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This would mean a new beginning, which we cannot expect from the traditional typefounders; the production of leaden type is a painstaking process. But photographic matrices are very easily made by every designer who masters handwriting. Independent from the commercial afterthought of type foundries, designers will have the future in their hands, provided that these hands are trained to write.

# The Siloam Inscription and Alphabetic Origins

## Roy K. Patteson, Jr.

The Siloam Inscription is one of the most important monuments to alphabetic writing. It is, however, almost unknown to people in Western civilization. This article relates the story of its discovery and points to some of the evidence for the development of writing contained within that inscription. The acrophonic principle, upon which the inscription is based, seems to have been the invention of a domestic situation within Palestine. Theories about the origin of the alphabet are discussed, with a tentative conclusion that Palestine was the alphabet's place of origin.

The precise age and place of origin of our alphabet are questions which have remained unanswered down until our time. Literary monuments from the Near East, in addition to their value for historical inquiry, contain vital information for scholars interested in the development of the alphabet and writing. Eventually we shall be able to give an accurate account of alphabetic origins, perhaps within the next five to ten years.<sup>1</sup>

The purpose of this paper is to acquaint the reader with the Siloam Inscription—one of the most important, but little-known, monuments of early writing. This article points to evidence for development of writing contained within that inscription, when it is compared with other prominent Palestinian inscriptions which can also be dated. Internal developments in the writing style, when connected with a unique acrophonic principle, suggest that the alphabet originated within Palestine in simple domestic situations. In contrast to cuneiform and hieroglyphics, this alphabet prevailed in Western civilization.

The Siloam Inscription was discovered in 1880 at the opening of the Siloam Tunnel, a hand-cut aquaduct located on the south-eastern edge of the present city of Jerusalem (Fig. 1). While our main concern 241

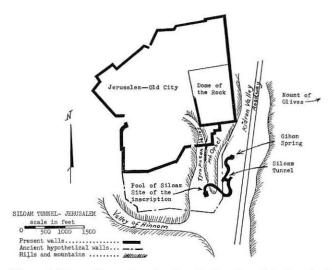


Figure 1. Map of Jerusalem showing the location of the inscription within the Siloam Tunnel.

is with the Siloam Inscription, the story of the discovery of the Siloam Tunnel is in itself thrilling.

Edward Robinson, a famed English archaeologist, began his researches in Palestine in 1856. He found it a current belief among the Arabs that a passage existed under Mt. Ophel connecting two water sources, the Virgin's Fountain and the Pool of Siloam. Prior to Robinson's work (1856), there was no written mention of an underground passage under Mt. Ophel.

Jerome had noted in the fourth century that the Pool of Siloam did not flow regularly, but instead at times the waters flowed with great abundance from the hollows and caverns of hard rock. Josephus, the Jewish historian of the first century, spoke of these waters as "abundant." In 1099 only the Pool of Siloam remained unpoisoned during the Crusaders' siege of Jerusalem. Men and animals fought and died for a drink at the opening in the rocks, below which the Pool of Siloam formed. In Jesus' day it was commonly believed that the waters had curative powers (John 9:6).

In April, 1856, Edward Robinson succeeded in crawling through the aquaduct on hands and knees, timing his trip to coincide with the slack period of water. In December, 1867, Capt. Charles Warren began the work of clearing the aquaduct and prepared a survey to determine the length and various heights of the passage (Warren, 1871). An ensuing debate raged between scholars concerning the identity and age of the tunnel, all of which was complicated by the lack of exact knowledge about the site of the ancient city of Jerusalem.

In 1880 a chance occurrence opened a new era of investigation of the Siloam Tunnel—the discovery of the Siloam Inscription.

C. Schick, a German schoolmaster, who was much interested in the identity of the Tunnel, wrote (Schick, 1880):

I had very little hope that we should ever arrive at any certainty respecting its [the Siloam Tunnel] age. An accidental occurrence has, however, led me to believe that we shall in course of time learn something definite about this aquaduct. A short time ago one of my pupils stumbled over bits of rock and fell into the water. On rising to the surface, he discovered some marks like letters on the wall of rock.

These strange marks were the famous Siloam Inscription, cut into a smooth slab of rock about 16 feet inside the tunnel from the Pool of Siloam.

# The Siloam Inscription

The newly discovered tablet measured about 2 feet 2 inches wide and 8 inches high as reported by Schick. More exact dimensions are: height, about 0.38 m; length, about 0.72 m (Pritchard, 1955). The inscription itself consisted of six lines of Paleohebrew, with evidence that the upper portion of the rock had been prepared to receive writing, but did not.

