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CHALDEA

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CHAPTER IV. LANGUAGE AND WRITING.

It was noted in the preceding chapter that Chaldaea, in the earliest times to which we can go back, seems to have been inhabited by four principal tribes. The early kings are continually represented on the monuments as sovereigns over the Kiprat-arbat, or, Four Races. These "Four Races" are called sometimes the Arba Lisun, or "Four Tongues," whence we may conclude that they were distinguished from one another, among other differences, by a variety in their forms of speech. The extent and nature of the variety could not, of course, be determined merely from this expression; but the opinion of those who have most closely studied the subject appears to be that the differences were great and marked--the languages in fact belonging to the four great varieties of human speech--Hamitic, Semitic, Arian, and Turanian.

The language which the early inscriptions have revealed to us is not, of course, composed equally of these four elements. It does, however, contain strong marks of admixture. It is predominantly Cushite in its vocabulary, Turanian in its structure. Its closest analogies are with such dialects as the _Mahra_ of Arabia, the _Galla_ and _Wolaita_ of Abyssinia, and the ancient language of Egypt, but in certain cases it more resembles the Turkish. Tatar, and Magyar (Turanian) dialects; while in some it presents Semitic and in others Arian affinities. This will appear sufficiently from the following list:

Dingir, or Dimir, "God." Compare Turkish _Tengri_. _Atta_, "father." Compare Turkish _atta_. _Etea_ is "father" in the Wolaita (Abyssinian) dialect. _Sis_, "brother." Compare Wolaita and Woratta _isha_. _Tur_, "a youth," "a son," Compare the _tur-khan_ of the Parthians (Turanians), who was the Crown Prince. _E_, "a house." Compare ancient Egyptian _e_, and Turkish _ev_. _Ka_, "a gate." Compare Turkish _kapi_. _Kharran_, "a road." Compare Galla _kara_. _Huru_, "a town." Compare Heb. [--] _Ar_, "a river." Compare Heb. [--], Arab. _nahr_. _Gabri_, "a mountain." Compare Arabic _jabal_. _Ki_, "the earth." _Kingi_, "a country." _San_, "the sun." _Kha_, "a fish" (?). _Kurra_, "a horse." Compare Arabic _gurra_. _Guski_, "gold." Compare Galla _irerke_. _Guski_ means also "red" and "the evening." _Babar_, "silver," "white," "the morning." Compare Agau _ber_, Tigre _burrur_. _Zabar_, "copper." Compare Arabic _sifr_. _Hurud_, "iron." Compare Arabic _hadid_. _Zakad_, "the head." Compare Gonga _toko_. _Kat_, "the hand." Compare Gonga _kiso_. _Si_, "the eye." _Pi_, "the ear." Compare Magyar _ful_. _Gula_, "great." Compare Galla _guda_. _Tura_, "little." Compare Gonga _tu_ and Galla _tina_. _Kelga_, "powerful." _Ginn_, "first." _Mis_, "many." Compare Agau _minch_ or _mench_. _Gar_, "to do." _Egir_, "after." Compare Hhamara (Abyssinian) _igria_.

The grammar of this language is still but very little known. The conjugations of verbs are said to be very intricate and difficult, a great variety of verbal forms being from the same root as in Hebrew, by means of preformatives. Number and person in the verbs are marked by suffixes--the third person singular (masculine) by _bi_ (compare Gonga _bi_, "he"), or _ani_ (compare Galla _enni_, "he"), the third person plural by _bi-nini_.

The accusative case in nouns is marked by a postposition, _ku_, as in Hindustani. The plural of pronouns and substantives is formed sometimes by reduplication. Thus _ni_ is "him," while _nini_ is "them;" and

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Chanaan, Yavnan, Libnan seem to be plural forms from _Chna, Yavan_ and _Liban_.

A curious anomaly occurs in the declension of pronouns.' When accompanied by the preposition kita, "with," there is a tmesis of the preposition, and the pronouns are placed between its first and second syllable; e.g. vi, him"-ki-ni-ta, "with him." This takes place in every number and person, as the following scheme will show:--

1st person. 2d person. 3d person.

