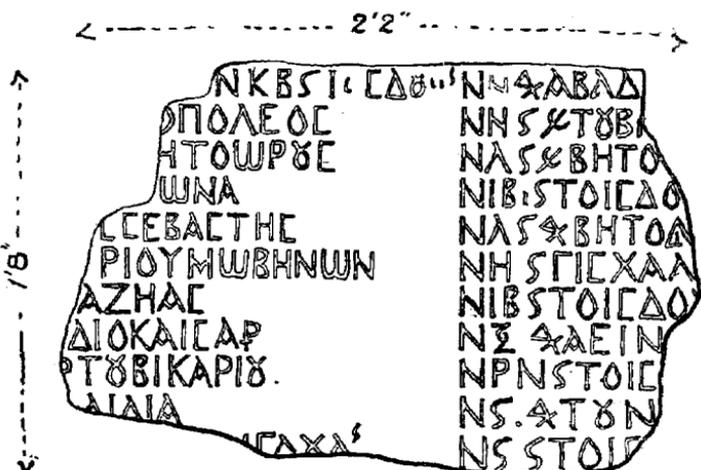
(b) The Committee also sent me at the same time another fragment of a Greek inscription, likewise from Bir es-Seba’, a fragment of greater extent, and one which is of exceptional interest. It is a

¹ *Mittheil. u. Nachr. d. Deutsch. Pal. Vereins*, 1900, p. 9.

² *Recueil d'Archéologie Orientale*, t. III, pp. 237-240.

³ See p. 234, fig. 8, and cf. p. 235 (xii b).

broken slab, measuring in its actual state 2 feet 2 inches by 1 foot 8 inches, and bearing an inscription in double columns engraved in characters of the Byzantine epoch. We may presume that the original slab was much greater, and consisted of several columns, the loss of which is infinitely to be regretted, since we have to do with an official document, perhaps even an imperial order which, to judge by what has been preserved to us, would contain valuable details regarding the geography and administrative organisation of Palestine. The decipherment, the reconstruction, and the interpretation of this sadly-mutilated text are very difficult. The transcription and translation which accompany, as well as the



GREEK INSCRIPTION FROM BĪĀR ES-SEBĀ'.

following remarks, can only be regarded as a purely provisional attempt, written with the view to furnish a starting point for discussion, and to formulate, without pretending to solve, certain essential questions.

The eleven lines of column B commence uniformly with **N**, in which I would recognise an abbreviation of *νομίσματα*, "pieces (of money),"¹ the generic term for gold pieces from the time of Constantine. All these letters are perfectly arranged in a vertical line, and are each followed by various numeral letters indicating the number of pieces, and in addition to this by three particular signs (Α, Χ, Σ)

¹ The more usual abbreviation is **N**^o; but examples of **N**, pure and simple, are known.

used intermittently, the exact function of which I cannot at present explain. The first two have a form hitherto unknown in epigraphy—at least to my knowledge. The third is frequent in the Greek inscriptions of Syria, sometimes as a sign of abbreviation or interpunction, at other times as the conjunction *καί*, or finally even, as is usually the case, to indicate the numeral letter, *ϵαὼ* = 6. The problem is particularly complicated by the fact that, in our inscription, this third sign is sometimes indubitably the numeral 6; sometimes, on the other hand, it is a special sign with, at all events, a quite different value, analogous, so far as it goes, to the value of the other two signs, Δ , Ψ , with which it is here exchanged. The matter appears to be neatly solved by lines 4 and 7,¹ where the number, *β'*, 12, complete in itself, is followed by an **S**, which here cannot be the figure 6, and similarly in line 11, where *ν(ομίσματα)* is followed by two **SS**, side by side: the first is necessarily the figure 6, and, consequently, the second, although of identical form, plays a different part.

