

THE
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I. LITERARY.

BENJAMIN MOSBY SMITH.

The Rev. Benjamin Mosby Smith, D. D., LL. D., Professor *Emeritus* of Oriental Literature in Union Theological Seminary, died at the home of his son-in-law, Rev. John W. Rosebro, D. D., Petersburg, Va., on Tuesday, 14th March, 1893. He had attained the ripe age of eighty-one years and six and a half months. He was venerable for his years, abilities, attainments and great usefulness, and his death removes a familiar and conspicuous figure from the history of our church.

Dr. Smith was born the 30th of June, 1811, at Montrose, Powhatan County, Virginia, the family seat of his father, of an ancestry honorable and useful. Bereaved of his father at a tender age, he found in his mother a wise and helpful friend and counsellor as well as a loving pious parent. The struggles of the lad for an education, the self denials of those early years, form an interesting preface to the story of a laborious and efficient life, and give promise of the successful career with which the church is familiar. His early instruction was secured at home at the hand of various tutors. His diligence attracted the attention of Rev. Dr. John Holt Rice, who afterwards took the profoundest interest in the young student, a near relative by marriage. He graduated at Hampden-Sidney College with the first honors, and at the age of eighteen took charge of an academy at Milton, N. C., where he taught successfully for two years. Then entering Union Seminary, before completing its course he was chosen Assistant Instructor, serving from April, 1834 to April, 1836. Licensed in April, 1834, and ordained in October, he supplied during this term

HOW THE TERRA COTTA BOOKS WERE READ.*

PROF. W. W. MOORE.

In order to appreciate in some degree the enormous difficulties surmounted in the decipherment of the cuneiform inscriptions of ancient Assyria and to understand aright the certainty of the results achieved, it will be necessary for us to make some statements at this point concerning the origin and progress of the art of writing.

THE GREATEST INVENTION OF MAN.

If the reader should ask the next hundred persons whom he meets which of all the marvellous and useful inventions of the human mind was the greatest, perhaps ninety-nine of them and possibly all would give the wrong answer. Some would probably say the electric telegraph, others would say the steam engine, others the printing press, and so on. But the true answer is—*The Alphabet*. That is at once the most difficult and the most fruitful of all the exploits of human genius.

The invention of those twenty-six familiar symbols which represent to us the original elements of spoken sounds, which we call our A B C's, and the learning of which is a child's first step towards an "education," has proved to be the most arduous intellectual enterprise of the ages. Its accomplishment tasked the genius of three of the most gifted races known to history, viz: the Egyptians, the Phoenicians and the Greeks. The story of Cadmus, which was once accepted as sober history, is now known to be a mere myth. It may do very well as a poetic statement of the fact that Europe learned letters

*The subject of this article is one that cannot easily be presented in a popular way. It would therefore probably have been omitted from the series but for the urgent and repeated requests of the students that it should be included. To those who care more for the results of cuneiform decipherment than for the processes by which those results were reached, we can promise matter of more interest in our next number, for we shall then begin the discussion of the contents of the tablets and of their bearing upon the statements of Scripture.

For much of the material in the first part of the following article we are indebted to Isaac Taylor's valuable work on *The Alphabet*.

from the East, but Cadmus no more invented the Alphabet than Vulcan invented the McCormick Reaper. On the contrary, these simple but immensely convenient symbols, to which we refer so lightly in the proverb "as easy as A B C," really represent the combined genius and patient experiments and slow and laborious growth of thousands of years.

Moreover, the Alphabet has been one of the most potent of all factors in the progress of the race. No permanent advance in civilization would be possible without some mode of writing. Till one generation of men could transmit to the next the knowledge which they had acquired and leave behind them a record of their experiments and observations, the arts and sciences must have remained forever in a very rudimentary state, and civilization, after reaching a certain early stage of development, must have remained almost stationary. Each generation must have begun where the preceding one began, instead of beginning where the preceding one left off. But the art of writing enabled each generation to profit by the labors of all former generations and thus made it possible for each successive generation to make some further progress beyond the most advanced point reached by their predecessors. Nor would any less perfect system of writing than the use of alphabetic characters have availed to bring the blessings of civilization within the reach of the great masses of mankind. For, as Canon Taylor says, Every system of non-alphabetic (*i. e.* hieroglyphic or syllabic) writing would have been either so limited in its power of expression as to be of small practical value, or, on the other hand, so difficult and complicated as to be unsuited for general use.

"It is only by means of the potent simplicity of the alphabet that the art of writing can be brought within general reach. The familiar instances of Egypt, Assyria, and China are sufficient to prove that without the alphabet any complete system for the graphic representation of speech is an acquirement so arduous as to demand the labor of a lifetime. Under such conditions, science and religion necessarily tend to remain the exclusive property of a sacerdotal caste; any diffused and extended national culture becomes impossible, religion degenerates into magic, the chasm which separates the rulers and the ruled grows greater and more impassable, and the very art of writing, instead of being the most effective of all the means of progress, becomes one of the most powerful of the instruments by which the masses of mankind can be held enslaved."

IDEOGRAMS AND PHONOGRAMS.