Sing. _ki-mu-ta_ _ki-zu-ta_ _ki-ni-ta_
(with me) (with thee) (with him)

Plur. _ki mi-ta_ _ki zu-nini-ta_ _ki-nini-ta_
(with us) (with you) (with them)

N. B.--The formation of the second person plural deserves attention. The word _zu-nini_ is, clearly, composed of the two elements, _zu_, "thee," and _nini_, "them"--so that instead of having a word for "you," the Chaldaeans employed for it the periphrasis "thee-them"! There is, I believe, no known language which presents a parallel anomaly.

Such are the chief known features of this interesting but difficult form of speech. A specimen may now be given of the mode in which it was written. Among the earliest of the monuments hitherto discovered are a set of bricks bearing the following cuneiform inscription [PLATE VI., Fig. 3]:

This inscription is explained to mean:-- "Beltis, his lady, has caused Uruk (?), the pious chief, King of Hur, and King of the land (?) of the Akkad, to build a temple to her." In the same locality where it occurs, bricks are also found bearing evidently the same inscription, but written in a different manner. Instead of the wedge and arrow-head being the elements of the writing, the whole is formed by straight lines of almost uniform thickness, and the impression seems to have been made by a single stamp. [PLATE VII., Fig. 1.]

This mode of writing, which has been called without much reason "the hieratic," and of which we have but a small number of instances, has confirmed a conjecture, originally suggested by the early cuneiform writing itself, that the characters were at first the pictures of objects. In some cases the pictorial representation is very plain and palpable.

[Etext Editor's Note: the next two pages contain many examples of hieratic symbols [--] which can be seen only in the html file or the jpg image <page0044.jpg>]

For instance, the "determinative" of a god--the sign that is, which marks that the name of a god is about to follow, in this early rectilinear writing is [--] an eight-rayed star. The archaic cuneiform keeps closely to this type, merely changing the lines into wedges, thus [--], while the later cuneiform first unites the oblique wedges in one [--], and then omits them as unnecessary, retaining only the perpendicular and the horizontal ones [--]. Again, the character representing the word "hand" is, in the rectilinear writing [--], in the archaic cuneiform [--], in the later cuneiform [--]. The five lines (afterwards reduced to four) clearly represent the thumb and the four fingers. So the character ordinarily representing "a house" is evidently formed from the original --, the ground-plan of a house; and that denoting "the sun" [--], comes from [--], through [--], and [--], the original [--] being the best representation that straight lines could give of the sun. In the case of _ka_, "a gate," we have not the original design; but we may see posts, bars, and hinges in [--], the ordinary character.

Another curious example of the pictorial origin of the letters is furnished by the character [--], which is the French _une_, the feminine of "one." This character may be traced up through several known forms to an original picture, which is thus given on a Koyunjik tablet [--]. It has been conjectured that the object here represented is "a sarcophagus." But the true account seems to

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be that it is a _double-toothed comb,_ a toilet article peculiar to women, and therefore one which might well be taken to express "a woman," or more generally the feminine gender. It is worth notice that the emblem is the very one still in use among the Lurs, in the mountains overhanging Babylonia. And it is further remarkable that the phonetic power of the character here spoken of is _it_ (or _yat_)the ordinary Semitic feminine ending.

The original writing, it would therefore seem, was a picture-writing as rude as that of the Mexicans. Objects were themselves represented, but coarsely and grotesquely--and, which is especially remarkable, without any curved lines. This would seem to indicate that the system grew up where a hard material, probably stone, was alone used. The cuneiform writing arose when clay took the place of stone as a material. A small tool with a square or triangular point, impressed, by a series of distinct touches, the outline of the old pictured objects on the soft clay of tablets and bricks. In course of time simplifications took place. The less important wedges were omitted. One stroke took the place of two, or sometimes of three. In this way the old form of objects became, in all but a few cases, very indistinct; while generally it was lost altogether.