A comparative and critical examination of these 11 complex groups, composed as they are of numeral letters and signs, has led me to separate them respectively in the manner indicated by the subdivisions II and III, marked for the sake of clearness in column B. I have thus obtained a uniform series (III) in which our three signs thus detached from their context alternate in regular order. As for their meaning, I have not as yet any plausible explanation to propose. The question can be usefully resumed when we have more closely studied the general tenour of the text. I shall then return to the point in question, but I think I may say at this juncture that there is no occasion to decide that these signs are either fractional signs,² which would be hardly likely in the case of money, or indications of the metal of the pieces—gold, silver, bronze—since it deals exclusively with gold coins, *νόμισματα* being at this epoch the generic name for gold pieces. Besides, it is not proven that this series of signs, although it follows immediately after the numbers expressing the pieces, refers to these numbers or pieces. It is possible that these signs refer to the words which follow

¹ The same is probably also the case in line 1 of column A, where, as here, the reading of the context is partly conjectural.

² In spite of the analogy which might be claimed with the Roman signs:—**S** = *semis*, and Ψ = *dimidia sextula*, *ii scrupula*, *id est siliqua xii*, *id est medium denarii* (cf. Hultsch, *Varia fragm.*, &c., t. II, p. 131, cf. p. xxvi).

immediately after (B, col. iv), and which, as I shall now show, really begin fresh subjects, which ought in their turn to be followed by fresh numerical statements referring to them. These statements, to all appearances, were arranged in a missing separate column (C).

At first sight one is tempted to read separately the two columns now preserved: first, the 11 lines of A, and then the 11 lines of B. Natural enough though this may seem, I believe, however, that it would be wrong; and that in spite of the blanks separating the columns, it is necessary to read each line continuously and horizontally, passing each time from A to B. Further, I believe that the totals stated at the beginning of each line in B, col. i-ii, refer to the words which terminate the corresponding lines in col. A. This arrangement is analogous to that which has been observed in other inscriptions similar to ours,¹ and also recalls that which we make use of at the present day in our book-keeping accounts: first the statement of the articles in lines of varying length, then corresponding to this, further on, the figures referring to the same arranged in vertical columns.

The list in A, as well as in B, iv, consists essentially of a series of names of towns in Palestine, to a discussion of which I shall presently turn. In the midst of these, however, there appear here and there the names of certain functionaries.

First of all, I will notice the title of the *Vicarius*, which is to be read on line 9 of col. A. The name is complete, and is perhaps preceded by the preposition [*ἵπρε*]ρ, "for," or by an abbreviated word terminating in Ϙ². The same is perhaps to be restored in line 2, col. B, iv: τὸν βι . . . ³. At the epoch to which the palæography of our inscription refers us, the *Vicarius* was, as is

¹ Compare, for example, the great edict of the Emperor Anastasius, discovered at Ptolemais of Cyrenaica (Waddington, No. 1906a). The end of the text (lines 60-84) is arranged in a vertical column, straighter even than the body of the inscription itself, and contains an enumeration of various sums conferred upon a series of functionaries. The mention of the parties in question always precedes that of the amounts, and is separated by a blank, sometimes of considerable length. This is uniformly followed by the word *νομίματα*, abbreviated to Ν, and, finally, by numeral letters. It is the same principle as that followed in our inscription; but, unfortunately, there is nothing resembling our three enigmatical signs.

² Compare the abbreviation ΔΙΟΚΑΙϘΑ, line 8, col. A.

³ In this case the question arises whether the sign Ϙ, which precedes τὸν βι . . . should not have a meaning analogous to that of ἵπρε (see *infra*).