“Every system of writing has begun with rude pictures of objects; these pictures, more or less conventionalized, were gradually assumed as the representatives of words, and afterwards became the symbols of more or less elementary sounds.

To use the convenient technical phraseology which is now generally adopted, we may say that writing began with *Ideograms*, which afterwards developed into *Phonograms*.

Ideograms may be defined to be pictures intended to represent either things or thoughts. There are two kinds of *Ideograms*: (1) Pictures, or actual representations of objects; (2) Pictorial symbols, which are used to suggest abstract ideas.

Phonograms may be defined as the graphic symbols of sounds. They have usually arisen out of conventionalized *Ideograms*, which have been taken to represent sounds instead of things. *Phonograms* are of three kinds: (1) Verbal signs, which stand for entire words; (2) Syllabic signs, which stand for the articulations of which words are composed; (3) Alphabetic signs, or letters, which represent the elementary sounds into which the syllable can be resolved.

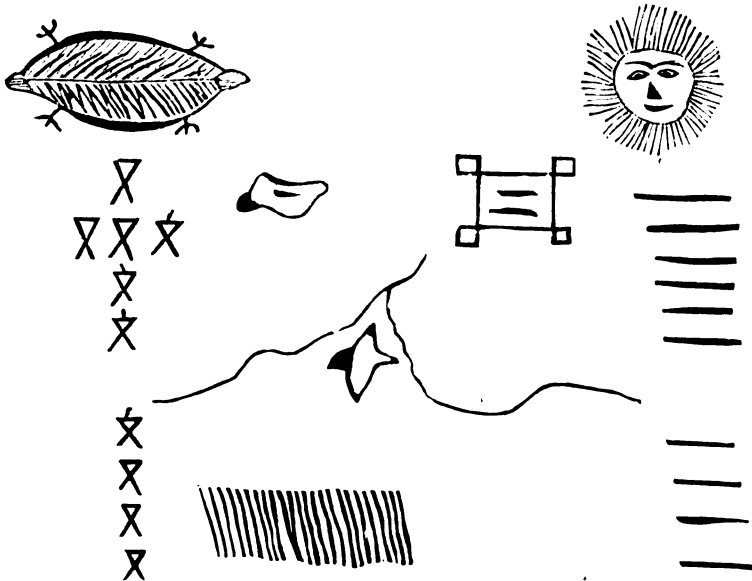
The development of alphabetic writing proceeds regularly through these five successive stages.”

PICTURES.

How natural the first of these stages is to people who cannot write may be illustrated by the story of the unlettered country storekeeper who had a hieroglyphic method of bookkeeping, that is, he simply drew pictures representing the articles bought or sold. One day a farmer who was settling his bill was surprised at finding a cheese charged to him. “Why,” said he, “*I sell* cheeses to you.” The storekeeper knew that such was the fact and was himself not a little puzzled by the strange entry. But after thinking a moment, he said, “O, I see. It was a grindstone—I forgot to make a hole in it.”

The following example of the picture-writing of the North American Indians, which was cut on the bark of a tree in Ohio more than a century ago, will illustrate both the first and second of the five stages mentioned above. The drawing commemo-


rates two expeditions against the English settlements by the Leni Lenape Indians.



In the center of the picture are represented the three forts which were attacked, the lowest of the three being Fort Pitt at the junction of the Alleghany and Monongehela rivers. At the bottom we see twenty-three braves bending forward on the war-path. In the upper right hand corner is a picture of the sun, while the horizontal lines below indicate ten of his pathways, the arrangement in two groups showing that the first expedition occupied six days and the second four. On the left is the record of the enemy's losses, the four figures with heads representing those who were taken prisoners, while the other six represent the slain. Thus far the record has not passed beyond the first stage of ideography, viz: the representation of *things*. But the figure of the tortoise in the upper left hand corner marks a great step forward, for that represents a *thought*. It is not merely the picture of a concrete object, it is the symbol of an abstract idea. It means "return to land" or "safety." "The introduction of this ideogram marks the furthest stage reached by the Red Men in the graphic art."

SYMBOLS.



It will be seen from these examples that any system of writing which does not reach the stage of representing sounds

must be cumbersome and inadequate. And yet some ideograms are so convenient that they remain in common use even after the art of writing has reached the alphabetic stage. Such are the digits, I, II, III, which, as their name implies, were once pictures of fingers, V being a picture of the fork of the hand between the thumb and the fingers, while IV is a picture of the hand with one finger subtracted and VI is a picture of the hand with one finger added; both hands being represented by VV which when placed point to point make X. Such also are the Arabic numerals: 5 is an ideogram, a symbol—it does not spell *five*, it represents it. The letters *i. e.*, *e. g.*, *s. v. p.*, and *viz.* are ideograms. So are the printer's signs  ! = ? The last seems to be a remnant of the capital Q which stood for the word *Question*. A familiar ideogram on our streets is the barber's pole, which carries us back to the time when the barber was also the surgeon, and when phlebotomy was the invariable treatment for all maladies. The white pole with its blood red stripes was a significant symbol of the blood letter's business, and it has held its place at the barber's door in spite of the fact that the last thing we now want a barber to do is to draw blood.

