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# The Identity of Trans-Jordanian Alphabetic Writing in the Iron Age

## Introduction

The palaeography of Trans-Jordanian early alphabetic texts has received much attention in recent years, mainly because of dating problems with newly found texts.[1] In this paper, the identity of the scripts of those texts in relation to that of scripts used elsewhere will be considered.

Writing did exist in Trans-Jordan before the introduction of the early alphabet. The inscription on the Balua stele (south of Wadi Mujib) must have been locally made, as were the small clay tablets from LB Deir 'Alla. Both inscriptions have not yet been deciphered satisfactorily, nor have the different scripts used been irrefutably closely linked to any other script known.[2] The earliest clearly alphabetic inscriptions found date from the 9th or 8th century BC in the northern region of Trans-Jordan, from the 9th century BC in the central region, and from as late as probably the 7th century BC in the south.

## North-west Semitic writing

In order to be able to deal with the local identity of the Trans-Jordanian scripts, we first have to sketch a general picture of the development of the early alphabetic writing.

During the late Bronze period the rather pictographic characters of the alphabet, as used in the Levant, became abstracted to more simple linear signs, but different simplifications developed for one grapheme.[3] A most influential change in the writing of this archaic script came during or near the first half of the 10th century BC. (The Yehimilk inscription from Byblos is the oldest dated text showing the influence of this change, c. 940 BC.) Scribes from Phoenician cities adopted the Egyptian way of writing *with a pen-brush*, made of the

sea-rush stem, and ink. The pen was broad-nibbed (chisel-shaped). The use of this tool with ink was in fact a craft, and this adoption coincided with the type of writing surface used (papyrus), and also with the technique necessary for writing with these tools. The most important aspects of this technique were the way the pen-shaft was held in relation to the surface (a position, slanting from the shoulder downwards) and the writing angle, which is the angle taken from the width of the nib-tip to the line of writing, which was about 45/50° (FIG. 1).[4]

In this way of writing, the movements of the nib-tip on the surface to produce the lines of the characters could be made in an easier way, with a smoother action than before, but no up-strokes could be made. The adoption of this writing tool, together with the associated techniques, had an enormous influence on the shape of the signs. This concerns not only the difference in thickness of the strokes (sometimes termed 'shading'), but also the uniformity of strokes, and soon a combination of strokes within one sign ('cursive writing'), sometimes by adding a new stroke (FIG. 2).[5] This is the character of what may be termed 'early alphabetic script' as opposed to the 'archaic alphabetic script'.

Many innovations in shape come about automatically in broad-nib ink writing. Those new shapes, or their abstrac-

[1] Publications that include a more general study and survey of the palaeography of Trans-Jordan, or part of it, are F. M. Cross (1975), L. G. Herr (1980), J. Naveh (1982), and E. Puech (1985).

[2] The Balua stele is of a size and weight that make any long distance transport improbable. It has been published by Vincent and Horsfield (1932). A new interpretation was published by Ward and Martin (1964), but their drawing of the inscription does not seem to match the actual remains of the lines of characters. The Deir 'Alla clay tablets were published by H. J. Franken (1964). An extensive and balanced survey of possible interpretations of the texts is given by E. Masson (1974).

[3] Compare, for example, the different shapes of the ṣade, kaf and lamed in archaic inscriptions such as those from 'Isbet Sartah, Qubur el-Walaydah, Lachish (Ewer) as well as those on arrowheads, cf. Cross (1979), Naveh (1982), 35–41.

[4] The writing angle can be measured from the start of the wide stroke as well as from the thinnest stroke, as both of them actually appear in ink script, including Egyptian hieratic writing. Writing in ink has to be considered to be a craft, with much attention paid to the preparation of the writing tool and the ink, as well as to the special way (technique) of using them. Cf. Černý (1952) for the Egyptian practice; cf. also *ATDA*, 31–38.
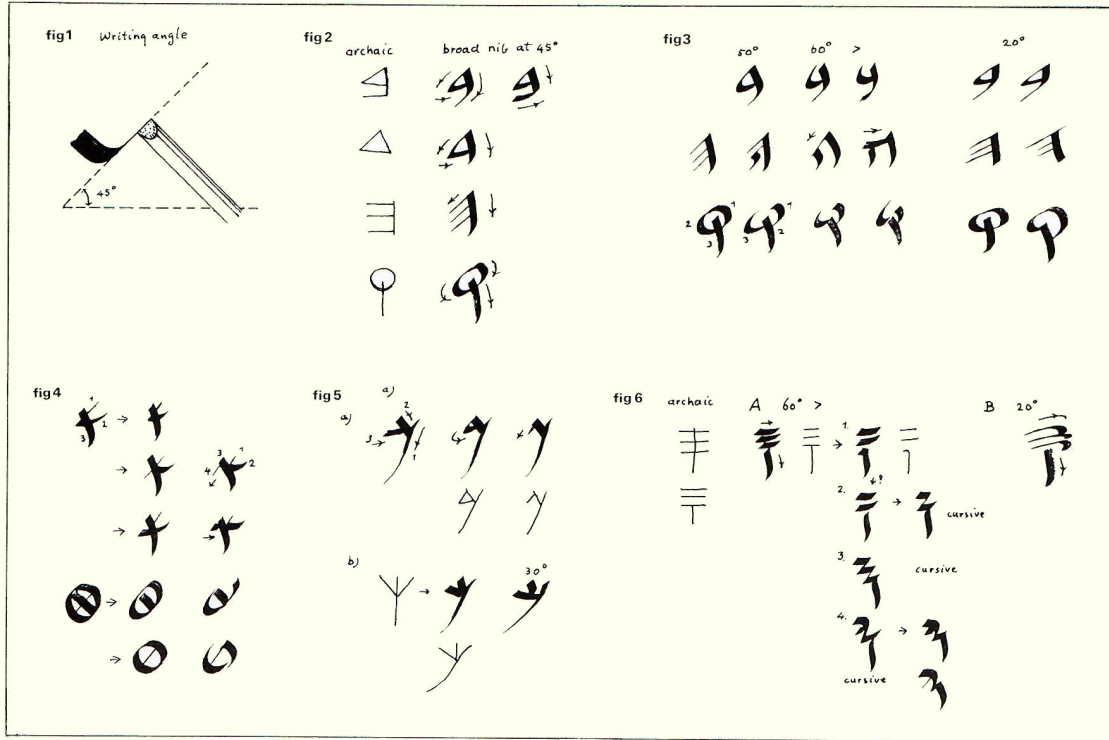
[5] The four examples given in FIG. 2 indicate some of the developments induced by writing in ink with the Egyptian broad pen. With *bet* the easier way to write the tail is as a continuation of the right-hand stroke, but in some 'schools' the angle, apparently, had to be narrower, and to achieve this the stroke was made from the left-hand side ('up-strokes' being impossible). With *dalet* the wide right-hand stroke sometimes had to be ended not just by terminating the stroke with the whole width, but by 'turning away' the width of the nib downwards to the left, resulting in a slight extension beyond the horizontal stroke. With *he* the scribe apparently tried to avoid wide horizontal cross strokes by making these strokes as thin as possible, at a slope identical to the angle used by the broad nib tip. Later on (see FIG. 3) the two lower cross strokes were combined. With *qof* the circle had to be written in two halves and a sloping oval shape was easily made because of the alternation of stroke width and the crossing 'leg'. There were basically four strokes which could be made with the broad-nibbed pen when writing in ink: one to the lower right (thick), one to the lower left (thin), one more or less horizontal (medium) and one curved like a C or a C in reverse. Cf. also *ATDA* p. 58, and especially Script Traditions, Ch. IV.

1–6. Some palaeographic illustrations.



tions/skeletons, were used also when writing with other material-tool combinations, such as in stone inscriptions, though some of them were used earlier than others. It is, in fact, through stone script (and also metal and clay script) that we know of the first appearance of these innovations, since the earliest actual ink writing found so far probably dates from c. 800 BC.[6] The ink script was used for more than one of the existing archaic scripts, but it seems that only one of these traditions survived, and spread over the north-west Semitic writing world as well as the Greek world.[7]

A second major innovation caused the divergence of the script into several branches. The morphological differences between 7th century BC Phoenician, Aramaic and Hebrew scripts are quite clear, and the cause of these diverging developments can easily be found: the shapes altered due to a change in the handling technique of the broad-nibbed tool for writing in ink. It is, however, not clear what caused this change of

handling. The main element of change lay in the writing angle. Probably very soon after the introduction of broad-nib writing, the angle became much narrower in Hebrew writing, c. 15–30°, together with a specific way of holding the shaft of the pen. Around 800 BC a wider angle was sometimes used as well, but later on it was generally very narrow.[8] On the other hand, Phoenician scribes continued to use the 45/50° writing angle, but the Aramaic scribes c. 650 BC (Ashur ostracon) used an angle of 60° and more, and had probably started to expand it c. 750 BC; in the 6th and 5th centuries the angle expanded up to 85°.[9]

The changes in the shapes of the Aramaic characters can be explained by this expanded writing angle, in combination, of course, with the ease of moving the writing nib-tip. The expanded angle did not only change the position of several strokes, even of complete signs, but also the directions, and sometimes even the sequence, of writing them (FIG. 3).[10] The

[6] Ink-written texts dating from c. 800 BC were found at Deir 'Alla (see below) and Kuntillet 'Ajrud (see, Meshel 1978), as well as Arad (Aharoni, 1975), the earlier numbers). Some ostraca found there may be even older, but cf. Naveh (1982), p. 66. However, in many earlier inscriptions not written in ink, letter shapes are used that had been developed by ink-writing. A dominant influence is to be seen, for example, in the Kilamuwa texts from Zincirli (c. 825 BC), KAI nos. 24, 25. Some considerable influence is visible in the Sipitba'al stone from Byblos (KAI no. 7), c. 880 BC, and others, and some may already be seen, for example, on the Yehimilk stone from Byblos (KAI no. 4), probably c. 940 BC. For a detailed study of this aspect see Script Traditions, Ch. IV.