The letters were very faint, differing in color and condition, with some lines under the water. A deposit of silicate had formed over the letters.

In January, 1881, Schick succeeded in making a hand-copied facsimile by candlelight. This he sent to A. H. Sayce and W. F. Birch who, in a letter sent to the Palestine Exploration Fund, pronounced the inscription the most important yet found in Palestine. The inscription was subsequently removed by Arabs. 243



Figure 2. The Siloam Inscription. Photograph: Henri Friedlaender, Israel.

Figure 3. Handmade copy of the inscription and transliteration.

[When the tunnel] was driven through. And this was the way in which it was cut through. While [ ] [we] still [ ] axes, each man toward his fellow, and while there were yet three cubits to be cut through, [there was heard] the voice of a man calling to his fellow, for there was an overlap in the rock on the right [and on the left]. And when the tunnel was driven through the quarrymen hewed the rock each man toward his fellow, axe against axe; and the water flowed from the spring toward the reservoir for 1200 cubits, and the height of the rock above the head[s] of the quarrymen was 100 cubits.<sup>2</sup>

The rock slab was broken into several pieces, but ultimately found its way into the Museum of the Ancient Orient at Istanbul, where it remains today.

Throughout the eighties and nineties a debate raged over the nature of the inscription, primarily between Birch and Sayce.<sup>3</sup> The deposits over the letters were removed and a gypsum cast was made. Other and better squeezes were made, and with the help of these, European scholars were able to study the inscription in comfort and leisure (Figs. 2 and 3).

The dating and identity of the tunnel could now be made. The epigraphy of the inscription corresponded to the writing of the Moabite Inscription (840 B.C.); and the nature of the tunnel closely agreed with the Biblical accounts of Hezekiah's work of planning the defenses of the city of Jerusalem by diverting its water supply to within the city walls. The Biblical witness is as follows:

And when they [the Assyrian host against Jerusalem] were come up they came and stood by the conduit of the upper pool, which is in the highway of the fuller's field (II Kings 18:17).

This same Hezekiah also stopped the upper watercourse of Gihon and brought it straight down to the west side of the city of David (II Chron. 32:30).

. . . and ye gathered together the waters of the lower pool. And ye numbered the houses of Jerusalem, and the houses ye have broken down to fortify the wall. Ye made also a ditch between the two walls, for the water of the old pool, but ye have not looked to the maker thereof, neither had respect unto him that fashioned it long ago (Isaiah 22:9–11).

These references to Hezekiah's monumental work fit exactly the tunnel as it may still be seen today.

By the twentieth century there were still disagreements between scholars about the proper translation of the inscription and its date. However, there was universal appreciation for an inscription which contained some of the most ancient Hebrew writing known to be in existence. Here was a Jewish monumental text on which scholars could form an opinion about the development of the alphabet and Hebrew writing.

For the benefit of the readers who may be unfamiliar with epigraphic monuments of the ancient Near East, a brief excursus on 246

Hebrew writing may be helpful. There has been a paucity of monuments containing the Palestinian Semitic antecedents to our epigraphy. This is in marked contrast to the thousands of clay tablets in the cuneiform script which have come from Mesopotamia, and to the abundance of Egyptian monumental inscriptions in hieroglyphics. But neither of these sources shed much light upon the development of the alphabet and Hebrew writing.

Israel, important for her religion and ethics, was not a nation of great military conquests. Whatever monuments she erected have probably perished with time. The Hebrews probably wrote abundantly, but on less durable materials. One suspects that their scruples against images militated against the possibility of any great artistic expressions, and thus attenuated the monumental styles. Consequently, there remain great gaps in our knowledge of the stages of development of Palestinian epigraphy.

In addition to the Siloam Inscription, the most important Palestinian monuments are the Sinai Inscription (date unknown), the Gezer Calendar (tenth century), and the Moabite Stone. These inscriptions illustrate the methods and materials for writing as they existed in Palestine from about 1050 B.C. onward. Of these, only the Moabite Stone can be closely dated.

Among other monuments to alphabetic writing, there are: a blade of an inscribed dagger, an ewer inscribed in writing similar to the Sinai script; a seal inscribed with Hebrew, "Belonging to Shema, the servant of Jeroboam" (786–746 B.C.); seal-inscribed jar handles; and the Lachish ostraca, 21 in number (589–588 B.C.). Among later witnesses are inscriptions in Aramaic, which supplanted Hebrew; the later, but very valuable, Dead Sea Scrolls and the Masada Scrolls discovered in 1964. To this list, we may add coins of the Seleucid period and the period of the Maccabees. The Siloam Inscription and the Moabite Stone are the most important monuments to alphabetic development.