The algebraical sign + is an ideogram, and we are told that it is a contraction of the Latin word *et*, thus:

E T E T E T E T E T E T +

Some of these are cases in which the ideograms came into use *after* writing had reached the alphabetic stage, but they are for that reason all the better illustrations of the convenience of such symbols.

But ideographic writing as a system always precedes phonographic writing. Pictures of things and symbols of thoughts always preceded symbols of sounds. In many cases the characters now in use can be traced back to the original pictures from which they were derived. For instance, the chinese word *mu* "wood" is represented by the character . The original form of this character was , in which we see a rude picture of a tree with its branches, trunk and roots. The Chinese took the second step also, that is, they made the pictures of objects serve as symbols of abstract ideas. For instance, they expressed the idea "assist" by the

pictures of a "mouth" and a "hand," since "to 'assist' a person demands deeds as well as words."

VERBAL SIGNS.

The Chinese took a third step by making some of these ideograms serve as phonetic symbols—not symbols of elementary sounds like the letters of our alphabet, nor symbols of separate syllables like the cuneiform characters of Assyria, but symbols of whole words, which however were always words of one syllable, the Chinese language not having any polysyllables.

But since there is only a limited number of possible monosyllabic combinations of consonant and vowel in Chinese, and since a vocabulary limited to 500 or 1000 words was totally inadequate to the needs of such a civilization as that of China, "there are necessarily in Chinese a large number of homophones; that is, the same articulation has to do duty for several wholly different words. Most of the Chinese monosyllables have therefore more than one meaning. For instance, the sound *yu* may mean either me, agree, rejoice, measure, stupid, or black ox When such cases of homophony occur in our own language the difficulty is frequently solved for us by the fortunate accident of the anomalies of our historical spelling, which, whatever its demerits, is not without compensating advantages. For instance, we have in English the four homophones *rite*, *write*, *right*, and *wright*. By the aid of the variant spelling a child readily learns that these homophones are really four different words which happen to be pronounced alike." But in Chinese no such distinction exists; the very same word is used for six or a dozen entirely different things. To obviate the endless ambiguities arising in this way the Chinese introduced a system of explanatory ideograms, called by some scholars "keys," by others "determinatives," which were written before these homophones for the purpose of distinguishing one from another. "To denote graphically any Chinese word two symbols are employed in combination. One of these is a phonogram, which conveys the sound of the word, the other is an ideogram determining which of all the words having this sound is the one intended to be expressed. To return to the case of the four English homophonic words already cited, the Chinese plan is much as if we were to take the picture of a pen as a phonogram to denote the sound *write*. Together with the picture of a church as a key or determinative this picture of a pen might stand for 'rite,' with the key of a book it might signify 'write,' while with the keys of a straight line and a hammer it would denote 'right' and 'wright.' By combining ideograms with phonograms in this way "any one of the forty thousand words in the Chinese language can be written down without ambiguity." But the characters and combinations are necessarily so numerous that to acquire an exhaustive knowledge of the system is a task of immense difficulty.

"Even to obtain such an acquaintance with it as to be able to write a

common business letter, or to read an ordinary book, it is necessary for a Chinese student to commit to memory some 6000 or 7000 of these groups of characters. This by itself constitutes a serious tax upon the memory, and the tax on the faculties of attention and accuracy is even greater, for many of the characters being necessarily very much alike, it is most difficult to distinguish them without mistake, as will be seen by the inspection of the columns of any Chinese book. The result is that at the age of twenty-five a diligent Chinese student has barely acquired the same amount of facility in reading and writing which is usually attained by a child in an English village school at the age of ten. It may fairly be said that with the Chinese method it takes twenty years instead of five to learn to read and write. By learning how to form twenty-six very simple characters an English child acquires the power of writing down any ordinary English words. But in China it would be necessary for him to learn to delineate from memory the difficult forms of more than a thousand distinct characters, and also to remember the arbitrary meanings of something like 6000 groups of signs. It is evident that there would be a considerable number of persons who would not possess the needful accuracy of hand and brain, not to speak of the leisure and patience, necessary for learning to read and write on such a system. Hence in countries which have not had the good fortune to be in possession of an alphabet, the art of writing, demanding so many years for its acquirement, has necessarily become a rare accomplishment, confined to a learned caste. Among the Egyptians and Assyrians, as well as among the Chinese, to be a 'scribe' has constituted a profession by itself."

Due consideration of the facts just stated will go far towards convincing any doubter that there is no exaggeration in saying that the alphabet is the greatest invention of man.

SYLLABIC SIGNS.

The transition from one stage of the art of writing to another has generally been effected through the transmission of the graphic system of one nation to another nation speaking a language of a different type. About the 3rd century A. D., the Japanese were first brought into contact with the civilization of China and became acquainted with the characters used in Chinese writing. Since the Japanese language is polysyllabic it could be written in Chinese characters only by using those characters as syllabic signs. The Japanese phonetic system has only five vowel sounds and fifteen consonantal sounds, so that there are only 75 possible syllabic combinations of a consonant followed by a vowel. Several of these potential combinations do not actually occur in the language, and hence it is possible, with somewhat less than fifty distinct syllabic signs, to write down any Japanese word." That number of characters was selected from the multitude of Chinese

verbal phonograms, and all the rest of the cumbrous system was discarded.