[7] The earliest Greek characters (cf. especially Heubeck, 1979) show only a slight influence of the wide-nib ductus. There are no indications at all that this was developed by the Greeks, so it must have been taken over from the Phoenicians. This gives a probable terminus post quem (c. 1000–950 BC) for the adoption of the alphabet by the Greeks. It would be difficult to put a terminus ante quem before c. 850 BC. Cf. Script Traditions, Ch. IV for more details.

[8] The narrow writing angle in Hebrew writing is easily achieved by holding the shaft of the tool at a narrow angle to the writing surface. This would also explain the horizontal expansion of the shapes (e.g. ṣade). A wider angle was used for some Kuntillet 'Ajrud jar texts.

[9] The expanded angle can be observed on ink texts from the 7th century BC, and it is probably to be recognised on dated stone inscriptions from Zincirli, namely the Barrakib text KAI no. 216, c. 730 BC.

[10] Figure 3 shows how the expansion of the writing angle opened the top of bet; the same applies to dalet, reš and 'ayin. With he two ways were used to solve the problem of how to write the upper cross bar with the enlarged writing angle, and, at the same time, maintain the position of the vertical parts of the character. One way was to make a curved right-hand leg, the other way was to write the upper cross bar from left to right, making it thicker as well. With qof the order of writing of the three separate strokes changed (perhaps partly due to the expanded writing angle) as did their relative positions.

same applies to the reduced angle of writing used in Hebrew scripts.[11]

It is worth repeating: all innovations caused by the broad nib (often termed 'cursive writing') were used, often abstracted and adapted, in other materially dictated ways of writing too (often labelled 'formal writing'). But one can go further; it is also possible to state that none of the few innovations that came about in some specific non-ink ways of writing had spread to the ink script or any other writing tradition. This reconstruction implies that the teaching of writing was almost exclusively done by writing in ink. There were, however, within the three branches mentioned (e.g. Aramaic writing) several mutually excluding developments, so traditions can be distinguished (FIG. 4).[12]

### Trans-Jordanian scripts

What, then, is the relation of the scripts used in Iron Age Trans-Jordan to the developments, or the traditions behind them, of the early north-west Semitic scripts in general? To start with, all of the inscriptions found, including the Mesa stele and the Amman Citadel inscription, show in all or most of their characters the influence of the broad-nib ductus. Supposing that this ductus started in Phoenicia, how did it reach Trans-Jordan? Let us go into some detail, and, in order to do so, follow a rather general practice, namely, distinguish the inscriptions from this area according to their find-spot, language, contents, and the Iron Age political identity, and divide them into roughly three groups: Ammonite, Moabite and Edomite inscriptions, or rather those from the northern, central and southern regions. (See FIG. 7.)

### Northern region

The inscriptions found in the north are those from the Ammonite region (Amman, tell Siran), as well as those from tell Hesban, and from the Jordan Valley (its central part: tell Deir 'Alla, tell el-Mazar; both groups are only partly published). We have to start with the last group since the innovative earliest broad-nib ink writing was found there, at tell Deir 'Alla.

The Deir 'Alla plaster text *c.* 800 BC (C14) was written with a broad-nibbed pen, made most probably of a sea-rush stem, with a writing angle of just over 50°.[13] The character

shapes fit nicely into the morphological typology of the known 9th-8th centuries BC Aramaic and Phoenician inscriptions. But it should be noticed that a choice of the *ṭet* development was used, which was also found in Levantine Aramaic scripts, and perhaps Phoenician ones. The movements of the writing nib hardly differ from the traditional ones, but special ways were used to obtain a sign element of three characters: the double move to get an extra thick cross-bar in *taw* (not found elsewhere); the right-hand part of the *ṣade* (small, with a new skeleton shape, also occurring in the Nimrud ostracon); and the third stroke of *kaf*, with a 'V' movement, as a way of starting this stroke higher up (FIG. 5a). The shape is not found in Aramaic texts, but it is, as a skeleton, on the Siran bottle (see below), and also on the Nimrud ostracon (its use on some 5th-4th century Phoenician inscriptions is considered parallel).[14] The end-result of this movement development, however, was used in Aramaic writing. Later scripts from Deir 'Alla (ostraca from *c.* 650 BC onwards) have a writing angle of 60–75°, linking up with technical changes in Aramaic writing. Also, the alternations of shape do coincide with those of Aramaic inscriptions, although a slight differentiation can be made here: representatives of only one of the two or three main traditions to be distinguished among Aramaic scripts used in Mesopotamia are found, namely the one more closely connected with Ashur and Nippur (*'alef, yod*).[15] The 5th century BC texts from Deir 'Alla show the examples of a new tradition, known from Mesopotamian and Egyptian Aramaic writing.[16] What has been said above also applies to Mazar material, as far as this is known to me.[17]

### Amman and Siran

The Amman Citadel text is incised in flaky limestone,[18] and its script fits in well with the 9th-8th centuries BC Aramaic-Phoenician script traditions, but here too the choice of *ṭet*

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[11] With the *c.* 20° writing angle of Hebrew writing (cf. FIG. 3) no problems of the kind mentioned in note 10 arose, so there was much less reason for change. Yet the handling of the tool did easily cause changes resulting in horizontal expansion (e.g. the top stroke of *he*, see FIG. 3, short vertical strokes), cursive curves at the end of long tails sloping down left, and cursive 'ticks' at the right end of horizontal strokes, such as in the 'Avigad *'alef*.

[12] Changes that indicate branching-off developments are, for example, the disuse of one or other of the two strokes of the cross of *ṭet* (see FIG. 4), or the extension of one or other of the cross bars in *'alef* (FIG. 4), or different ways of combining the horizontal strokes in *samek* (FIG. 6), etc. In this way 'sub-traditions' within one main line of a writing tradition can be distinguished, for example in 7th and 6th century BC Mesopotamian Aramaic scripts. Apart from these branches it would be useful to distinguish traditions in the same line of development, but with a different degree of conservatism in adopting innovations. This is especially true for non-ink writing traditions, but since, apart from clay tablets, only very few texts are well dated, it is difficult to assess the value of the differences in this respect. (See further Script Traditions, e.g. Ch. III. C.).

[13] The plaster inscription from Deir 'Alla has been published in *ATDA*, with detailed palaeographical notes and drawings. A recent bibliography may be found in Lemaire, 1985. The script used fits nicely into that from Aramaic texts from Damascus, Hama/Afis

and Zincirli as well as Phoenician texts from Kition and Sevilla. Also non-Hebrew texts from 8th century BC Hazor and Samaria have a closely resembling script.

[14] The Nimrud ostracon Segal (1957) can be connected with Ammonite traditions (cf. Naveh (1982) p. 109). The Phoenician texts with a comparable *kaf* incude the Tafnit sarcophagus text (Sidon) and the Larnaca tarif B text (Cyprus) from the 5th/4th century BC, cf. Peckham (1968).

[15] Cf. note 12. The Mesopotamian Aramaic script is mainly known from juridical clay tablets, mostly from Nineveh, Ashur, Guzana and Calah (7th century BC) as well as from (mainly) Sippar, Nippur and Niribi (6th century BC). Cf. Script Traditions, Ch. III.

[16] The ink-written ostraca or jar texts from Tell Deir 'Alla include reg. no. 2755 from Phase VI (see *ADAJ*, 27, 1983, Pl. 128, 2), no. 2712 from Phase V/VI (cf. *ADAJ* 23, 1979, p. 46), no. 2768 from Phase V (cf. *ADAJ*, 27, 1983, p. 581), no. 2600 from Phase IV (see *ADAJ*, 22, 1977–1978, Pl. 29, 2; cf. p. 79), no. 2601 from Phase IV (?) (cf. ibid., p. 79), and no. 2680, a jar fragment, inscribed below a handle, from Phase IV (cf. *ADAJ*, 23, 1979, p. 44). Phases VI and V/VI date from the 7th and 6th centuries BC; Phases V and IV have to be dated in the 5th century BC and somewhat later. The general shapes of the script of no. 2600 have been drawn in FIG. 7.