Originally each character had, it would seem, the phonetic power of the name borne by the object which it represented. But, as this namee was different in the languages of the different tribes inhabiting the country, the same character came often to have several distinct phonetic values. For instance, the character [-] representing "a house," had the phonetic values of _e, bit,_ and _mal,_ because those were the words expressive of "a house," among the Hamitic, Semitic, and Arian populations respectively. Again, characters did not always retain their original phonetic powers, but abbreviated them. Thus the character which originally stood for _Assur,_ "Assyria," came to have the sound of _as,_ that denoting _bil,_ "a lord," had in addition the

sound of _bi,_ and so on. Under these circumstances it is almost impossible to feel any certainty in regard to the phonetic representation of a single line of these old inscriptions. The meaning of each word may be well known; but the articulate sounds which were in the old times attached to them may be matter almost of conjecture.

The Chaldaean characters are of three kinds--letters proper, monograms, and determinatives. With regard to the letters proper, there is nothing particular to remark, except that they have almost always a syllabic force. The monograms represent in a brief way, by a wedge or a group of wedges, an entire word, often of two or three syllables, as Nebo, Babil, Merodach, etc. The determinatives mark that the word which they accompany is a word of a certain class, as a god, a man, a country, a town, etc. These last, it is probable, were not sounded at all when the word was read. They served, in some degree, the purpose of our capital letters, in the middle of sentences, but gave more exact notice of the nature of the coming word. Curiously enough, they are retained sometimes, where the word which they accompany has merely its phonetic power, as (generally) when the names of gods form a part of the names of monarchs.

It has been noticed already that the chief material on which the ancient Chaldaeans wrote was moist clay, in the two forms of tablets and bricks. On bricks are found only royal inscriptions, having reference to the building in which the bricks were used, commonly designating its purpose, and giving the name and titles of the-monarch who erected it. The inscription does not occupy the whole brick, but a square or rectangular space towards its centre. It is in some cases stamped, in some impressed with a tool. The writing--as in all cuneiform inscriptions, excepting those upon seals--is from left to right, and the lines are carefully separated from one another. Some specimens have been already given.

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The tablets of the Chaldaeans are among the most remarkable of their remains, and will probably one day throw great additional light on the manners and customs, the religion, and even, perhaps, the science and learning, of the people. They are small pieces of clay, somewhat rudely shaped into a form resembling a pillow, and thickly inscribed with cuneiform characters, which are sometimes accompanied by impressions of the cylindrical seals so common in the museums of Europe. The seals are rolled across the body of the document, as in the accompanying figure. [PLATE VII., Fig. 2.] Except where these impressions occur, the clay is commonly covered on both sides with minute writing. What is most curious, however, is that the documents thus duly attested have in general been enveloped, after they were baked, in a cover of moist clay, upon which their contents have been again inscribed, so as to present externally a duplicate of the writing within; and the tablet in its cover has then been baked afresh. That this was the process employed is evident from the fact that the inner side of the envelope bears a cast, in relief, of the inscription beneath it. Probably the object in view was greater security--that if the external cover became illegible, or was tampered with, there might be a means of proving beyond a doubt what the document actually contained. The tablets in question have in a considerable number of cases been deciphered; they are for the most part deeds, contracts, or engagements, entered into by private persons and preserved among the archives of families. Besides their writings on clay, the Chaldaeans were in the habit, from very early times, of engraving inscriptions on gems. The signet cylinder of a very ancient king exhibits that archaic formation of letters which has been already noted as appearing upon some of the earliest bricks. [PLATE VII., Fig. 3.] That it belongs to the same period is evident, not only from the resemblance of the literal type, but from the fact that the same king's name appears upon both. This signet inscription--

so far as it has been hitherto deciphered--is read as follows:--"The signet of Uruk, the pious chief, king of Ur, . . . High-Priest (?) of . . . Niffer." Another similar relic, belonging to a son of this monarch, has the inscription, "To the manifestation of Nergal, king of Bit-Zida, of Zurgulla, for the saving of the life of Ilgi, the powerful hero, the king of Ur, . . . son of Uruk . . . May his name be preserved." A third signet, which belongs to a later king in the series, bears the following legend: "--sin, the powerful chief, the king of Ur, the king of the Kiprat-arbat (or four races) . . . his seal." The cylinders, however, of this period are more usually without inscriptions, being often plain, and often engraved with figures, but without a legend.