well known, a superior official, governing the diocese,¹ which was subdivided into provinces under the command of dukes, counts, or hegemon. They are, also, some categories of officials which, in my opinion, should be recognised in the frequently-mentioned *τοῖς δου . . .* and *τοῖς . . .* (dat. plu.), which appear more or less mutilated in line 1, col. A, and lines 4, 7, 9, and 11 in col. B, iv. At first I thought of restoring everywhere *δοικικοί*, i.e., the *duciani* employed in the *τάξις*, the *officium* or office of the duke, but it is possible that it deals rather with different officials, as the case may be. In this respect I am the more perplexed that in line 11, col. A, it would seem that we ought actually to restore **ΙΓΔΘΛ**² = *(το)ῖς δουλ*³, which excludes the proposed *(το)ῖς δοικ(ικολίς)*. In any case, the character preceding *βικαρίου* is probably a **P** pure and simple, and one cannot take it as the numeral letter (= 100), seeing that the numbers expressed by numeral letters are invariably followed by one of the three peculiar signs already referred to. Moreover, the immediate continuation of this line begins also with a *τοῖς . . .* (line 11, col. B, iv), which implies the mention of a category of officials other than those which have just been named: "to the . . . six pieces of gold; (and)⁴ to the . . . (so many) pieces of gold." It is also possible that it is an official name which lies hidden in the mutilated word, line 10, col. B, iv: *τοῦ ν . . .* One may propose, for example, *ν[ουμεραρίου]* "of the paymaster," were it not that analogy would lead us to expect the dative rather than the genitive. Finally, there is perhaps the same in the mutilated word . . . *ρίου* (line 6, col. A); there remains only the embarrassment of a choice among the numerous official titles terminating in *-arius*, which may have passed into Greek. But, as we shall presently see, the addition of the word *Μωβηνῶν* may suggest a restoration of another kind.

These various officials could only figure here as interested parties.⁵ It is not very likely that it is the same with the towns

¹ This will be here the *διοίκησις Ἀσιανή* or *ἀνατολική* (cf. George of Cyprus, *Descr. orbis Romani*, p. 41, ed. Gelzer).

² Comparing line 1, col. A.

³ I do not see how to complete the word thus abbreviated; *δούλ(οις)* "to slaves," would hardly be in place, and the same criticism applies to *λουδ(αρίοις)*.

⁴ On the hypothesis that the sign **S** should have the value *καί* (see *infra*).

⁵ Compare in this connection the edict of the Emperor Anastasius, quoted above, also the *Novella* of Justinian, cited in the *Notitia dignitatum imperii Romani*, I, p. 161 (ed. Böcking), which regulates the pay and treatment of

enumerated in the documents, the names of which appear for the most part in the genitive. It should refer, rather, to taxes to be collected from these towns, but such a mixture of receipts and expenses thus confusedly arranged would be scarcely natural. Perhaps it may appear preferable to suppose that the towns are designated on account of their being the official residences of the various functionaries. To determine the question it would be necessary to know what precedes and causes this series of genitives. Unfortunately the commencement of the lines in col. A, which might have informed us upon this point, do not exist, and on col. B, where we have the commencement of other lines, the names of the towns are introduced abruptly, so that here we are not able to know the case endings in consequence of the mutilation of the stone.

These local names are, unhappily, for the most part mutilated, either at the commencement (col. A) or at the end (col. B, iv), so that their restoration is often very problematical. Our difficulty is further increased by the fact that we are unable to assert that in this enumeration the document follows any really methodical order, in proceeding according to the regions. Just for the moment one imagines it possible to fix upon groups that are almost homogeneous in this respect, but at a stroke the apparent geographic connection vanishes.

The names, the reading of which may perhaps be considered to be beyond doubt, are those of Sebaste (line 5, col. A), Giscala (line 6, col. B, iv), and Diocæsarea, otherwise known as Sepphoris (line 8, col. A). This brings us to Samaria and Galilee, and invites us to search in the same regions and within these limits for the towns whose names are mutilated. Towards the end (line 10, col. A) it may well be that, in spite of the fractures which injure the bottom of the letters, it is necessary to read the name *Aelia*—that is to say, *Aelia Capitolina*, or Jerusalem.¹ It will be observed

various officials, especially §§ 6 and 7, with reference to *Palæstina I^a et II^a*: to the *chartularii*, 9 pieces of gold; to the *primicerius*, 24; to his adjutant, 3; to the *taxis*, 40. Here again the arrangement is to be noticed: the statement of the sums follows that of the interested parties, and is indicated by *ν.*, *νομ.*, or *νομισματα*, which in every case precede the numeral letters expressing the figure.