The Siloam Inscription reveals an acrophonic principle, whereby there is a correspondence between the pictographic letterforms and the initial sounds of their names. In the Siloam Inscription, the letters are still essentially pictographic. The following list of 22 consonants illustrates the correspondence between the letterform, the name of the letter, and its acrophonic derivative.

Name	Transliteration	Later Hebrew
Aleph (ox)	silent, later a	×
Beth (house)	b, bh	ב
Gimel (camel)	g, gh	٨
Daleth (door)	d, dh	7
He (window)	h	ה
Waw (hook)	w	1
Zayin (trap)	Z	1
Heth	kh	п
Teth	t	מ
Yadh (hand)	y, i	5
Kaph (bent hand)	k, kh	<b>5</b>
Lamedh	1	ל
Mem (water)	m	מ
Nun (fish)	n	Ž
Samekh	S	D
Ayin (eye)	gutteral ay	ע
Pe, Phe (mouth)	p, ph	Ð
Sadhe	tz	2
Qoph (back of head)	q	ק
Res (head)	r	٦
Sin (tooth)	s, sh	ש
Taw, Thaw	t, th	n
	Aleph (ox) Beth (house) Gimel (camel) Daleth (door) He (window) Waw (hook) Zayin (trap) Heth Teth Yadh (hand) Kaph (bent hand) Lamedh Mem (water) Nun (fish) Samekh Ayin (eye) Pe, Phe (mouth) Sadhe Qoph (back of head) Res (head) Sin (tooth)	Aleph (ox) silent, later a Beth (house) b, bh Gimel (camel) g, gh Daleth (door) d, dh He (window) h Waw (hook) w Zayin (trap) z Heth kh Teth t Yadh (hand) y, i Kaph (bent hand) k, kh Lamedh l Mem (water) m Nun (fish) n Samekh s Ayin (eye) gutteral ay Pe, Phe (mouth) p, ph Sadhe tz Qoph (back of head) q Res (head) r Sin (tooth) s, sh

There is a close correspondence between the name of the letter and the sign of the letter. This correspondence cannot be accidental; it is impossible that the name and sign should match if either of the two were borrowed.

The pictographs on which the alphabet was based were simple items, such as ox, house, camel, doorway, hook, hand, head, mouth, eye, and tooth. The spectrum of the pictographs remained simple and constant throughout the evolution of Hebrew script. It is not likely that a more complicated script stands behind the simpler one.

The monuments to Paleohebrew attest that the Hebrew alphabet resisted the influences of other systems until it flowed into the square charactered Aramaic script, in which it still retained the basic Paleohebrew pictographs. The only accommodations which are discernible are the rearrangement of the sequence of the original letters, and the later inclusion of vocalic notation while also retaining the consonants as vowels.4 The alphabet seems to have been based originally upon the classes of objects represented in the pictographs, such as animals, and closely associated domestic objects (ox, horse, camel, door, window opening, hook, weapons, fence) and personal features (hand, bent hand, eye, mouth, back of the head, the head, tooth). These would have been in close-order in the original alphabet and the objects themselves would have served as mnemonic devices to jog the memory. The grouping of the soft labial, palatel, and dental (ב, ג, ב), and the liquids (ב, מ, ל) betray an attempt at classification of letters.

We have clear evidence in the Greek alphabet that borrowing of the alphabet did occur. In this case there is no mistaking the borrowed signs and names. If the Hebrew alphabet were borrowed, we should expect some analogies between the Hebrew script and its exemplar.

We conclude from the above points that the earliest, purely phonetic-alphabet script was of Palestinian origin. It must have been invented within a settled, domestic, agrarian society which we see reflected in the pictographs. We must, of course, acknowledge some influence from Egypt and Mesopotamia: from Egypt, perhaps the consonantal idea; and from the Babylonians, only the rudiments of the language itself.

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### Early Development within the Alphabet

The Siloam Inscription shows us the state of the alphabet at about 700 B.C. and provides us insight into the direction of development of the Palestinian alphabet.