CHAPTER V. ARTS AND SCIENCES.

"Chaldaei cognitione astrorum sollertiaque ingeniorum antecellunt." Cic. *de Div.* i. 41.

Among the arts which the first Ethiopic settlers on the shores of the Persian Gulf either brought with them from their former homes, or very early invented in their new abode, must undoubtedly have been the two whereby they were especially characterized in the time of their greatest power--architecture and agriculture. Chaldea is not a country disposing men to nomadic habits. The productive powers of the soil would at once obtrude themselves on the notice of the new comers, and would tempt to cultivation and permanency of residence. If the immigrants came by sea, and settled first in the tract immediately bordering upon the gulf, as seems to have been the notion of Berosus, their earliest abodes may have been of that simple character which can even now be witnessed in the Affej and Montefik marshes--that is to say, reed cabins, supported by the tall stems of the growing plants bent into arches, and walled with mats composed of flags or sedge. Houses of this description last for forty or fifty years and would satisfy the ideas of a primitive race. When greater permanency began to be required, palm-beams might take the place of

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the reed supports, and wattles plastered with mud that of the rush mats; in this way habitations would soon be produced quite equal to those in which the bulk of mankind reside, even at the present day.

In process of time however, a fresh want would be felt. Architecture, as has been well observed, has its origin, not in nature only, but in religion. The common worship of God requires temples; and it is soon desired to give to these sacred edifices a grandeur, a dignity, and a permanency corresponding to the nature of the Being worshipped in them. Hence in most countries recourse is had to stone, as the material of greatest strength and durability; and by its means buildings are raised which seem almost to reach the heaven whereof they witness. In Babylonia, as it has been already observed, this material was entirely wanting. Nowhere within the limits of the alluvium was a quarry to be found; and though at no very great distance, on the Arabian border, a coarse sandstone might have been obtained, yet in primitive times, before many canals were made, the difficulty of transporting this weighty substance across the soft and oozy soil of the plain would necessarily have prevented its adoption generally, or, indeed, anywhere, except in the immediate vicinity of the rocky region. Accordingly we find that stone was never adopted in Babylonia as a building material, except to an extremely small extent; and that the natives were forced, in its default, to seek for the grand edifices, which they desired to build, a different substance.

The earliest traditions, and the existing remains of the earliest buildings, alike inform us that the material adopted was brick. An excellent clay is readily procurable in all parts of the alluvium; and this, when merely exposed to the intense heat of an Eastern sun for a sufficient period, or still more when kiln-dried, constitutes a very tolerable substitute for the stone employed by most nations. The baked bricks, even of the earliest times, are still sound and hard; while the sun-dried

bricks, though they have often crumbled to dust or blended together in one solid earthen mass, yet sometimes retain their shape and original character almost unchanged, and offer a stubborn resistance to the excavator. In the most ancient of the Chaldaean edifices we occasionally find, as in the Bowariyeh ruin at Warka, the entire structure composed of the inferior material; but the more ordinary practice is to construct the mass of the building in this way, and then to cover it completely with a facing of burnt brick, which sometimes extends to as much as ten feet in thickness. The burnt brick was thus made to protect the unburnt from the influence of the weather, while labor and fuel--were greatly economized by the employment to so large an extent of the natural substance. The size and color of the bricks vary. The general shape is square, or nearly so, while the thickness is, to modern ideas, disproportionately small; it is not, however, so small as in the bricks of the Romans. The earliest of the baked bricks hitherto discovered in Chaldaea are 11 1/4 inches square, and 2 1/2 inches thick, while the Roman are often 15 inches square, and only an inch and a quarter thick. The baked bricks of later date are of larger size than the earlier; they are commonly about 13 inches square, with a thickness of three inches. The best quality of baked brick is of a yellowish-white tint, and very much resembles our Stourbridge or fire brick; another kind, extremely hard, but brittle, is of a blackish blue; a third, the coarsest of all, is slack-dried, and of a pale red. The earliest baked bricks are of this last color. The sun-dried bricks have even more variety of size than the baked ones. They are sometimes as large as 16 inches square and seven inches thick, sometimes as small as six inches square by two thick. Occasionally, though not very often, bricks are found differing altogether in shape from those above described, being formed for special purposes. Of this kind are the triangular bricks used at the corners of walls, intended to give greater regularity to the angles than would otherwise be attained;

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and the wedge-shaped bricks, formed to be employed in arches, which were known and used by this primitive people.