¹ Compare the official designation: *ἡ Αἰλία καὶ Ἱεροσόλυμα*, in the *Synecdemus* of Hierocles, p. 41 (ed. Burekhardt); cf. George of Cyprus, *op. cit.*, p. 51.

that in this case the name is not in the genitive like those that precede it, but either in the nominative, or rather, perhaps, the dative.

Another name, not of a town but of a people, is quite certain—viz., that of the Moabites (line 6, col. A), whose position between Sebaste and Giscala is assuredly quite unexpected. Μωβηθῶν is preceded by a mutilated word terminating in . . . ρίου, which lends itself to so many possible restorations that one cannot venture to decide upon anyone in particular. For example, one could think of (φρου)ρίου, “of the fortress,” or better still, of (πραίτω)ρίου, comparing the passage from an inscription of the time of Diocletian, discovered some years ago in the land of Moab itself, which related to the construction of a camp upon the site of B’shêr¹: *castra prætorii Mobeni*. But it would probably be best to suppose, as I have already indicated above, that this is one of the innumerable official titles in *-arius* which have passed into the Greek terminology of the imperial hierarchy. We have to deal, perhaps, not so much with a place-name, as with some personage having under his civil and military command people of the land of Moab,² but possibly residing in Samaria³ or Galilee. Thus the geographical anomaly which I have indicated would entirely disappear.

In line 2, col. A, one hesitates between the various restorations of . . . σπόλε(ω)s, each of which is equally plausible. One may choose between Scythopolis, Eleutheropolis, Nicopolis, &c. The last-mentioned would rather be the one indicated by the context, if we may recognise Beth-horon in the (Βη)τωροῦs⁴ of line 3, col. A. In this case, there would be some semblance of geographical order in the enumeration of the towns, passing successively from Judæa to Samaria, and thence to Galilee. It is true, towards the end (line 10, col. A) it would leap (or return ?) to Jerusalem, but it is to be observed that the grammatical conditions here differ, the name Αἰλία not being in the genitive.

¹ Bliss, *Quarterly Statement*, 1895, p. 225; a better copy by Domaszewski, *Mitt. u. Nachr. d. Deut. Pal. Vereins*, 1897, p. 39.

² Perhaps a body of auxiliary recruits from the land of Moab ?

³ Similarly at the present day the Turkish Governor of the sanjak *Belkâ* has (or at least had a few years ago) his official residence at Nâblus.

⁴ Cf. Βαθωρώ, the transcription of the name of Beth-horon, in Josephus. Βητωροῦs would be the regular form of the genitive, and so we find it in the general analogy of the grammatical construction throughout this column.

I see nothing certain to propose for $\text{A}\beta\alpha\delta$. . . (line 1, col. B, iv),¹ . . . $\omega\nu\alpha$ (line 4, col. A),² or . . . $\alpha\zeta\eta\alpha\varsigma$ (line 7, col. A).³

In line 3, col. B, iv, one could perhaps restore $\text{B}\eta\tau\omicron[\alpha\nu\nu\alpha\beta\acute{\alpha}]$ in preference to other restorations equally possible, if we may assume that the name immediately preceding (line 3, col. A) is that of Beth-horon.⁴ As for $\text{B}\eta\tau\omicron\delta$. . . (line 5, col. B, iv), I am tempted to restore $\text{B}\eta\tau\omicron\delta[\epsilon\gamma\alpha\nu\acute{\alpha}]$. The place-name will be identical to that mentioned upon the Mâdeba mosaic,⁵ and corresponds to the name of the modern *Beit Dejan*, between Lydda and Jaffa. But the town is not on that account necessarily the same; the context appears, in fact, to indicate that we are not in Judæa, but Samaria (Sebaste) or Galilee (Giscala). Accordingly, one may see therein either the homonymic locality, *Beit Dejan*, situated about seven miles to the south-east of Nâblus, or the Beth-Dagon of the territory of Asher,⁶ which the Talmud mentions as a town of Upper Galilee.⁷