[17] The excavations at Tell el-Mazar in the Jordan Valley have yielded some ink-written ostraca and jar texts. The publication of the Aramaic inscriptions has been promised by the excavator Kh. Yassine in ADAJ 27, 1983, p. 495, note 1 to appear in *BASOR*. Dr. Yassine was kind enough to show me some of them.

[18] The fragmentary inscription on a piece of limestone found in Amman in 1961 has been published, first by Horn (1969) and then by Cross (1969). Cross's palaeographic study (not Horn's) as well as those by Puech and Rofé (1973) and by Fulco (1978)—to mention only some of the studies—suffered from misleading shadows on the photographs

7. A sketch-list of the characters of some of the Trans-Jordanian Iron Age texts.



| | North | | | | | Centre | South | | |
|---|---|---|---|---|---|---|---|---|---|
| | Amman citadel | Deir 'Alla plaster | Siran bottle | Heshban IV | Deir 'Alla 2600 | Diban mesa | Buseirah | Umm el Biyarah | Tell el-kheleifeh |
| ʾ | | | | | | | | | |
| b | | | | | | | | | |
| g | | | | | | | | | |
| d | | | | | | | | | |
| h | | | | | | | | | |
| w | | | | | | | | | |
| z | | | | | | | | | |
| ḥ | | | | | | | | | |
| ṭ | | | | | | | | | |
| y | | | | | | | | | |
| k | | | | | | | | | |
| l | | | | | | | | | |
| m | | | | | | | | | |
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| p | | | | | | | | | |
| ṣ | | | | | | | | | |
| q | | | | | | | | | |
| r | | | | | | | | | |
| š | | | | | | | | | |
| t | | | | | | | | | |
| wd. | | | | | | | | | |

8. The Amman Citadel inscription (hard limestone).



AMMAN   CITADEL
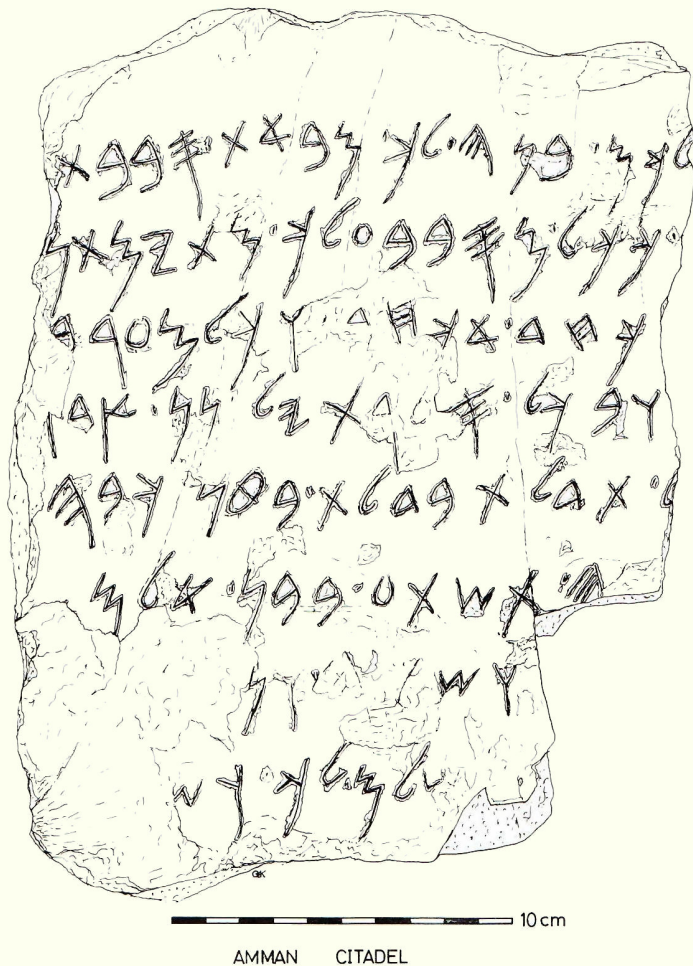
is the same as that of the Deir 'Alla plaster text, and the *ṣade* shows a special development also known from Deir 'Alla (see FIG. 8). Typologically noteworthy are three other characters: the tail of the *taw* does not fully match the developments in Aramaic writing, although other tails do; the *samek* represents an old type; but the *'ayin* represents an advanced type in Aramaic. The open top developed in traditions using the expanded writing angle (writing the sign in two half curves) which was introduced *c.* 750 BC. An independent development is unlikely, because the enlarged angle (*c.* 60°) can be recognised in this stone script in *'alef*, *he* and *ṣade* too. This makes it possible that the open top of *bet*, etc. was known in synchronous ink script, but was used here for *'ayin* only. In fact the use of typologically early forms (here mainly *taw* and *samek*)

is a practice often noticed. The script's tradition is connected with Aramaic traditions, but probably not with those used in North Mesopotamia (*ṭet* type).

The statue inscription (limestone)[19] stands in an Aramaic writing tradition, because the two bar *ḥet* has to be connected with this. The completely rounded *'ayin* (drawn correctly by Lankester Harding) is an ancient shape still occurring on the Nerab steles and on a *c.* 650 BC Ashur clay tablet,[20] (FIG. 10).

The eye inscriptions also fit in Aramaic traditions, but cannot be called typically Aramaic, because the *samek* type has probably not been found in Aramaic texts (FIG. 6).[21] On the other hand it does occur on the Nimrud ostracon, as well as in texts from Buseirah and tell el-Kheleifeh (see below). Almost the same type developed in 5th-4th centuries BC Phoenician traditions also. The theatre fragment fits into Aramaic writing too (FIG. 9), as does the sherd inscription.[22]

The script engraved on the bronze bottle from tell Siran[23] shows the consequences of the expanded angle in the open tops of *bet* and *'ayin* (one example is closed); the *dalet* is hardly open, the *reš* not at all, but the *qof* is. The same is shown with the *yod* and *nun* shapes, comparable with some 7th century BC Assyrian clay tablet types; also the *waw* can

[19] The short fragmentary inscription on the front of the base of a limestone statue (the limestone is not flaky but rather soft) found at the Amman Citadel in 1949 was first published by G. Lankester Harding in 1950, but more extensively by F. Zayadine (1974) including several photographs lit at different angles (FIG. 5—the best photograph published—and Pl. IV). For a recent careful survey of the studies concerned and a new interpretation, see Puech (1985), 5–10, with FIG. 1. In the case of this inscription, as opposed to the one discussed in note 18, because of the different type of limestone, the lines of the characters cannot be recognised by scratches at the bottom of the grooves (some white scratch lines in parts of the strokes of some characters of line 1 are in fact recent), but by a rather smooth, often rounded, groove. This groove became brown in colour like the writing surface. The inscribing tool also made the vertical stroke above the *yod* of line 1. This stroke may be part of a character added after line 1 was written. Note the rounded *'ayin*-top, and the horizontal central strokes of *bet*, and *nun*.

[20] The *bet* shape with open top, as was probably used in the statue inscription (line 2), is quite general in Aramaic writing on Mesopotamian clay tablets since at least 687 BC. Usually, however, the tops of *reš* and *'ayin* are open as well, except with the Ashur tablet, Lidzbarski, 1921, no. 6 (*c.* 660 BC) with a round *'ayin*, closed *reš* and quite open *bet*.

The Nerab steles referred to are KAI 225 and 226, but they are not well dated. A date for the Amman statue inscription beyond the first half of the 7th century BC would be palaeographically surprising.

[21] The branch using the zigzag *samek*, type 3 of FIG. 6, is indicated here, inscribed on eye no. 2A left and, in reverse, on bead no. 3A1 (made of 'precious stone'—apparently inscribed in a seal-cutting workshop); see Bordreuil (1973). The slightly open tops of *bet* and *reš* do not represent a Phoenician tradition but an Aramaic or Ammonite one. On the other hand the *samek* type occurs in a parallel way in some Phoenician inscriptions from Egypt and Phoenicia (e.g. Tabnit sarcophagus) from the 5th century BC onwards.

[22] The fragmentary stone inscription found at the theatre in Amman was published by Dajani (1967–68). See also Puech (1985), p. 11, FIG. III. The bottoms of the grooves of the inscribed letters, cut in grey basalt, are light in colour, thus indicating the chiselling process. These are drawn, together with the edges of the grooves, in FIG. 9. The first letter of line 2 most probably is not a *bet*, because the bottom of the groove is not visible at the damaged spot below the head of the character. In Aramaic writing (Mesopotamian clay tablets) the quite open tops of *bet* and *'ayin* easily appear together with the ancient *'alef* in the 7th and 6th centuries BC, but the ancient *mem* type (line 2) has not been found, so far, after 617 BC.