ALPHABETIC SIGNS.

The Egyptian system of writing began like all others with pictures, and passed through the same stages of development as have been described, but, instead of stopping with syllabism, it took another step—the last and greatest of all—and yet, strange to say, the Egyptians never fully realized the fact that they had taken this step and therefore they never enjoyed the full benefit of their great discovery. They began, like all other inventors of writing, with ideograms which were direct imitations of the objects to be expressed, such as a circle for the *sun*, a crescent for the *moon*, a male figure for *man*, a female figure for *woman*, and so on. Their second class of ideograms, viz: pictorial symbols, were formed, according to Lenormant in four ways:

(1) By *synecdoche*, depicting a part for the whole, as when 'battle' was expressed by two arms, one holding a shield and the other a spear; (2) By *metonymy*, taking the cause for the effect, the effect for the cause, or the instrument for the work, as when "day" was expressed by the *sun*, "month" by the *moon*, and "seeing" by two *eyes*; (3) By *metaphor*, depicting an object that has a readily recognized resemblance to the idea to be expressed, as a *bee* for "king" because of the monarchical government of the hive, and the head of a *lion* for "vigilance" because that animal was supposed to sleep with his eyes open; and (4) By *enigma*, depicting an object that has only a remote or fanciful connection with the idea to be expressed, as an *ostrich feather* for "justice" because the filaments of each feather were thought to be of equal length, a *palm branch* for "year" because it was supposed that the palm put forth twelve branches every year, one in each month, and the *uræus serpent* for "royalty" and "divinity" possibly because it had the power of inflicting sudden death.

From these ideograms arose, in the next stage of development, verbal phonograms; and then, by the operation of the principle which Halevy calls "acrology" the stage of syllabism was reached, that is to say, "a primitive ideographic picture having been taken as a phonogram to denote the name of an object, the symbol was used acrologically to express simply the initial syllable of the word."

As there were many words with the same sound but of different meaning, "determinatives" were employed to show in what sense a phonogram was used. For instance, the determinative used with the names of all foreign countries was a picture of three mountain tops, mountains being the peculiar feature of such countries, as distinguished from the dead level

of Egypt. In these days of invasion by the English Sparrow it will interest our readers to know that the determinative for all words implying smallness, vileness and wickedness was the picture of a sparrow.

Thus far the Egyptian system seems to show no features that are essentially different from those of some other ancient systems of writing. But now we come to the extraordinary fact that along with these primitive ideograms and syllabic signs there have always been found certain other characters which are not mere pictures, or symbols, or verbal or syllabic phonograms, but something infinitely simpler and better, viz: *con-sonants*, that is, characters which cannot be sounded except in conjunction with some other sound different from themselves. What a wonderful achievement it was for the Egyptians to take this great step towards a perfect graphic system will appear more clearly when we remember that a consonant is in itself an unpronounceable abstraction and "involves the decomposition of the syllable into its ultimate phonetic elements." For instance, we cannot pronounce the letter *m* by itself. We can *name* it "em," but we cannot give its *power* until we associate a vowel with it, as in *man, met, mix, mob, must, my, am*.

This resolution of the syllable into its elementary sounds the genius of the Egyptians effected six or seven thousand years ago; for, strange as it may seem, these alphabetic characters are found along with the ideograms on the most ancient monuments.

It will add a touch of interest to this somewhat tedious discussion to state without further delay that De Rouge holds (and the great majority of experts, including Max Muller, Sayce, Lenormant, Maspero, Ebers and Mahaffy, endorse the opinion) that the letters of our own alphabet are derived from these ancient Egyptian symbols.

For instance, the Egyptian word for "Owl" was *Mulag*; on the principle of acrology the picture of an owl became the hieroglyph for M, since that was the first sound in the word. In the two peaks of our capital M are still seen traces of the owl's ears, while the central hanger is a lineal descendant of the owl's beak. It is literally true that "the letters of the alphabet are older than the pyramids." As far back as the second dynasty the Egyptians were representing the twenty-one

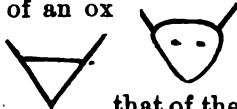
simple sounds of the language by special hieroglyphic pictures.

WHAT THE PHOENICIANS DID.

It seems almost incredible that a people who had the genius to invent alphabetic writing should not then have been shrewd enough to throw overboard all their cumbrous ideograms and syllabic characters and use their alphabetic signs exclusively. But such is the fact. Along with their letters the Egyptians continued to use their ideograms and syllabic phonograms down to the very end. After leaping the great barrier between syllabism and alphabetism which no other nation had ever surmounted, they straightway go back and load themselves down with the useless and burdensome machinery of an outgrown past. Hence the distinction of stepping clean out of the jungle into the boundless plain of alphabetism (if the reader will tolerate one more change of the figure), the honor of discarding decisively the whole cumbersome apparatus of ideography and syllabism, and retaining only the simple and potent alphabet fell to another people—the Phoenicians—a trading people, shrewd and practical to the last degree, the carriers and colonizers of the ancient world. At an early day these enterprising people had settled along the coast of the Nile delta. They were quick to see that a knowledge of the art of writing would be of immense value to them in their business. They accordingly learned that art from their Egyptian neighbors, but, taught again by their business instinct, they rejected outright the whole useless mass of ideograms, determinatives and syllabic signs, retaining only the alphabet, the priceless flower of that long and complicated growth.