' $\text{A}\epsilon\omega$. . . (line 8, col. B, iv) should be the commencement of a place-name, the first element of which should represent the frequently used '*Ain*, "well." The name of ' $\text{A}\epsilon\omega(\delta\acute{\omega}\rho)$,⁸ *Endor*, commends

¹ The third letter could, strictly speaking, be λ ; but a form ' $\text{A}\beta\alpha\delta$. . . is phonetically improbable, even if we admit a place-name compounded with the well-known element *Abel* (= $\text{L}\beta\text{N}$) + d . . . I do not venture to think of the ancient name of 'Abûd, to the north of Beth-horon.

² Here again one is hindered by the very multiplicity of names to which the ending . . . $\omega\nu\alpha$ (which is probably the genitive of a nominative in . . . $\omega\nu\alpha\varsigma$) would fit. The field of hypotheses is restricted to the region between Beth-horon and Sebaste, if we may suppose that the geographical order has been followed in the list. But if the preceding name were to be restored *Bêtoannaba*, it would be more legitimate to think of the plain of $\text{S}\alpha\rho\omega\nu\acute{\alpha}\varsigma$ (*Onomasticon*; = Sharon), which extends from Jaffa to Cæsarea.

³ To judge from its relative position in the list, the place is perhaps to be sought in Galilee, between Giscala and Diocæsarea. It would be very rash to think of $[\text{X}\omicron\rho]\alpha\zeta\eta\alpha\varsigma$, and treat it as an ancient form of the name *Kerdzeh* (Chorazin).

⁴ Compare the $\text{B}\eta\tau\omicron\alpha\nu\nu\alpha\beta\acute{\alpha}$ of the mosaic map of Mâdeba, situated near Beth-horon and Nicopolis. It will be noticed that our inscription invariably represents the geographical prefix *Beth* by $\text{B}\eta\tau\omicron$; similarly also the mosaic ($\text{B}\eta\tau\omicron\mu\alpha\rho\alpha\rho\epsilon\acute{\alpha}$; but $\text{B}\epsilon\tau\omicron\mu\epsilon\lambda\gamma\acute{\epsilon}\iota\varsigma$ is an exception; $[\text{B}\eta\tau]\omicron\delta\epsilon\gamma\alpha\nu\acute{\alpha}$ remains doubtful, as the first three letters are destroyed, but our inscription seems as though it ought to turn the balance in favour of this orthography rather than $[\text{B}\epsilon\tau]\omicron\delta\epsilon\gamma\alpha\nu\acute{\alpha}$).

⁵ $(\text{B}\eta\tau)\omicron\delta\epsilon\gamma\alpha\nu\acute{\alpha}$. See the preceding note.

⁶ Joshua xix, 27.

⁷ Neubauer, *Géogr. du Talmud*, p. 231.

⁸ Cf. the *Onomasticon*: ' $\text{A}\epsilon\nu\delta\acute{\omega}\rho$. . . $\mu\epsilon\gamma\acute{\iota}\sigma\tau\eta\ \kappa\acute{\omega}\mu\eta$.

itself by its proximity to the mention of Diocæsarea (line 8, col. A), and by the fact that in this case the enumeration would seem to descend from north to south: Giscala, . . . azea, . . . , Diocæsarea, Endor.

There are certainly many other observations to be made regarding this text which bristles with difficulties, and doubtless I shall have to return to it anon. Whilst awaiting the discussions which will not fail to spring up, and perhaps throw light upon the many still obscure details, I shall conclude this first attempt at a commentary, imperfect though it is, by a few general remarks.

For the elucidation of our inscription, it is necessary to take account of the totals of sums varying according to the articles to which they respectively correspond. In this connection one notes the relatively high figure which follows the mention of the *Vicarius* (line 9)—150 pieces of gold; it agrees well with the high position of this superior official. On the contrary, there is a very sensible difference between 50 and 6 pieces of gold, the sums allowed to the group of officials, evidently of inferior rank, who figure in lines 1 and 2. This difference is so marked, that I have asked myself whether the partly effaced numeral character on line 1, col. B, is really a **N** = 50, in spite of the appearance of the copy, and is not rather a **H** = 8.