The small sherd with four incised letters (fired pottery) was found during the excavations at the lower terrace of the Citadel, in Stratum V, Phase 1; see Zayadine (1973), pp. 31f. The *bet* and *reš* are closed at the top, as is probably the *'ayin*.

[23] The bronze bottle was found during the excavation of Tell Siran and has been published by Zayadine and Thompson (1973). The inscription on it is complete and there are no doubtful identifications; the end of line 4 (*wh'thr*) cannot be a palaeographic problem. A palaeographic study is given below in the appendix, with FIG. 14.

used. Take for example the *ḥet* and *ṣade* of Cross, and the representations of the first letter of line 3 and the last one of line 4 by Puech as well as Fulco. A study of an inscription of this kind has to be focused on the actual lines scratched in the surface, which are often easily seen on the original object as well as on shadow-free photographs. Our drawing (FIG. 8) distinguishes the actual scratches visible at the bottom of the groove, which itself was partly mutilated by stone chippings. For a palaeographic study, see the appendix below, with FIG. 13.

9. The Amman Theatre inscription (grey basalt).
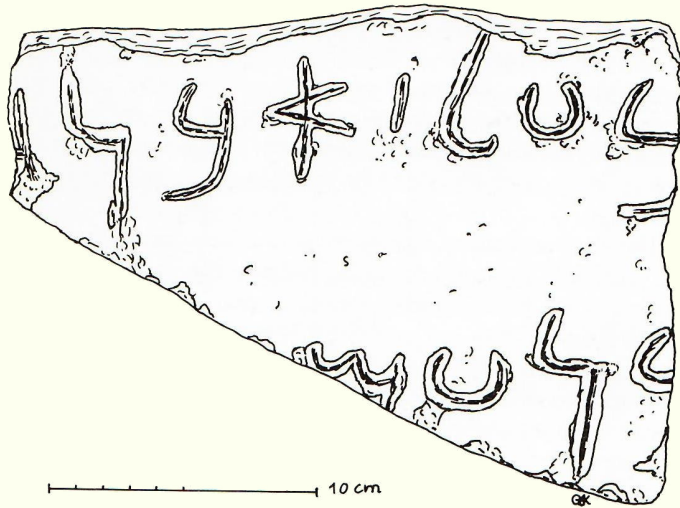


AMMAN THEATRE TEXT

10. The Amman Statue inscription (rather soft limestone).



AMMAN STATUE TEXT

surface finishing strokes

ancient surface damage

more recent surface damage
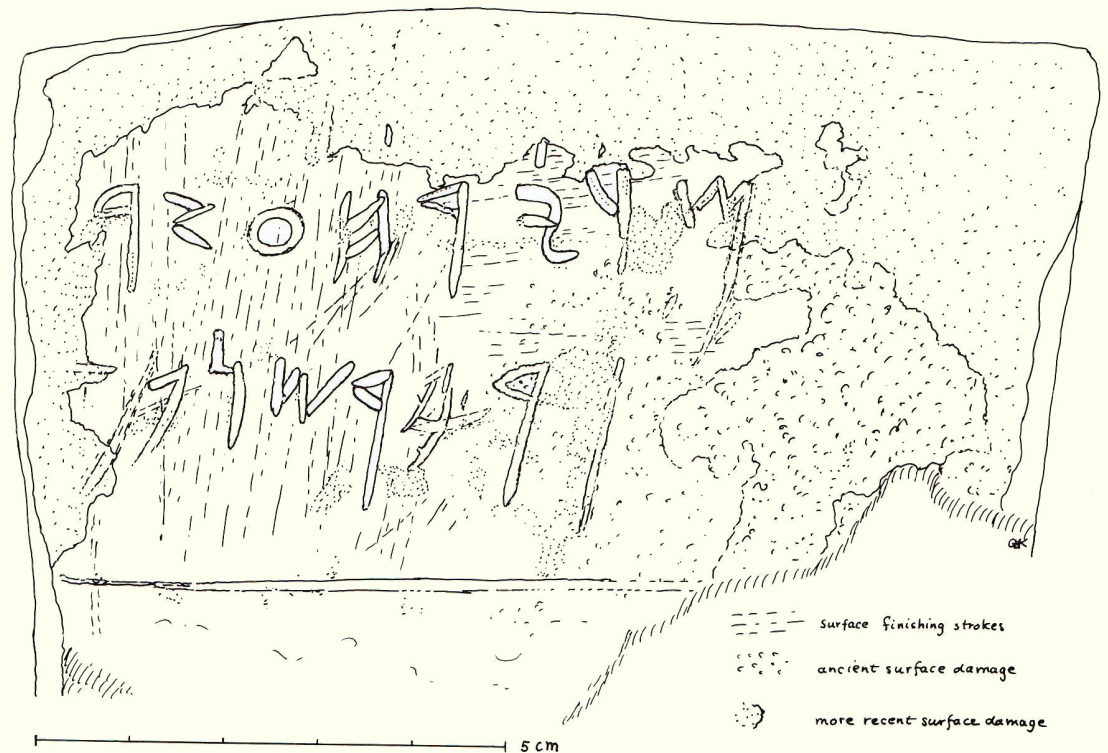
be connected with north Mesopotamian/north Syrian traditions.[24] On the other hand the *taw* suggests a relation with the Amman Citadel one, and the *kaf* with the Deir ʿAlla plaster tradition. The script is a representation in bronze of an ink writing nib-movement. The same possibly applies to the *he*: a representation in bronze of a cursive movement such as the one used in the Deir ʿAlla plaster text.

Further south, in Hesban, several ostraca have been found. The four inscriptions in ink (nos. XI, IV, I and II)[25] are written in a script closely related to the Aramaic writing traditions as practised, for example, in Mesopotamia and Ekron (found at Saqqara).[26] The writing angle varies between 60 and 75°. It is, however, difficult to connect the script with a specific Aramaic tradition: the *samek* is not clear to me. Furthermore there is no reason to consider the script as specifically conservative, because the scripts used elsewhere too may show differences in the use of stages of development of some characters.[27]

### Central region

The Mesa stele contains the earliest dated inscription found in Trans-Jordan—*c.* 850 BC. It already shows in most of its characters the influence of the broad-nib ink script, as do the stele fragments from Diban and Kerak.[29] The writing angle

used appears to have been *c.* 40/45°. The *kaf* and the *lamed* preserve ancient shapes no longer found in early Phoenician and Aramaic scripts, except in the Fecheriyeh statue script.[30]

The important question now is: did the scribes who wrote these texts stand in a tradition stemming directly from Phoenician writing, or from the Hebrew one? Almost all of the archaic Phoenician inscriptions as well as the earliest ones influenced by the broad nib, show an angular *lamed*, rarely a curved one; the curve was promoted by the ink writing. On the other hand almost all the earliest Hebrew inscriptions show a strongly curved *lamed*, or signs of the intention to produce one, using an extra stroke at the lower end. However, the Gezer tablet does not do so.[31] A common tradition with early Hebrew writing is also suggested by the two-bar *ḥet*, occurring in the earliest Hebrew inscriptions (at Samaria and Arad, but not at Kuntillet ʿAjrud), together with the three-bar one. The Gezer tablet has the three-bar *ḥet*. This suggestion of a common tradition is not refuted by other data, in fact the scripts from the earliest Arad ostraca, the Samaria ostraca and the Kuntillet ʿAjrud inscriptions can easily be taken as a development from this Moabite script. The Gezer tablet script, however, possibly together with the Kuntillet ʿAjrud stone basin script, stand slightly apart because of their *kaf*. This shows another archaic model, or the influence of the broad-nib writing with a very narrow writing angle (*c.* 20°).

Moabite script later than the 9th *c.* BC is known from a few seals only. The scripts used on them show form developments based on a small angle of writing, but independence from Hebrew writing traditions is clear, mainly from the shapes of ʾalef, *samek* and ʿayin. Some characters developed along the lines of the Hebrew types series (*he, reš*)—they are prompted by the writing technique, so have to be considered parallel developments. In some seals, imitations from Aramaic or Ammonite shapes are used.[32]

### Southern region

The inscriptions found at Buseirah, Umm el-Biyarah and tell el-Kheleifeh, dating from about 700 BC onwards, include three useable ink-written texts. We have to consider them first:

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[24] In fact the way the *waw* is made, with one vertical line and a slightly concave 'cap' on top, is unique. On the other hand the skeleton shape with a slight extension to the upper right occurs in Aramaic traditions in N. Syria (Nerab steles) and N. Mesopotamia (Nineveh and Ashur on some clay tablets). The Siran script cannot be dated within narrow margins. In connection with Aramaic traditions it is, however, noteworthy that the stretched *yod* occurs on clay tablets before 612 BC only, as does the traditional *mem*. On the other hand one cannot expect that the elaborate *he* and the double cross bar *ḥet* would survive long among the general presence of the simple *he* and the single bar *ḥet*. All this would make a date after *c.* 650 BC unexpected.