The Greeks called these Egyptian characters *hieroglyphics* (*i. e.* sacred carvings) under the erroneous impression that the knowledge of them was confined to the priests. The hieroglyphics proper were used only on public monuments; for books and business purposes a kind of running hand called “hieratic” was used. It was a modification of the hieroglyphic, in which the characters were so much conventionalized that they bore but little resemblance to the original hieroglyphic pictures. It was from these hieratic forms that the Phoenician letters were derived. When these Phoenician colonists in Egypt carried their priceless acquisition back to their native land, the letters received new names derived from objects to which the

hieratic characters bore a resemblance—names which began with the sounds represented by the letters. For instance, the first letter of the alphabet looked to the Phoenicians like the head of an ox. They therefore called that letter *Aleph*, that being their word for *Ox*. The forms of the letters also underwent gradual change at the hands of the Phoenicians and the other peoples to whom they communicated them, so that, for example, what once looked like the head of an ox



lost that likeness when more rapidly made and when turned round presented the appearance with which we are so familiar as



that of the first letter of the English alphabet A. The second letter looked like a house; they accordingly called it *Beth*, "house." When the Greeks learned their letters from the Phoenicians, they retained these names slightly modified, calling the first *Alpha* and the second *Beta*, the combination of which, as every one knows, gives us our word *Alphabet*.


From this review it is clear that, while the world is chiefly indebted to the genius of the Egyptians and the Phoenicians for that wonderful art which is the medium and instrument of all the sciences, yet the alphabet was not the arbitrary invention of any man or set of men, but rather a slow development through thousands of years, each letter now having its past history stamped upon it as indelibly as the traces of former life are imprinted upon the rocks.

The foregoing survey of the Indian, Chinese, Japanese, Egyptian and Phoenician methods of writing will enable us to understand more clearly certain features of the cuneiform inscriptions which once baffled all investigators.

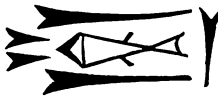
CLAY AS WRITING MATERIAL.

The creators of that marvellous civilization which flourished in Babylonia in the gray dawn of history were an ingenious, thoughtful, literary, religious and peaceable people, of Turanian speech, called Accadians. They early invented a system of picture-writing, painting the pictures first on leaves made of the papyrus which grew in the Euphrates marshes, and afterwards inscribing them upon a cheaper but more durable material, which was found everywhere in unlimited quantity, viz: clay. While still wet, the clay was impressed with the hieroglyphs and then dried in the sun, or, as later by the Assyrians, baked in kilns. But this change of writing material involved an important change in the forms of the characters,

which were now impressed on the soft clay with a square-headed metal stylus. With such paper and such a pen, so to speak, curves and continuous lines were out of the question. The only practicable figure now was a slender wedge, and although by grouping wedges in various positions some semblance of the original pictures was still preserved, it was in many cases very slight. After a while came another and greater change. Many centuries before the time of Abraham, the Semites from whom he was to spring, a rude and warlike race, tempted by the rich plains of Chaldea, swept down sword in hand upon the peaceful and scholarly Accadians and eventually made themselves masters of the situation in a military sense. But they were conquered in their turn by the culture of their vanquished foes, as occurred long afterwards in the case of the fair barbarians from the north who overran Rome. They learned from their gifted subjects not only art and new forms of religion but also letters. As they retained their own language, their adoption of the cuneiform writing involved considerable changes in the system: they formed from the Accadian characters a huge and complicated syllabary. It was a colony of these wedge-writing Semites who afterwards moved up the Tigris and founded the empire of Assyria and reared the great building and wrote the clay books whose ruins we described in the preceding paper. But the cuneiform characters which they continued to use and modify for centuries can still in many cases be traced back to the original picture ideograms of Accadia. For instance, the Assyrian character for "fish" was  in which there is no resemblance to a fish, but in the  "linear" Babylonian, as the most ancient form of Accadian writing is called, we have the form—

 in which we easily recognize the head, body, fins and tail of the fish. In like manner, the Assyrian ideogram for "Nineveh" (the first syllable of which is identical with *nun*, "fish," familiar to many as the name of a

Hebrew letter) was  In the archaic form of this we see the picture  of a house enclosing the

picture of a fish,  a strong suggestion that "imperial Nineveh" implies, merely a collection of huts of fishermen." Compare *Beth-saida*, "house of fish," and *Sidon*.

One other modification of the cuneiform system must be noticed. The Accadians were Turanians, the Assyrians were Semites, but in the time of Darius the cuneiform writing passed to an Aryan people, the Persians, who speedily made from it an alphabet of thirty-six characters.

We have now reached the starting point of those who in our own day have deciphered all varieties of cuneiform writing, by going up the stream which we in this paper have been following down. The Persian cuneiform was first read, and after that the older species, such as Assyrian and Accadian.

PERSEPOLIS.