For the towns the figures, generally speaking, agree with their presumed importance:—Diocæsarea, 60; Nicopolis (?), 56; Beth-horon and Sebaste, each 36; two others, which are unknown, and probably of less rank, have each 12. The modest number (8) in the case of the Moabites would seem to indicate that the reference in this enumeration is to a category of persons rather than of towns. What is most surprising of all is the extreme smallness of the figure referring to Jerusalem (6); a consideration which has the result of casting doubt upon the reading of the name **AIAIA**, which is, indeed, to some extent, conjectural; unless one may wish to take account of the very minute point following the numeral letter **S**, and may attribute to it the force of the accent which, when placed to the left of numeral letters, has the effect of multiplying them by a thousand. But so high a figure (6,000) compared with the others is wholly disproportionate, and when we bear in mind that the place-name is not in the nominative here, it will be wisest, perhaps, to retain the figure 6, and to suppose that the line

deals simply with an official, or group of officials, associated in some way or other with Jerusalem.¹

In presenting so mutilated a text, it would be rash to presume to determine exactly what this series of figures refers to. I ask myself, not without some hesitation, if we cannot have here by chance some law concerning the payment of the *annona* (*militaris*), of the *capitum*, &c., and other dues in kind, or some substitute by a tax payable in cash (*adlocutio*), referring in turn, according to their standing, to the different military or civil officials entitled to receive these dues.

After examining the details of the text, it seems fitting now to take up the problem which presented itself to us at the beginning, viz., that of the part played by the three enigmatical signs in col. B, iii. I must confess that I do not even yet see a solution, and I shall confine myself to presenting some considerations which may lead to it. It appears to me to be beyond doubt that we should keep them quite clear both from the context, as I have done, and in particular, also, from groups of numeral letters with which they have the appearance at first sight of being confused. They recur regularly, sometimes one, sometimes another, between two consecutive statements, immediately after the amount which concludes the first statement, and before the commencement of the next following.

Three hypotheses are possible :—

1. They stand alone, by themselves, and are to be regarded as signs of interpunction of some kind. The form of one of them (S) would rather favour this view, for, as I have already had occasion to remark incidentally, it is frequently met with in Greek inscriptions of Syria, either with this value, or as a symbol of the conjunction *et*. But in this case, what are we to make of the two other signs with which this exchanges, and with which it would seem to have a certain affinity ?

2. They may refer to that which precedes, and not to that which follows. In this case, if one puts aside, as I think one ought, the idea that they are fractional signs, or perhaps signs indicating the pieces of gold, silver, or bronze, one can conceive that they are symbols indicating the nature of the due—the *annona*, *capitum*, &c.—represented by its equivalent in cash.

¹ Compare the same figure (6), referring to some group of undefined officials in line 11.

3. They may refer to that which follows, and not to that which precedes, and thus introduce new statements. In this case, also, the explanation which I have just offered may be strictly applicable. Whatever they may be, if one considers the question from this point of view, it is useful to observe that five times out of six the sign **S** is followed by the dative ($\tau\alpha\iota\varsigma$); that once out of four **A** is followed by the genitive ($\tau\alpha\upsilon$); finally, that once out of twice, **X** is similarly followed by a genitive. No doubt these may perhaps be mere coincidences; nevertheless, it is still possible that the signs correspond to certain words which grammatically affect those which follow, as we find to be the actual case. On the other hand, as has been already observed above, a comparison of line 9, col. A, with line 2, col. B, iii, iv, leads one to attribute to the sign **X** the value of $\upsilon\pi\acute{\epsilon}\rho$, if one may only assume that the restorations, conjectural as they are, have some foundation.