(1) The Siloam Inscription reveals that the alphabet was drifting away from pictographs and receiving marks of an arbitrary nature. These markings could have given rise to new letters unrelated to signs. We may note arbitrary marks appearing in the following pairs of forms:

1	(He)	and	A	(Kheth)
4	(Nun)	and	7	(Mem)
-	(Zayin)	and	12	(Sadhe)
×	(Taw)	and	×	(Teth)
4	(Qoph)	and	4	(Resh)

(2) We can detect considerable development in the Siloam Inscription over the Moabite Stone and Gezer Calendar. The following pairs will illustrate the direction of developments:

Siloam Inscription	Moabite Stone
(Aleph) shortened strokes	X
(Beth) squared base	9
(Kheth) three horizontal strokes	Ħ
(Waw) curved stem	Y
(Nun) curved stem	7
(Sadhe) analogous to Zayin	1/2
(Pe) curved stem	7
(Qoph) evidence of cursive stroke	Ψ
	(Aleph) shortened strokes (Beth) squared base (Kheth) three horizontal strokes (Waw) curved stem (Nun) curved stem (Sadhe) analogous to Zayin (Pe) curved stem

The above illustrations reveal that by the time of the Siloam Inscription (700 B.C.) considerable writing was being done on soft materials with pen and ink. The earlier writings were rendered in an uneven and apparently more archaic manner without regard to careful line or consistent vertical strokes (cf., the Gezer Calendar and the Sinai Inscription). By 700 B.C. writing had become stylized to the point that the script was lighter and more flowing. The line was precise. The letters were shorter with the stemmed letters being more rounded or curved toward the left. The words were divided by points. A long-standing tradition for a cursive script in Palestine prior to the Siloam Inscription should be assumed, for it is clear that a cursive model had intruded itself into and determined the Hebrew monumental writing by 700 B.C. General lapidary writing, even today, tends to consist of angular junctions of strokes due to the hardness of stone and the nature of cutting tools. Based upon the curved shafts of the Siloam Inscription, we must assume the existence of a strong cursive tradition prior to 700 B.C. We see that the writing of the Siloam Inscription had not yet achieved a full sophistication. There was not yet hesitation to divide words at the ends of lines (cf., lines 2, 3, and 5 in which last words are divided), nor did the script allow for the lengthening of certain letters at the ends of words in order to fill empty spaces. The script had not evolved to the point where it was written "plene," that is, forcing the consonants to serve as vowels.

From the Siloam Inscription we also learn what the earliest writing of the Old Testament looked like. Some of the most important documents, such as the "J" and "E" documents, now embedded in the Hexateuch of the Old Testament, were certainly written in this Paleohebrew script. The writing prophets of the seventh and eighth centuries composed their famous oracles in the same script as we see in the Siloam Inscription. Many of the Psalms, especially the acrostic Psalms, reveal the fascination the alphabet held for ancient writers.

### Alphabetic Origins

The alphabet has been thought to have been borrowed from the cuneiform script which was widely used in Mesopotamia from 3000 B.C. and in north-western Palestine down to 1500–1400 B.C. This late use of cuneiform in Palestine is attested by the excavation of the Canaanite city of Ugarit in 1929. Cuneiform was used to write a number of Semitic dialects, including Old and New Akkadian, Babylonian, and Old and New Assyrian. Cuneiform provided bases also for Old Persian, Ugaritic, and Armenian. Cuneiform evolved from pictographs into ideographs and finally into stylized syllables, made by wedge-shaped tools pressed into clay. The pictographs were made by hundreds of signs, among which are some which appear similar to signs in the Palestinian alphabet (such as the sign for the ox).

Even though the cuneiform remained prestigeous into the second millenium, the differences of languages in Mesopotamia would have reduced any phonetic values of the signs to confusion. One doubts, therefore, that cuneiform would have been borrowed by Palestinians because of phonetic values. At Ugarit, where a simpler system of cuneiform was used to express thirty basic signs, one is tempted to conclude that cuneiform provided the alphabetic typology for Palestinian epigraphy. But the Palestinian epigraphy was more likely the model which prompted the Ugaritic abandonment of the cuneiform syllabary. The cuneiform syllabary contained four vowels (a, e, i, u), but it is significant that these do not appear in the Palestinian script. Only later were the Hebrews troubled by a vowelless epigraphy, and not until then did they begin to force certain consonants into functioning as vowels. Thus, it does not seem that cuneiform was the parent of the Semitic alphabet.

The Egyptian origin of the alphabet has been widely accepted. It has been speculated that Egypt derived its system of hieroglyphics (picture writing) from ancient Sumer. It must be noted that hieroglyphic writing did not develop consistently on the phonetic principle. The same picture might be used to indicate an idea, a word, or sometimes a consonant. By the Middle Kingdom period spelling was more consistent and more consonants were represented. Usually there were multiple signs for the 24 basic consonants, and some signs might represent more than one consonant. Words could 252

only be precisely written thusly: by including a picture of the primary object; adding or deleting strokes to indicate if the word should be read as pictured; the inclusion of determinative signs to designate the class of the word; and finally the inclusion of basic phonetic signs to guide the reader in pronunciation, with final consonants of each syllable reproduced at the end of each syllable to insure that the right word would be pronounced. Egyptian writing did not abandon these principles even when it evolved into the bookhand script of hieratic by about 1900–1500 B.C., and later into demotic which was written about the turn of this era.