The magnificence of the ruined palaces of Darius, Xerxes and Artaxerxes at Persepolis have excited the admiration of travellers for centuries, for, unlike the palaces of Assyria which are buried under mountains of rubbish, these stand conspicuous above ground with doors, windows and columns of wonderful beauty in the same position as when first erected. Don Garcia de Silva y Figueroa, Spanish ambassador to Persia in 1619, speaks of the ruined group of buildings as "this rare, yea, and onely monument of the World (which farre exceedeth all the rest of the World's miracles that we have seen or heard of)," and in reference to the inscriptions he says:

"The Letters themselves are neither Chaldean, nor Hebrew, nor Greeke, nor Arabike, nor of any other Nation which was ever found of old, or at this day to be extant. They are all three-cornered, but somewhat long, of the forme of a Pyramide, or such a little Obeliske as I have set in the margin; so that in nothing do they differ from one another but in their placing and situation, yet so conformed that they are wondrous plaine, distinct, and perspicuous."

The Persians themselves were not agreed as to the origin of the ruins; in one history it is stated that they are not the work of men but the monument of a terrible divine judgment:

"The people of Istakhar were very wicked, and the Almighty turned them into stone; so that even now we may behold there the forms of women reposing with their husbands, of butchers cutting meat into pieces, of infants in their cradles, of bread in ovens, and of many other things, all become marble."

DECIPHERMENT OF PERSIAN CUNEIFORM.

A few copies of small portions of the inscriptions at Persepolis having reached Europe in the latter part of the 17th century, various opinions were put forth as to their meaning. The learned Dr. Hyde, Regius Professor of Hebrew and Lau-

dian Professor of Arabic at Oxford, published his view as follows :

“There are some who think it necessary to suppose that these pyramidal figures express letters, of which words are composed. In my opinion, however, they are not letters, and were not intended for letters; but they were engraved *simply for the sake of ornament*, by a mere whim of the original architect of the palace when it was first erected, which induced him to try how many different figures he could compose by arranging strokes of the same form in a variety of positions.”

And a century later, “on the eve of the actual decipherment of the inscriptions,” Samuel Witte, a professor in the University of Rostock, expressed the opinion that the wedge characters at Persepolis were simply pictures of various funnel-shaped flowers, such as the morning-glory and the tobacco-blossom.

In 1765 the Danish traveller, Carsten Niebuhr, while studying the inscriptions at Persepolis, discovered that they were drawn up in three different kinds of cuneiform writing, and as the three were always placed side by side, it was evident that they represented three versions of the same text in three different languages.

“The subjects of the Persian kings belonged to more than one race, and just as in the present day a Turkish pasha in the East has to publish an edict in Turkish, Arabic, and Persian, if it is to be understood by all the populations under his charge, so the Persian kings were obliged to use the language and system of writing peculiar to each of the nations they governed, whenever they wished their proclamations to be read and understood by them. It was clear that the three versions of the Achaemenian inscriptions were addressed to the three chief populations of the Persian Empire, and that the one which invariably came first was composed in ancient Persian, the language of the sovereign himself.” (A. H. Sayce). Niebuhr was the first to send back to Europe accurate copies of the Persepolitan inscriptions. These were the copies used by Niebuhr's countryman, Dr. Frederick Munter, of Copenhagen, who in 1800 made the next real advance towards decipherment by discovering that in the Persian cuneiform the words were divided from one another by a slanting wedge. Some words contained so many characters as to leave no doubt that these characters denoted letters and not syllables. Moreover, the number of distinct characters did not exceed forty. The Persian system therefore was evidently an alphabet and not a syllabary. That the inscriptions were to be read from left to right had already been inferred from the fact that when the wedge was vertical the broad end was always at the top and when horizontal always at the left hand, and confirmed by the fact that the ends of all the lines on the left were exactly under one another (i. e. the first word of each line was directly under the first word of the preceding line), whereas on the right the lines termina-

ted unevenly. Munter further conjectured that a certain group of signs which recurred frequently meant "king." These were all steps in the right direction. But, after all, none of these discoveries shed a single ray of light on the meaning of the mysterious inscriptions.

A BRILLIANT GUESS.

The man who first found a real clue to the meaning was *George Frederick Grotefend*, the son of a German shoemaker. The feat which made him immortal was performed in 1802, while he was a teacher in the gymnasium at Gottingen. Taking two of the short trilingual inscriptions which Niebuhr had found at Persepolis over the sculptured figures of kings, he began like the others with the first and simplest of the three versions. Munter's word for "king" occurred repeatedly, and Grotefend noticed that the inscriptions generally began with three or four words, one of which varied, while this word for "king" and one or two others remained unchanged. He inferred that the variable word was the proper name of a particular king and the invariable words were the royal titles common to all, and that there was a genealogical relation between the names. He knew from other sources that the Persian monarchs of the Sassanian period (A. D. 227-641) used in their inscriptions a formula like this :

"X, the great king, the king of kings, the king of Iran and Aniran, son of Y, the great king."

Moreover, he knew that some of the monuments at Persepolis had been erected by the Achaemenian kings—Darius, the son of Hystaspes, and his successors, and as this dynasty contained but few names, his range of choice was not great. Representing approximately the meaning of his inscription thus—

X, the great king, the king of kings, son of Y, the king Y, the great king, the king of kings, son of Z.