Whatever be the case, I am struck by the fact that in several papyri from Egypt, of an epoch contemporary with that of our inscription, we meet with a sign (**X**), which, it must be admitted, bears a remarkable resemblance to our sign, and certainly appears to have the value $\upsilon\pi\acute{\epsilon}\rho$.¹ This being so, is it possible that **A** in our inscription is, in like manner, a mark of abbreviation for some particle of the same nature, e.g., $\delta\acute{\iota}$? On this condition, it would be possible to attribute to our third sign (**S**) the value of $\kappa\alpha\iota$, which, in fact, it frequently bears in Greek epigraphy.²

In short, it is very difficult, as one sees, to draw from all these considerations any deliberate conclusion. Before this can be done it would be necessary to have before us the stone intact, instead of this shapeless fragment. Nevertheless, we may hope that this and the other questions which have detained us may one day be settled and

¹ Kenyon, *Greek Papyri of the British Museum*, vol. II, p. 333 seq.; cf. p. 252 (a slightly different form). Cf. also Grenfell, Hunt, &c., *Oxyrhynchus Papyri*, vol. I, p. 263 (index). It will be noticed, further, that in a Fayûm papyrus (p. 176, No. 50, line 5) a sign is found with an entirely different form (**A**), regarding the interpretation of which the editors hesitate between $\upsilon\pi\acute{\epsilon}\rho$ and $\delta\acute{\iota}$.

² I should add that in these same papyri the sign **S**, in addition to its ordinary value, $\kappa\alpha\iota$, has sometimes also that of $\frac{1}{2}$, and of $\delta\rho\alpha\chi\mu\acute{\eta}$ (money); the two last-mentioned values seem to me to be excluded from our inscription, for the reasons which I have already indicated above.

A.	B.				[C. ?]
	i.	ii.	iii.	iv.	
1	ν(ομίματα) κβ' S (τοί)ς δου? (....), ν(ομίματα) [ν' ?] ✕ Αβ[α]δ	ν(ομίματα) [ν' ?] ✕ Αβ[α]δ	ν(ομίματα) [ν' ?] ✕ Αβ[α]δ	ν(ομίματα) [ν' ?] ✕ Αβ[α]δ	ν(ομίματα)
2 . . . . .	..... ο]πόλεος,	ν(ομίματα) νς' ✕ τοῦ β[ικαρίου],	ν(ομίματα) νς' ✕ τοῦ β[ικαρίου],	ν(ομίματα) νς' ✕ τοῦ β[ικαρίου],	id.
3 . . . . .	..... Βη]πορωδός,	ν(ομίματα) λς' ✕ Βηπο	ν(ομίματα) λς' ✕ Βηπο	ν(ομίματα) λς' ✕ Βηπο	id.
4 . . . . .	..... να,	ν(ομίματα) ιβ' (ι) S τοίς δου[v? (....)]?,	ν(ομίματα) ιβ' (ι) S τοίς δου[v? (....)]?,	ν(ομίματα) ιβ' (ι) S τοίς δου[v? (....)]?,	id.
5 . . . . .	..... Σεῦσάτης,	ν(ομίματα) λς' ✕ Βηποδ	ν(ομίματα) λς' ✕ Βηποδ	ν(ομίματα) λς' ✕ Βηποδ	id.
6 . . . . .	..... ρίου Μωσῆν,	ν(ομίματα) η' S Γισχαλ[α?	ν(ομίματα) η' S Γισχαλ[α?	ν(ομίματα) η' S Γισχαλ[α?	id.
7 . . . . .	..... αξηας,	ν(ομίματα) ιβ' S τοίς δου[v? (....)]?,	ν(ομίματα) ιβ' S τοίς δου[v? (....)]?,	ν(ομίματα) ιβ' S τοίς δου[v? (....)]?,	id.
8 . . . . .	..... Διοκασμ(είας?),	ν(ομίματα) ξ' ✕ Αευ	ν(ομίματα) ξ' ✕ Αευ	ν(ομίματα) ξ' ✕ Αευ	id.
9 . . . . .	..... ? ἐπέ](ρ) τοῦ Βικαρίου,	ν(ομίματα) ρν' S τοίς	ν(ομίματα) ρν' S τοίς	ν(ομίματα) ρν' S τοίς	id.
10 . . . . .	..... Αλλά? .	ν(ομίματα) ς' (•) ✕ τοῦ ν	ν(ομίματα) ς' (•) ✕ τοῦ ν	ν(ομίματα) ς' (•) ✕ τοῦ ν	id.
11 . . . . .	..... [τοίς? δουλ (....)]?,	ν(ομίματα) ς' S τοίς	ν(ομίματα) ς' S τοίς	ν(ομίματα) ς' S τοίς	id.