The close cultural ties which obtained between Palestine and Egypt during the second millenium B.C. could have provided an excellent context for borrowing. S. R. Driver (1944) has suggested that the Palestinians derived the phonetic principle of a "sign for a sound" from the Egyptians.

On the negative side of the Egyptian origin of the Paleohebrew script, we note the lack of specific evidence of borrowing by the Palestinian people. Hebrew signs corresponded to Hebrew words. If there were borrowing from Egypt, we would expect some Egyptian words in the alphabet. The language differences prevented the possibility of the transmission of phonetic values. An alphabet, to function in a new linguistic environment, must sacrifice the inner connection between what is written and what is said. We must, however, acknowledge the development of the phonetic principle in Egypt although it was largely confined to syllabics. Egypt never abandoned hieroglyphics in favor of the more efficient phonetic system.

There are other possible sources for the Palestinian writing. Alan Gardiner (1916), in similarity to S. R. Driver, believes there existed in the Sinai Peninsula by about 1500 B.c. a mode of writing based upon Egyptian hieroglyphics. He believes that this script was the parent of both the Phoenician and the South Semitic (Arabic) scripts. Few inscriptions support this theory, but it is widely accepted today. While Sinai was the site of copper mining operations, it seems unlikely that alphabetic writing originated in a region so remote and uncultured.

W. E. Staples (1941) has suggested that Paleohebrew was a product of the combination of the cuneiform syllabary, plus its few 253

signs used to indicate pure vowels a, i, e, u, and the Egyptian system which became consonantal but remained vowel-less. This view is tempting, since Palestine was the landbridge between the great empires of Egypt and Mesopotamia. But this still fails to account for the unique character of the Hebrew script, which is vowel-less, non-syllabic, and acrophonic.

It has also been suggested that the Hebrew script could have developed from the Mycenaean syllabic script of Crete and Rhodes, whence it was imported to Palestine by the Phoenicians. However, the evidence indicates that the Mycenaean script was obliterated by the Dorian invasions in 1100 B.C. and that the Greeks recovered writing by copying the Palestinian alphabet, brought to them by Phoenician traders several centuries later.

If the Paleohebrew script were borrowed, we should expect to find a measure of kinship between that alphabet and some exemplar. This we cannot find in any measure that is convincing. The obvious conclusion which remains is that the alphabet is a product of invention on Palestinian soil.

#### Summary

The Siloam Inscription broke the long silence of Hebrew epigraphy. It still holds interest for us in the areas of history, philology, and epigraphy. We see in its letters the evidence for a firm and long-standing cursive tradition prior to 700 B.C., coupled with a resistence to outside influences from vocalic cuneiform and pictographic hieratic. The simplicity, ingenuity, uniqueness, and usefulness of the Semitic alphabet determined that it should become the epigraphic model for Western civilization's alphabet. As studies in Ugaritic go forward and as more Palestinian inscriptions come to light, we may expect more information on the origin of the alphabet.

- 1. Discoveries within the last decade of epigraphic monuments have been manifold. As these are published, abundant evidence will be at hand to complete our present insights. In a later article, this writer will summarize recent discoveries and their implications for the history of epigraphy.
- 2. The word (זדה) = zdh in line 3 of the inscription is of unknown meaning. It is here translated "overlap."
- 3. These debates are printed in the Palestine Exploration Fund from 1881 to 1898.
- 4. We cannot be certain what the original sequence might have been, though it must have been similar to the arrangement we now know. The eight or nine "Alphabetic Psalms" in the Old Testament, in which the number of verses is determined by the letters of the Hebrew alphabet, suggest that the original number of letters was 22. However, there are irregularities in certain Psalms: Ps. 34 omits and adds at the end; Ps. 35 omits and adds at the end; Ps. 9 omits and adds at the end; Ps. 9 omits and adds at the end; Ps. 10 uses only the last four letters, P, T, W, T; Ps. 119 is complete, but omits an extra which appears to have been a later development.
- 5. An excellent example of what we should expect in a borrowed alphabet is afforded in the Greek alphabet, which took over the phonetic writing of the Palestinians by about 825 B.c. The Semitic names of the letters and their signs were kept by the Greeks in precise relationship, i.e., (Aleph) became A (Alpha), etc.

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