[25] The ostraca have been published by Cross in *AUSS* 14, 1976, 145–148, *AUSS* 13, 1975, 1–18, *AUSS* 7, 1969, 223–229, and *AUSS* 11, 1973, 126–131 respectively. See also Puech (1985), 13–21. A sketch of the script of ostracon no. IV is given below in FIG. 7; several details, however, remain obscure, including those of the *samek*. A *qof* instead of *ʿayin* may be seen from the published photograph in line 3. For a more comprehensive palaeographic study of the four ostraca see Script Traditions, Ch. II.

[26] The scripts of the four ostraca do not differ from the scripts used on Mesopotamian clay tablets and on the Adon papyrus from Saqqara, except probably the *samek*, although this grapheme is not very clear in the Hesban ostraca (Puech, 1985, suggests several examples, but I cannot properly judge his drawings with the documentation available to me). The Adon papyrus has been published by Dupont-Sommer (1948) and, with new documentation, by Porten (1981). The letter probably originates from Ekron.

[27] There is no reason to consider Ammonite scripts conservative in comparison with Aramaic scripts, as in Cross (1975), especially pp. 12ff. On the one hand hardly any Ammonite text is narrowly dated, except perhaps a few seals. On the other hand we have very few Aramaic ink-written texts, so we know very little about 'conservatism' in Aramaic ink-script traditions. However, we do know from Aramaic argillary writing (clay tablets; cf. Lieberman, 1968, but his sign lists are not precise) that typologically older forms are still rather generally used decennia after the introduction of new shapes. The ancient ʾalef, for example, still occurs quite regularly through the 6th century BC, although the cross bar-*mem* and the three stroke *šin* seem to have completely taken the place of the zigzag types within only half a century: see Script Traditions, Ch. III. For this reason it is not possible to find data providing a useful probability for *dating* a text in relation to one with a typologically slightly earlier script, as is done in Puech (1985), p. 14, unless both scripts belong to the same local 'school' tradition.

[28] The basalt stele (KAI no. 181) found in 1868, has unfortunately and surprisingly not yet received a fully documented publication. This complaint was already made by Smend and Socin in 1886. They reproduced the most precise original drawing (by G. Wolf) that has so far been made, but it could not be 'perfect'. The best photograph (excellently printed) published so far is by Dussaud in 1912. For a palaeographic study, see the appendix below, with FIG. 15.

[29] The Diban basalt fragment, with only a few characters, has been published by Murphy, 1952. The *kaf* shape approaches the second shape drawn on the Mesa stele sign list of FIG. 15, but its position is turned slightly more clockwise and it has more expanded top angles. This shape represents a less evolved stage in relation to the Mesa stele shapes.

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The grey basalt stele fragment from Kerak has been published by Reed and Winnett in 1963. The script shows only one major difference from that of the Mesa stele: the *he* has an exceptional shape with four instead of three 'horizontal' strokes. See the palaeographic study below, with FIG. 16.

[30] The *kaf* with the extended central vertical stroke (see FIG. 5ᵇ), and the strongly curved, or rather curled, *lamed* are represented on the graffiti from ʿIzbet Sartah, near Aphek (Kochavi, 1977), and also on a 9th century BC basalt statue from Tell Fecheriyeh in N. Syria (Abou-Assaf, a.o. 1982).

[31] The inscription on the small tablet from Gezer, made of rather soft, not flaky, limestone (KAI no. 182) has an angular *lamed*, with a straight base (both examples in line 5 as well as in line 2). The *kaf* of the Gezer tablet does not have a tail in line with the vertical stroke (cf. note 30), but one in line with the oblique right-hand stroke. This same type has been used on the stone basin from Kuntillet ʿAjrud (Meshel, 1978, Pl. 10).

[32] Moabite inscribed seals are generally recognised by the use of theophoric names with *kmš*, cf. Herr (1978), 153–159, and Herr (1980). An important new seal has been found at Umm Udhainah near Amman and is published by Zayadine (1985) and Abu Taleb (1985), the former with a more accurate facsimile (*mem*). The open *ʿayin* on one of the seals (Herr no. 6) and possibly the *ṭet* of the Umm Udhainah seal are to be taken as imitations from Aramaic or Ammonite traditions.

11. Buseirah object no. 816, ink script on sherd.



3 cm

no. 816

BUSEIRAH

12. Buseirah object no. 368, clay bulla.



no. 368

5 mm
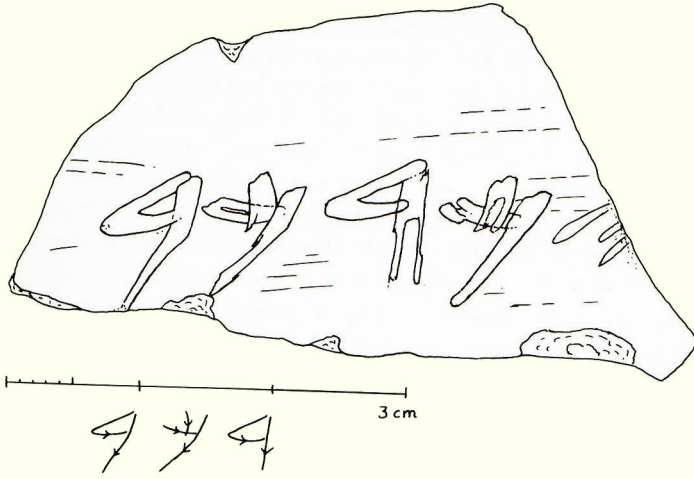
Buseirah no 816 (FIG. 11), the Umm el-Biyarah sherd (in fact probably part of an inscribed jar), and tell el-Kheleifeh ostra-con no 6043 (the largest ostracon).[33] These last two texts are written with a writing angle of about 45°, or less. Their scripts are closely related through their peculiar *mem*. The characters do not show any relation to Hebrew script (the *kaf*, *samek* and *'ayin*, for example, are completely different developments), so any analogies with *'alef* and the curves of the long tails have to be taken as parallel developments due to the small writing angle.

On the other hand, the Buseirah ink text, nicely written with the broad-nibbed ink pen (apparently from a sea-rush) is completely different. The writing angle is about 30°, and the *bet*, *he* and *kaf* developments have so far not been found elsewhere in Edomite or Moabite scripts; rather they have to be connected with Hebrew script traditions of probably the end of the 8th century BC.

To return to the other two inscriptions: the Umm el-Biyarah text has an open top of *bet*, *dalet*, *'ayin*, *reš*, which does not easily come about with the writing angle used, so this feature has probably been imitated from Ammonite or Aramaic forms, without an actual tradition or school connection. The *samek* shape of the tell el-Kheleifeh ostracon has the zigzag cursive, which is also found on a pot inscription (bichrome) from

Buseirah, no 583. We have met it already in Ammonite script traditions. These Buseirah and Kheleifeh texts also share the shape of the *qof*, but the *kaf* differs.

Here we have to add the bulla from Buseirah (no 368) (FIG. 12). Most of the characters can be considered as an earlier stage in the type series of the Edomite ink scripts just considered. But a *ṭet* probably has to be read at the end of line two (I do not see any reason to identify this sign as a *dalet*—strange shaped and in reverse; the same applies to the sign of the same shape on a Moabite seal, Hestrin 116).[34] A *ṭet* is not known otherwise from Edomite or later Moabite texts, but the character is known from Ammonite inscriptions: we have seen that the ovoid shape with the left to right inside stroke was used there. An automatic development would result in the shape visible here. Other ostraca (ink-written) have been found at tell el-Kheleifeh; they are written in the 5th/4th centuries BC Aramaic script, known from the Persian empire. Texts with Phoenician script of this late date are also found.

## Conclusion

In line with the information set out above, the general conclusion is the following: the scribes in the northern region learned

[33] The inscriptions from the excavations at Buseirah have been published by Puech in 1977. Sherd no. 1191 (*op. cit.*, p. 19) has a number of dark, but superficial 'lines' and spots, which do not show any writing tool characteristics. Consequently we cannot consider them as being writing. Sherd no. 816 shows clear writing with strokes character-istic of a nib made of a sea-rush stem (cf. for such a nib, *ATDA*, 31–36). On FIG. 11, the movements or strokes of the nib on the surface are indicated; their direction is clear, but their sequence is not. The Umm el-Biyarah (Petra) sherd was found in a room of the 7th century BC settlement, excavated by Mrs Bennett, and published by Milik in Bennett 1966, p. 399. A sketch of the script is given in FIG. 7.
The inscriptions from Tell el-Kheleifeh were published together by the excavator, Glueck (1971). No. 6043 has been published also, with a better photographic print, in *BASOR* 82, 1941, 3–11. In FIG. 7 a sketch of the characters used is given.