The modes of applying these materials to building purposes were various. Sometimes the crude and the burnt brick were used in alternate layers, each layer being several feet in thickness; more commonly the crude brick was used (as already noticed) for the internal parts of the building, and a facing of burnt brick protected the whole from the weather. Occasionally the mass of an edifice was composed entirely of crude brick; but in such cases special precautions had to be taken to secure the stability of this comparatively frail material. In the first place, at intervals of four or five feet, a thick layer of reed matting was interposed along the whole extent of the building, which appears to have been intended to protect the earthy mass from disintegration, by its protection beyond the rest of the external surface. The readers of Herodotus are familiar with this feature, which (according to him) occurred in the massive walls whereby Babylon was surrounded. If this was really the case, we may conclude that those walls were not composed of burnt brick, as he imagined, but of the sun-dried material. Reeds were never employed in buildings composed of burnt brick, being useless in such cases; where their impression is found, as not unfrequently happens, on bricks of this kind, the brick has been laid upon reed matting when in a soft state, and afterwards submitted to the action of fire. In edifices of crude brick, the reeds were no doubt of great service, and have enabled some buildings of the kind to endure to the present day. They are very strikingly conspicuous where they occur, since they stripe the whole building with continuous horizontal lines, having at a distance somewhat the effect of the courses of dark marble in an Italian structure of the Byzantine period.

Another characteristic of the edifices in which crude brick is thus largely employed, is the

addition externally of solid and massive buttresses of the burnt material. These buttresses have sometimes a very considerable projection; they are broad, but not high, extending less than half way up the walls against which they are placed.

Two kinds of cement are used in the early structures. One is a coarse clay or mud, which is sometimes mixed with chopped straw; the other is bitumen. This last is of an excellent quality, and the bricks which it unites adhere often so firmly together that they can with difficulty be separated. As a general rule, in the early buildings, the crude brick is laid in mud, while the bitumen is used to cement together the burnt bricks.

These general remarks will receive their best illustration from a detailed description of the principal early edifices which recent researches in Lower Mesopotamia have revealed to us. These are for the most part temples; but in one or two cases the edifice explored is thought to have been a residence, so that the domestic architecture of the period may be regarded as known to us, at least in some degree. The temples most carefully examined hitherto are those at Warka, Mugheir, and Abu-Shahreïn, the first of which was explored by Mr. Loftus in 1854, the second by Mr. Taylor in the same year, and the third by the same traveller in 1855. The Warka ruin is called by the natives Bowariyeh, which signifies "reed mats," in allusion to a peculiarity, already noticed, in its construction. [PLATE VIII., Fig. 1.] It is at once the most central and the loftiest ruin in the place. At first sight it appears to have been a cone or pyramid; but further examination proves that it was in reality a tower, 200 feet square at the base, built in two stories, the lower story being composed entirely of sun-dried bricks laid in mud, and protected at intervals of four or five feet by layers of reeds, while the upper one was composed of the same material, faced with burnt brick. Of the upper stage very little remains; and this little is of a later date than

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the inferior story, which bears marks of a very high antiquity. The sundried bricks whereof the lower story is composed are "rudely moulded of very incoherent earth, mixed with fragments of pottery and fresh-water shells," and vary in size and shape, being sometimes square, seven inches each way; sometimes oblong, nine inches by seven, and from three to three and a half inches thick. The whole present height of the building is estimated at 100 feet above the level of the plain. Its summit, except where some slight remains of the second story constitute an interruption, is "perfectly flat," and probably continues very much in the condition in which it was when the lower stage was first built. This stage, being built of crude brick, was necessarily weak; it is therefore supported by four massive buttresses of baked brick, each placed exactly in the centre of one of the sides, and carried to about one-third of the height. Each buttress is nineteen feet high, six feet one inch wide, and seven and a half feet in depth; and each is divided down the middle by a receding space, one foot nine inches in width. All the bricks composing the buttresses are inscribed, and are very firmly cemented together with bitumen, in thick layers. The buttresses were entirely hidden under the mass of rubbish which had fallen from the building, chiefly from the upper story, and only became apparent when Mr. Loftus made his excavations.