A.	B.				C]
	i.	ii.	iii.	iv.	
1 pieces, 22; S to the d s	pieces :	[50 ?]	✕	Abad ,	[pieces?
2 of . . . opolis (?),	pieces :	56	✕	of the (V) <i>[carius]</i> ?,	do.
3 of ? [B]êtoôrô (?),	pieces :	36	✕	[of ?] Bêto . . . ,	do.
4 ôna (?),	pieces :	12 (1)	S	to the d s,	do.
5 of Sebaste,	pieces :	36	✕	Bêtod ,	do.
6 . . of the . . . ? ? ? of the Moabites.	pieces :	8	S	Giskala,	do.
7 of azea,	pieces :	12	S	to the d s,	do.
8 [of ?] Diocaesarea,	pieces :	60	✕	Aein . . . ?,	do.
9 [for ?] the <i>Vicarius</i> ,	pieces :	150	S	to the s,	do.
10 Aelia (?),	pieces :	6 (.)	✕	of the n ,	do.
11 [to the ?] d s,	pieces :	6	S	to the s,	do.

placed beyond all hypothesis. Indeed, it is quite possible that missing fragments of the inscription may be found at Bir es-Seba'. If, as all the indications go to show, we have to do with an official document, an imperial edict, it is even possible that we may find in other parts of Palestine other copies, more or less well preserved. This was actually the case with the fragments of the edict of Anastasius, which are not without an analogy to our inscription, duplicates of which have been discovered at Bostra and Mothana.¹

GOLGOTHA AND THE HOLY SEPULCHRE.

By Major-General Sir C. W. WILSON, K.C.B., F.R.S., R.E., &c.

(Continued from p. 151).

BEFORE attempting to discuss the evidence available for the determination of the position of Golgotha, it seems desirable to offer some remarks on the topography of Jerusalem at the time of the Crucifixion.

The ancient city was built at the end of a well-defined spur, which, stretching southward for about $1\frac{3}{4}$ miles from the swelling ground that separates the waters of the Dead Sea from those of the Mediterranean, lies between the valley of Hinnom,² and that of the Kidron (*see* plan). The latter, known also as the valley of Jehoshaphat, runs eastward, from its source, for $1\frac{1}{2}$ miles, and then, changing direction to the south, sharply separates the long high ridge of Olivet from the lower ground upon which the city stands. The valley of Hinnom, after following a southerly course for $1\frac{1}{4}$ miles, turns eastward, and meets the valley of the Kidron below the south-east corner of the city. The enclosed space may be described as a small, rocky plateau of about 1,000 acres, which falls gradually towards the south-east and terminates in abrupt slopes. The

¹ Waddington, Nos. 1906 and 2033. It is to be noticed that these fragments allude to the limits of the diocese of the Orient, whose *Vicarius* seems to be mentioned in our inscription. Reference is also made (No. 1909, *b, c*) to the allowances given to the *duciani* and *scriniarii*, for the *annonæ* and the *capitum*: *ὑπὲρ ἀνωγῶν καὶ καμῖτο[v]*, ἐκ τοῦ δημοσίου καὶ ἐκ το[ῦ]... Cf. also the above-mentioned edict of Anastasius.

² The names in common use have been adopted for the purposes of this paper, without reference to questions of identification.