[34] The bulla has been rather well drawn by Puech (1977), p. 2, although the curved *mem* tail in the lowest register is a wrong interpretation of a very narrow ridge, while the ridge of the tail itself continues further down. Herr's drawing, 1978, FIG. 78 no. 3 of the last character of register 3 is incorrect. See FIG. 12.

to write the alphabetic script in Aramaic script traditions from Damascus and other Aramaic cities or states, probably not later than the end of the the 9th century BC. The local 'school' maintained relations with Aramaic writing schools in the Levant (in the 7th century BC, possibly specifically a school from Ashur) as shown by the development of the writing angle. On the other hand the tradition largely maintained a specific *samek* (perhaps even a local development) and *ṭet*, and, in one branch, also a specific *kaf*.

In the 9th century BC the central region received the script from the same tradition as the Hebrew script did—possibly stemming from a Tyrian-Sidonian one. Later writing (from *c.* 700 BC onwards) shows no further relationship with Hebrew traditions.

The southern region (Edom) has yielded inscriptions from *c.* 700 BC onwards. Their writing pattern shows no direct relation to Hebrew writing, but shares the rather narrow writing angle with the later Moabite tradition. Apart from that the scripts show a slight relationship (only form imitation; the technique did not change) with Ammonite (open top of *bet*, etc.) rather than with Aramaic writing. This is deduced from the types of *samek* and probably *ṭet* used.[35] This picture of quite independent writing traditions in Moab and Edom (probably very closely related), and the limited independence of the northern region, probably changed in the 5th century BC. Then a specific Aramaic script tradition, known especially from Mesopotamia, Persia and Egypt,[36] took over writing practices in Trans-Jordan, as it did in Palestine—the regions being part of the Achaemenid Empire.

## Acknowledgements

[35] Discussions about the importance of Aramaic writing traditions for the Central and Southern Trans-Jordanian scripts may be found in Naveh (1982), pp. 102ff. (Aramaic influence) and Herr (1980), esp. p. 33 (Ammonite influence).

[36] The dates of the Trans-Jordanian inscriptions concerned are difficult to establish. Some may date from the 5th, others from the 4th century BC. In any case the change of tradition occurred during the Achaemenid Empire, perhaps by returning deportees or by the new governmental situation. In fact the script used spread all over the empire and has been found in places such as Persepolis, Elephantine, Beersheba and Arad. It is characterised, for example, by a specific development of *'alef* (FIG. 4 lowest series, cf. FIG. 7, Deir 'Alla 2600), *ṭet* (FIG. 4 lowest series) and *samek* (FIG. 6, series 4). See further, Ch. IV in Script Traditions.

## Appendix

Basic for the preceding study has been a palaeographic study of the inscriptions involved. It is useful, I think, to add here a short palaeographic analysis of the inscriptions on the Amman Citadel stone, the Siran bottle, the Mesa stele and the Kerak stele fragment. For each text a short discussion is given concerning the material used for writing on, the writing tools and the techniques for their use, as well as the strokes made in this way, and, of course, the resulting shapes. The accompanying drawings (sign lists, FIGS. 13–16) include the following data:

The left-hand column gives the general form or, sometimes, one out of two, rarely three, frequently used forms, or else the reconstructed model form. A mm scale is given with *'alef*. The second column has the deviating forms, from left to right in a decreasing number of examples. In these two columns the location of the character drawn is indicated below it, in parentheses if one example out of two or more of similar shape is taken. When those parentheses are used, the total number of examples of one grapheme is given below left in the drawing in the left-hand column, unless the number is very high (e.g. Mesa stele; number given in the description).

With FIGS. 13 and 14 the third column gives the number and sequence of the strokes made by the tool's tip in the surface. The sequence could not be established for the two basalt inscriptions (FIGS. 15 and 16). The last column gives the skeleton or model shape, but often the shape of one grapheme varies quite a bit. In those cases the extreme ends of the supposed development represented are drawn, based on developments visible in, or traceable from, ink writing traditions.

### 1. Amman Citadel Inscription (FIGURES 8 and 13).

Published by Horn, 1969 (see also above, note 18; it appears that all later authors used the photographs published by Horn).

The inscribed material is rather hard and somewhat flaky limestone. The inscribing tool had a sharp tip. The strokes of the characters have been scratched or incised in the stone's surface, using much pressure. Quite often stone chips have been broken off at the edges of the intended groove (for example with the second sign of line 1). At those spots and also at places where later surface damage had occurred it is often still possible to see the scratched thin strokes at the bottom of the original groove. Quite often one stroke of a character has been scratched more than once. This makes it often difficult to establish the sequence of strokes/lines within one character.

The identifications of signs may be gathered from the facsimile of FIG. 8. (In several instances E. Puech in Puech and Rofé, 1973, p. 533 has seen characters where I have not been able to distinguish clearly the 'scratched thin strokes' referred to above, yet he may be right with the *lamed* and *he* in line 7, but in line 3 after *dalet* a word divider is more likely.)

Some remarks concerning the shapes have to be made:

*bet*—the distinctions mainly concern the curve of the tail; the first shape (5–3) occurs 6× from line 4 (or 3) onwards, the second shape 4×, exclusively in line 1.

13. Palaeographic graph of the Amman Citadel inscription.

14. Palaeographic graph of the Siran bottle inscription.

15. Palaeographic graph of the Mesa stele.

16. Palaeographic graph of the Kerak stele fragment.

*kaf*—the distinctions concern the relative position of the short strokes; the first two shapes occur 3× (excluding 3–1 and 5–1 respectively), the third 2× (or 3× if the extreme 8–1 is included).

*lamed*—the distinctions mainly concern the curve; shapes (1–2) and (6–1) both occur 5×; with 9–1 the shaft is bent differently.

*mem*—the tail of the shape in line 5 is short and not bent, like the *kaf*'s tail to the left of it.

*ayin*—the scratch-lines make it clear that not only the example of line 6 but also the one of line 3 had an open top (chipping out of limestone pieces caused a closed groove); in the small example of line 2 the top ends just touch, and the surrounded stone surface was completely chipped out.

*taw*—the distinctions mainly concern the place where the 'vertical' line is crossed, partly also the angles of the crossing lines; the first three shapes occur 5× (including 6–2), 3× and 2× (including the example of line 4) respectively.

the word divider is a very short stroke generally close to vertical, but often made in two almost parallel or slightly converging scratches, except in lines 1 and 2.

Apart from the *bet* and word divider, the differentiations in shape are not connected with consecutive text lines. The individual forms of these two signs, however, may be a reason to distinguish the sculptor/scribe of lines 1 and 2 from the one of the lines which follow. Generally the writing has been done somewhat informally especially as far as the shapes are concerned, judging from the variations in *waw, kaf, mem* and *taw*.

## 2. Tell Siran bottle inscription (FIGURE 14)

Published by Zayadine and Thompson, 1973; no new drawings or photographs have appeared since then.

The bronze bottle (10.2 cm long) has been inscribed from the top downwards. The last characters of lines 4 and 6 reach the ovoid bottom; this surface difference probably caused the slightly deviating shapes of the *ḥet* and *taw*. The strokes of the small characters were engraved by pressure/hammering, giving a tiny ridge at the grooves' edges. The material, tool and technique allowed regularly curved strokes to a certain extent. Some curved lines had to be made in two strokes, not only with *ayin*, but also with *lamed, qof* (right-hand curve) and *bet* 7–2; the *mem* zigzag was meant, at least partly, to be rounded as well (see below). The sequence of the indentations for one character is sometimes clear. There are no doubtful identifications in this complete inscription (cf. note 23 above), but some palaeographically superfluous strokes are made at the *bet* (a correction) and *mem* halfway line 3, as well as at the *nun* of line 1, the *kaf* of line 3, the *waw* of line 5 (see below), and *yod* of line 6.

Some remarks concerning the shapes:

*alef*—the forms show a slight difference in the length of the vertical stroke below the cross points.

*bet*—the distinctions mainly concern the curve of the two strokes and their relative position; the first four shapes occur 2× each; the shape of the second and third examples of line 7 deviates quite a bit; with 3–2 it appears that first a word divider with *bet* was made and changed to a *bet* with word divider.

*he*—the model has the top stroke touching the vertical line, because this is general with *he*. The two short vertical strokes with the lower oblique one probably represent the contours of the broad ink nib cursive stroke combining the original second and third cross bar to one movement (such as the Deir ʿAlla plaster type, but attached to the top stroke).

*waw*—the left end of the 'cap' stroke very gradually deepens; with 5–1 apparently it was not clear enough, making an additional stroke necessary to reach the model form.