The question was what names should be read for X and Y. *Cyrus* and *Cambyses* would not do, for they began with the same letter, whereas the names of the father and son in the inscription (Y and X) did not ; and besides *Cyrus* seemed too short for the number of characters in either X or Y. *Artaxerxes* seemed too long. Only *Darius* and *Xerxes* were left. Tentatively, then, he gave to the characters composing Y the values required for spelling "Darius" in its old Persian form, and to those composing X the values required for "Xerxes," and read—

Xerxes, the great king, the king of kings, son of Darius, the king.

Darius, the great king, the king of kings, son of Hystaspes.

If this conjecture was right, the Cuneiform character representing *r* in "Xerxes" should be the same as the third letter in "Darius." *It was.* This convinced Grotefend that he was on the right track. Moreover, the fact that the Cuneiform group for "king" did not follow the last name was in accordance with the statement of the Greek historians that Hystaspes, the father of Darius was not of royal rank. Still further confirmation was afforded by a name which he guessed to be "Artaxerxes" from the resemblance of the latter part of it to "Xerxes"—and to his delight he found that the second letter in "Artaxerxes" was the one to which he had assigned the value of *r*. In this way Grotefend determined the sound-equivalents of twelve letters. He himself did little more towards a complete decipherment, and indeed he fell into certain errors that prevented his further progress. But that he really had found the key to the mysterious inscriptions was placed beyond doubt in a variety of ways as the years went by. For instance, in 1822 (just after Champollion had discovered the principle of the hieroglyphic writing of Egypt), on an alabaster vase which had been brought from Egypt to Paris, and which contained a short inscription in hieroglyphics and in the three kinds of Cuneiform characters found at Persepolis, Champollion and the Abbe Saint-Martin read the name of "Xerxes" in the Egyptian and found that the name in the first species of Cuneiform was the same that Grotefend had read as "Xerxes" in his Persepolitan text. That is to say, the name of Xerxes was inscribed upon the vase in the two forms of writing that were in use in Egypt and in Persia during his reign. Thus the discovery of Champollion confirmed that of Grotefend.

The reader will perhaps recall the important part played by proper names in Champollion's decipherment of the Egyptian hieroglyphics. We have now seen that in Grotefend's decipherment of the cuneiform writing also, proper names afforded invaluable help. In like manner, the next great advance after Grotefend was made by means of proper names. Prof. Lassen, of Bonn, (1836), taking the twelve letters discovered by Grotefend, and working on an inscription from a sculptured staircase at Persepolis, the figures of which represented

the peoples who came to pay tribute to the King of Persia, while the inscription presumably gave their geographical appellations, and comparing with these names the lists of nations subject to Persia as given by Herodotus and Strabo, succeeded in determining the phonetic value of nearly all the letters not yet correctly deciphered by Grotefend.

In the meantime the interpretation of Zend (the language in which the sacred books of Persia were written), which had been begun by Anquetil-Duperron in the latter part of the 18th century, had been making great progress and culminated in the masterly treatise of Eugene Burnouf (1836). This sacred language of the Parsees was very much like the old Persian of the time of Darius and Xerxes, though written in different characters. By the aid then of the Zend and the cognate Sanscrit the Persian cuneiform was not only deciphered and pronounced but also translated. While these results were being reached by Lassen and Burnouf, Col. Henry Rawlinson, of England, "the father of Assyriology," then on duty in Persia, working independently on certain cuneiform tablets, had also identified the names of Hystaspes, Darius and Xerxes. He first became acquainted with the work of his predecessors in the spring of 1836, but found that he was already farther advanced than Grotefend. In 1837, he succeeded in securing a copy of a large part of the great trilingual inscription of Darius on the rock of Behistun which springs almost perpendicularly from the plain to an altitude of 1700 feet. On the face of this rock, at an elevation of 300 feet, Darius had caused his own image to be carved. Standing before him are the sculptured figures of ten captives, nine of whom are tied together by a rope round their necks while he tramples the tenth beneath his feet. The inscription, like those at Persepolis, consisted of three species of cuneiform script side by side, which are now known to be the Persian, Median and Babylonian (or Assyrian) versions of the same text and which thus published the royal edict to the principal nations and languages of the empire. It is a long inscription and when completely copied it gave much additional material of great value not only for the enlargement and confirmation of the work on Persian cuneiform, but also for the next great forward step, viz: The decipherment of the second and third species. We may as well dismiss the second species (Median) from further consideration, as it proved to have less literary and his-

torical value than either of the other two, and confine ourselves henceforth to the third.

DECIPHERMENT OF ASSYRIAN CUNEIFORM.

Dr. Hincks, of Dublin, was the first to discover that, unlike the Persian, the Assyrian writing was not alphabetic but syllabic, that is, the characters expressed not elemental sounds, but whole syllables. To Sir Henry Rawlinson, however, belongs the honor of achieving the actual decipherment of it. "He was the first to make the discovery of an inscription of any length and importance, and he was the first to translate an Assyrian inscription." The chief help to the decipherment consisted of a large number of proper names, more than eighty in all, the true pronunciation of which was fixed by the Persian orthography in the duplicate column. Thus was determined the phonetic value of a large number of Assyrian characters, and, when other words composed of these characters were pronounced, it was discovered that they resembled closely certain Hebrew words found in the Old Testament, and so it was demonstrated that the language was Semitic.