*ḥet*—the shape of line 4, with 90° crossings, may not represent a model, but just an unsuccessful attempt to realise the other type, because of the more difficult location with a strongly curved surface at the base of the bottle.

*kaf*—the lower two lines of the head may be a representation of the contour of a broad ink nib wide stroke made obliquely from lower left to upper right, or a representation of the V movement made cursively with the ink writing nib, as was done in the Deir ʿAlla plaster inscription.

*lamed*—the curve of the skeleton model was realised partly with the long stroke and partly by the addition of a second short stroke.

*mem*—four strokes were always made to shape the head, but the stroke to the far right was sometimes partly hidden by the top of the tail. Distinctions concern the cross point of the middle two strokes and the curves of the head strokes; the first two shapes occur almost equally often. Several head strokes were strongly curved, although they were more difficult to make than straight strokes. Therefore it is most probable that the original model had two curved lines instead of a zigzag.

*nun*—distinctions concern the degree of straightening; the first shape occurs 9×, the second 2×. Made in one stroke, except for the example on line 4, which may represent an early model.

*ayin*—the two strokes needed touch at the top with 1–1 only; distinctions concern the curves of the strokes; the first two shapes occur 2×.

*qof*—two strokes were needed to get the right-hand curved line.

*reš*—in the example at the end of line 4 there are no additional strokes made by the writing tool.

*taw*—distinctions concern the relative positions of the strokes and, with the two examples in line 4, the slight curve in one of the two strokes, but I do not see any typological value there (for 4–2 cf. the remark about the neighbouring *ḥet*). The 'horizontal' line of the example on line 8 may have been made with two strokes.

Writing is rather formal; well engraved rather regular strokes and only a few remarkable shape variations (*bet, mem, ʿayin*).

## 3. Diban stele inscription (FIGURE 15)

The inscription of the Mesa stele has been documented by Smend-Socin, 1886, and Dussaud, 1912 (cf. note 28); see further e.g. *KAI*. The only good photograph of this inscription published so far (Dussaud 1912) shows the lines and holes in the surface filled with a white powder so as to make a contrast between the black characters and the black surface. However, in this way the grooves and holes made by the writing tool cannot be distinguished from those resulting from other causes. For this reason the best photographs are those that strongly reflect the light on the shiny surface, leaving the grooves and holes black, but often with the rather smooth bottom of the grooves made by the writing tool reflecting again. The stone is very finely grained basalt, in fact smooth and shiny, of a black-blueish colour. The characters have been very carefully chiselled in the flat surface, with clear bottoms to the grooves, but no special care has been taken of their edges. Quite a bit of stone had chipped away at the sides of the intended grooves. The sculptor was able to make very straight as well as regularly curved, even strongly curved, strokes.

For this palaeographic study only the original parts of the stele have been used, of course. The characters on the gypsum parts appear to be rather schematic reproductions. The drawing by Wolf and the study by Smend-Socin were mainly done from the Parisian 'Abklatsch' and a gypsum copy, that make no distinction between unintended marks and the sculptor's strokes (cf. e.g. the *reš* in line 22).

The order in which the strokes of each character were made could not be established. The shapes of the characters (in FIG. 15 only the bottom of the grooves are drawn) require the following explanation (the given numbers of examples are a close approximation):

*'alef*—distinctions concern the position and slight curve of the vertical stroke as well as the position of the cross bars in relation to the vertical one; the first two shapes occur 12× each, the following ones 5–2× (in all 50×).

*bet*—distinctions concern the position of the right-hand stroke and the character of the curve and its length, as well as the position of the 'head'; the first two shapes occur 10× each, the other ones 5–2× (in all 53×).

*gimel*—different angles.

*dalet*—the deviating position of the right-hand stroke of the line 32 example may have to be related to neighbouring vertical strokes, so is not to be taken as a separate model.

*he*—distinctions concern the angle of the cross bars, the position of the vertical line, and the relative length of this line below the crossing points; the first shape occurs 20×, the second one 10×, the others 5× (in all 48×).

*waw*—distinctions concern the curves of the head-strokes and the position of the vertical stroke (partly its length too); the first shape occurs 15×, the second to fourth 8–3× (in all 33×).

*zayin*—the quite distinct examples may represent model differences.

*ḥet*—distinctions concern the angles of the crossing strokes, the relative distance between the oblique strokes and the position of the 'legs'; the first shape occurs 8× (in all 13 examples).

*ṭet*—the character (line 11) is difficult to identify; hardly any chisel traces can be discerned between the 'ayin and reš, but there is a depression in the surface, especially to the left. Smend-Socin's *ṭet* (also the one drawn in line 10—both omitted by Clermont-Ganneau) is based on indications on the 'Abklatsch' and the gypsum copy, but are not very clear (see their remarks, 1886, p. 20).

*yod*—distinctions mainly concern the angles of the crossing lines and the position of the vertical one; the first shape occurs 20×, the second 15×, the others 6–2× (in all 48×). The central horizontal line has often been chiselled relatively thinly and shallowly.

*kaf*—distinctions concern the relative position of the 'head' strokes; the curves of the tail vary between insignificantly slight to strong (27–3); the first shape occurs 15×, the second 11×, the others 5–2× (in all 36×).

*lamed*—distinctions concern the lower curve and the curve of the shaft; the numbers of examples are 12×, 9×, 8× and 4× (in all 35×).

*mem*—the strokes quite often go just a little beyond the cross points. Distinctions concern the angle between the head and the tail. The strong tail-curve of 12–1 is exceptional. The first shape occurs 17×, the next ones 9×, 7×, 6× and 2× (in all 45×).

*nun*—distinctions concern the angles between the strokes, and the right-hand tip ('shoulder'), as well as the position and bend of the tail; the first shape occurs 13×, the other three 9× each (in all 40×), but the strong tail curve and the left-hand extension of the central stroke of 23–2 are exceptional.

*samek*—the first shape occurs in line 18 too and may have been the model.

*'ayin*—generally as round as possible; the second shape is the only clear deviation, but cannot be taken as a separate model.

*pe*—distinctions concern the angle between the lines.

*ṣade*—there are 5 complete and 3 fragmentary examples; these last ones appear to be like the one in line 19 (Wolf's downward extension of the central line in fact is not part of the stroke). Distinctions concern the angles of the zigzag strokes. Often (as with *mem*) the short strokes go slightly beyond the cross points.

*qof*—distinctions concern the shape of the head and the position o the 'leg'. The upper part of the vertical stroke inside the head is very thin, and very rarely, if at all, reaches the top. The first shape occurs 5×, the others once or twice.

*reš*—distinctions concern the left-hand angle of the head, the position of the 'leg', as well as the relative length of the leg; the first shape occurs 12×, the second 8×, the third 7×, the fourth 3× (lines 31 and 32 only), the fifth (narrow head) 3× (in all 35×).

*šin*—the strokes sometimes extend slightly beyond cross points

(as with the zigzags of *mem* and *ṣade*). Distinctions mainly concern the angles between the strokes; the first shape occurs 18×, the second 6×, the others 4 and 3× (in all 32×).

*taw*—distinctions mainly concern the position, the length of strokes and their angles; the first shape occurs 16×, the second 8×, the others 6–3× (in all 43×).

the word divider (one dot) was placed below the main parts of the characters after the line or total inscription was finished. The sentence divider (vertical stroke) was placed between the characters during writing.

In most cases the deviations within the examples of one grapheme are not remarkable, except with *kaf, mem, ṣade, taw* and, less so, with *bet, he, waw*. There is no specific distribution of the shape varieties distinguished among the parts of the inscription (except perhaps the long tailed *reš* in the last text lines), so one cannot assume there was more than one sculptor or scribe. The variations in shape indicate that the character forms were not treated very formally, although the chiselling itself was done in a precise and careful (formal) way.

### 4. El-Kerak stele fragment inscription (FIGURE 16)

Published by Reed and Winnett, 1963 (cf. note 29) with a photograph showing white parts in the grooves and other depressions in the surface on a black background (note that the measuring rod is put at too far a distance to give a good scale for the object). However clear this photograph may look, for palaeographic purposes better results are obtained when hardly any shadow is used, showing the contrasting whitish chiselled bottoms of the grooves with maximum clarity, especially in combination with a photograph with more shadow. The stone used is a rather fine grained grey basalt. The surface has been made smooth, but not shiny (including the shallow depression above the first line—this is not later damage). The strokes of the characters are chiselled into the surface; the bottom of the grooves especially has become very light grey. Hardly any stone has been chipped away at the groove's edges. It is probable that special care had been taken of these edges, especially at the curves of the long tails. The stone, tools and technique used made it possible to obtain good straight and curved lines. The identification of the characters is no problem except at parts of the stele's edges (the sign at the end of line 1 is not clear to me, but a *dalet* seems to be the best of few possibilities; at the beginning of line 2 is a *taw*, at its end a *he*).