It may be supposed by some that the progress of decipherment and translation from that point would have been easy and rapid, but it was not. On the contrary it was slow and exceedingly laborious. The difficulties were immense: The words were not separated from one another as in Persian; the characters of which they were composed, being syllabic and not alphabetic, were very numerous; there was a confusing mixture of ideograms and phonograms; there were numerous allophones, that is, characters that could be pronounced in several different ways. These and other complications of the Assyrian system made it extremely hard to read. But the patience and skill of the decipherers finally triumphed, supplemented as they were by the good providence of God.

For shortly after these great difficulties were encountered, Botta and Layard unearthed in Assyria the ruins described in our last paper. Had there been no other inscriptions save those found at Persepolis and Behistun and even those engraved on the alabaster bulls and wall facings of Nineveh, we should still have been far short of a satisfactory ascertainment of their meaning. But, fortunately, the Assyrians had written a great many terra-cotta books, or clay tablets, and had stored vast numbers of them in their royal libraries. One of the most

important results ever achieved in Assyrian exploration was the discovery by Rassam (1852-54) of the great "Library of Asurbanipal" at Koyunjik—thousands of broken clay tablets closely written with cuneiform characters. Besides a great mass of historical and commercial documents, prayers, poems and stories, of which we shall speak more particularly after a while, this library contained lists of Assyrian characters with their various phonetic and ideographic meanings, also inter-linear or parallel translations of Accadian works into Assyrian, and even reading books, dictionaries and grammars, in which the Accadian original and the Assyrian equivalent are placed side by side. Evidently the Assyrians, who, as we have seen, had learned the art of writing from the conquered Accadians, prized highly the Accadian literature and made their boys study it with grammar and lexicon long after the Accadian had become a dead language, just as we make boys study Latin and Greek. Whatever the Assyrian boys may have thought of them, it is certain that their bilingual school-books have been of untold service to the scholars of our day in fixing the meaning of many Assyrian words and in recovering the long-forgotten Accadian language. And so, by the help of the ample materials found in the ruins of Assyria and Babylonia, and through the labors of various scholars in Europe, the mysterious inscriptions yielded up their secrets and the modern world was admitted to the knowledge of a body of literature which is already much larger than that contained in the whole of the Hebrew Scriptures, and which is still growing constantly and rapidly as the work of exploration and decipherment proceeds.

But, some one may say, in view of this long and thorny road travelled by the decipherers, in view of the enormous difficulties encountered at every step of their progress, can we rely upon the results which they profess to have achieved? And we shall perhaps be reminded of the fact that at the beginning of the present century Lichtenstein put forth with great confidence a translation of an inscription found on a polished piece of gray marble, which, as we now know, did not have the remotest connection with the real subject of the inscription and was in fact a ludicrous fiasco. He said that the *Caillou Michaux*, as the gray stone is called, "Contains a discourse addressed by the priest of the temple of the god of death to the women, attired in mourning garments, who assembled on the

day of commemoration of all souls at the tombs of their departed relations. in order to give themselves up to transports of grief; he exhorts them in this discourse to moderate their sorrow, to await with confidence the consolations of the deity, to cultivate purity of conduct, and to occupy themselves with their household duties."

It is now agreed by all Assyriologists that this monument, out of which Lichtenstein extracted so much good advice for sorrowing women, is simply a boundary stone, containing a legal conveyance of land. What assurance have we that other decipherers are not as wide of the mark in their translations as he was in his?

THE ROYAL ASIATIC SOCIETY'S TEST.

In 1857, when there were still many doubters concerning the ability of epigraphists to translate correctly the wedge-writing of Assyria, four clay cylinders, each a foot and a half high, were discovered in the four corner chambers of an exhumed temple on the Tigris. When they reached the British Museum it was seen that they all bore the same inscription, and, as it was an unusually long one, comprising 800 lines, the Royal Asiatic Society determined to test the science of the decipherers by proposing that prominent Assyriologists should make independent translations of this unpublished text and send the results of their work to the secretary of the society in sealed packets which were to be opened on the same day before a commission. This proposal was made public in March and was accepted by Sir Henry Rawlinson, Mr. Fox Talbot, Monsieur J. Oppert, and Dr. Hincks. On the 25th of May the four manuscripts were opened and compared, and their agreement silenced forever all skepticism as to the correctness of the general results of cuneiform investigation. Hundreds of other tests, even more decisive but less easy to describe, have been afforded as the work progressed. It is not now doubted by any scholar in the world that an Assyrian tablet can be translated with as much certainty as a page of the Hebrew Bible. The work has been carried on by such men as Norris, Schrader, Sayce, Friedrich Delitzsch and a multitude of younger men whose enthusiasm, patience and scholarship are daily adding to our stock of knowledge concerning these contemporaries and conquerors of the ancient Hebrews. What the terra-cotta books contain and what they have to say about the contents of Scripture we shall try to make known in the next number.