In the sign list (FIG. 16) only the groove bottoms are drawn. The sequence of writing the strokes could not be established.

The different examples of each grapheme show only small variations, but those of *taw* (its position) and word divider are remarkable. The writing has been done carefully (formally) but the shape variations indicate some informality in this respect.

A description of the script in comparison with that of the Diban stele may be useful. In fact a different type of basalt was used and also a different technique to deal with the grooves. The shape of the Kerak *'alef* shows a smaller crossing part in relation to the vertical stroke; its *bet* has only the slightly oblique right-hand stroke; the *he* has four cross lines, all almost equally oblique, with the top one going slightly beyond the vertical stroke; the one example of *waw* is the less rounded type; no difference of *yod* is shown; the *kaf, mem* and *nun* have a more strongly curved tail; the *lamed* is rather regularly curved; the *'ayin* is relatively somewhat smaller; the *reš* has a short leg; the *šin* and probably the *taw* do not differ. The Kerak text has no special sentence divider; the word divider generally differs (except in line 1) but has been put at the same place as on the Diban stele, also after the inscription was finished. Generally it may be said that the *he* represents a separate branch of script, not found elsewhere, and that the curves of the long tails as well as the occurring shapes of *'alef, bet* and *waw* indicate a further development compared to the Diban script, or a formalisation of a development already visible there.

## Bibliography

Abou-Assaf, A., Bordreuil, P., and Millard, A. R. 1982. *La statue de Tell Fekherye et son inscription bilingue assyro-araméenne*, Paris, 1982.

Abu Taleb, M. 1985. 'The seal of *plṭy ben m'š* the *mazkīr*', ZDPV, 101, 1985 21–29.

*ADAJ, Annual of the Department of Antiquities of Jordan*, Amman.

Aharoni, Y. 1975. *Arad Inscriptions*, Jerusalem, 1975 (1981 English edition).

*ATDA*: see Hoftijzer, J., and van der Kooij, G. 1976.

*AUSS, Andrews University Seminary Studies*, Berrien Springs, Michigan.

*B. A., Biblical Archaeologist*, Cambridge, Mass.

*BASOR, Bulletin of the American Schools of Oriental Research*, Cambridge, Mass.

Bennett, C.-M. 1966. 'Fouilles d'Umm el-Biyara, rapport préliminaire', RB 73, 1966, 372–403.

Bordreuil, P. 1973. 'Inscriptions des têtes à double face', ADAJ 18, 1973, 37–39, FIGS. 1 and 2.

Černý, J. 1952. *Paper and books in ancient Egypt*, London.

Cross, F. M. 1969. 'Epigraphic notes on the Ammān Citadel inscription', *BASOR* 193, 1969, 13–19.

Cross, F. M. 1975. 'Ammonite ostraca from Heshbon; Heshbon Ostraca IV-VIII', *AUSS* 13, 1975, 1–20.

Cross, F. M. 1979. 'Early alphabetic scripts' *Symposia Celebrating the 75th Anniversary of the Founding of the American Schools of Oriental Research (1900–1975)*, vol. 1, 1979, 97–123.

Dajani, R. W. 1967–68. 'The Amman Theater fragment', *ADAJ* 12 and 13, 1967–1968, 65–67, Pl. 39.

Donner, H. and Röllig, W. 1968. *Kanaanäische und Aramäische Inschriften*[2], Wiesbaden.

Dupont-Sommer, A. 1948. 'Un papyrus araméen d'époque Saïte', *Semitica* 1, 1948, 43–68.

Dussaud, R. 1912. *Les monuments Palestiniens et Judaïques (Moab, Judée, Philistie, Samarie, Galilée)*, Paris.

Franken, H. J. 1964. 'Clay tablets from Deir 'Alla, Jordan', *Vetus Testamentum* 14, 1964, 377–379.

Franken, H. J. and Ibrāhim, M. M. 'Two seasons of excavations at Tell Deir 'Alla, 1976–1978', *ADAJ* 22, 1977–1978, 57–79.

Fulco, W. J. 1978. 'The Ammān Citadel inscription: A new collation', *BASOR* 230, 1978, 39–43.

Glueck, N. 1971. 'Tell el-Kheleifeh inscriptions' *Near Eastern Studies in honor of William Foxwell Albright*, ed. Goedicke, H., Baltimore/London 1971, 225–242.

Herr, L. G. 1978. *The scripts of ancient Northwest Semitic seals* (Harvard Semitic Monograph 18), Missoula.

—— 1980. 'The formal scripts of Iron Age Transjordan', *BASOR* 238, 1980, 21—34.

Hestrin, R. and Dayani-Mendels, M. 1979. *Inscribed Seals; First Temple Period*, Israel Museum, Jerusalem.

Heubeck, A. 1979. *Schrift*, Archaeologia Homerica, Band III, Kapitel X, Göttingen 1979.

Hoftijzer, J. and van der Kooij, G. 1976. *Aramaic Texts from Deir ʿAlla*, Leiden.

Horn, S. H. 1969. 'The Amman Citadel inscription', *BASOR* 193, 1969, 2–13.

Ibrahim M. M. and van der Kooij, G. 1979. 'Excavations at Deir ʿAlla, season 1979', *ADAJ* 23, 1979, 41–50.

—— 1983. 'Excavations at Deir ʿAlla, season 1982', *ADAJ* 27, 1983, 577–585.

*KAI*, see Donner, H. and Röllig, W. 1968.

Kochavi, M. 1977. 'An ostracon of the period of the Judges from ʿIzbet Ṣarṭah', *Tell Aviv* 4, 1977, 1–13.

van der Kooij, G. 1986. *Early N. W. Semitic script traditions; An archaeological study of the linear alphabetic scripts up to c. 500 BC; ink and argillary*, in press.

Lemaire, A. 1985. 'L'inscription de Balaam trouvée à Deir ʿAlla: épigraphie', *Biblical Archaeology Today; Proceedings of the International Congress on Biblical Archaeology Jerusalem, April 1984*, Jerusalem 1985, 313–325.

Lidzbarski, M. 1921. *Altaramäische Urkunden aus Assur*, Berlin.

Lieberman, S. J. 1968. 'The Aramaic argillary script in the seventh century', *BASOR* 192, 1968, 25–31.

Masson, E. 1974. 'Un nouvel examen des tablettes de Deir ʿAlla (Jordanie)', *Minos* N.S. 15, 1974 (1976), 7–33.

Meshel, Z. 1978. *Kuntillet ʿAjrud; a religious centre from the time of the Judaean monarchy on the border of Sinai*, Israel Museum, catalogue 175, Jerusalem.

Murphy, R. E. 1952. 'A fragment of an early Moabite inscription from Dibon', *BASOR* 125, 1952, 20–23.

Naveh, J. 1982. *Early history of the Alphabet; An introduction to West Semitic epigraphy and palaeography*, Jerusalem, Leiden, 1982.

Peckham, J. B. 1968. *The development of the late Phoenician scripts*, Cambridge Mass.

Porten, B. 1981. 'The identity of King Adon', *B.A.* 44, 1981, 36–52.

Puech, É. and Rofé, A. 1973. 'L'inscription de la Citadelle d'Amman' *R.B.* 80, 1973, 531–546.

Puech, E. 1977. 'Documents épigraphiques de Buseirah', *Levant* 9, 1977, 11–20.

—— 1985. 'L'inscription de la statue d'Amman et la paléographie Ammonite', *R.B.* 92, 1985, 5–24.

*R.B., Revue Biblique*, Paris.

Reed, W. L. and Winnett, F. V. 1963. 'A fragment of an early Moabite inscription from Kerak', *BASOR* 172, 1963, 1–9.

*Script Traditions*: see van der Kooij, G. 1986.

Segal, J. B. 1957. 'An Aramaic ostracon from Nimrud', *Iraq* 19, 1957, 139–145.

Smend, R. and Socin, A. 1886. *Die Inschrift des Königs Mesa von Moab*, Freiburg.

Vincent, L. H. and Horsfield, G. 1932. 'Une stèle Egypto-Moabite au Balouʿa', *R.B.* 41, 1932, 417–444.

Ward, W. A. and Martin, F. M. 1964. 'A new transcription with palaeographical and historical notes', *ADAJ* 8–9, 1964, 5ff.

Zayadine, F. 1973. 'Recent excavations on the Citadel of Amman (A preliminary report)', *ADAJ* 18, 1973, 17–35.

—— 1974. 'Note sur l'inscription de la statue d'Amman J. 1656', *Syria* 51, 1974, 129–136.

—— 1985: report communicated for the 'Chronique Archéologique', *Syria* 62, 1985, 156–158.

Zayadine, F. and Thompson, H. O. 1973. 'The Ammonite inscription from Tell Siran', *Berytus* 22, 1973, 115–140.