It is impossible to reconstruct the Bowariyeh ruin from the facts and measurements hitherto supplied to us even the height of the first story is at present uncertain; and we have no means of so much as conjecturing the height of the second. The exact emplacement of the second upon the first is also doubtful, while the original mode of access is undiscovered; and thus the plan of the building is in many respects still defective. We only know that it was a square; that it had two stories at the least; and that its entire height above the plain considerably exceeded 100 feet. The temple at Mugheir has been

more accurately examined. [PLATE VIII., Fig. 2.] On a mound or platform of some size, raised about twenty feet above the level of the plain, there stands a rectangular edifice, consisting at present of two stories, both of them ruined in parts, and buried to a considerable extent in piles of rubbish composed of their debris. The angles of the building exactly face the four cardinal points. It is not a square, but a parallelogram, having two longer and two shorter sides. [PLATE IX., Fig. 1.] The longer sides front to the north-east and south-west respectively, and measure 198 feet; while the shorter sides, which face the north-west and south-east, measure 133 feet. The present height of the basement story is 27 feet; but, allowing for the concealment of the lower part by the rubbish, and the destruction of the upper part by the hand of time, we may presume that the original height was little, if at all, short of 40 feet. The interior of this story is built of crude or sun-dried bricks of small size, laid in bitumen; but it is faced through out with a wall, ten feet in thickness, composed of red kiln dried bricks, likewise cemented with bitumen. This external wall is at once strengthened and diversified to the eye by a number of shallow buttresses or pilasters in the same material; of these there are nine, including the corner ones, on the longer, and six on the shorter sides. The width of the buttresses is eight feet, and their projection a little more than a foot. The walls and buttresses alike slope inwards at an angle of nine degrees. On the north-eastern side of the building there is a staircase nine feet wide, with sides or balustrades three feet wide, which leads up from the platform to the top of the first story. It has also been conjectured that there was a second or grand staircase on the south-east face, equal in width to the second story of the building, and thus occupying nearly the whole breadth of the structure on that side. A number of narrow slits or air-holes are carried through the building from side to side; they penetrate alike the walls and buttresses, and must have

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tended to preserve the dryness of the structure. The second story is, like the first, a parallelogram, and not of very different proportions. Its longer sides measure 119 feet, and its shorter ones 75 feet at the base. Its emplacement upon the first story is exact as respects the angles, but not central as regards the four sides. While it is removed from the south-eastern edge a distance of 47 feet, from the northwestern it is distant only 30 feet. From the two remaining sides its distance is apparently about 28 feet. The present height of the second story, including the rubbish upon its top, is 19 feet; but we may reasonably suppose that the original height was much greater. The material of which its inner structure is composed, seems to be chiefly (or wholly) partially-burnt brick, of a light red color, laid in a cement composed of lime and ashes. This central mass is faced with kiln-dried bricks of large size and excellent quality, also laid, except on the north-west face, in lime mortar. No buttresses and no staircase are traceable on this story; though it is possible that on the south-east side the grand staircase may have run the whole height of both stories.

According to information received by Mr. Taylor from the Arabs of the vicinity, there existed, less than half a century ago, some remains of a third story, on the summit of the rubbish which now crowns the second. This building is described as a room or chamber, and was probably the actual shrine of the god in whose honor the whole structure was erected. Mr. Taylor discovered a number of bricks or tiles glazed with a blue enamel, and also a number of large copper nails, at such a height in the rubbish which covers up much of the second story, that he thinks they could only have come from this upper chamber. The analogy of later Babylonian buildings, as of the Birs-Nimrud and the temple of Belus at Babylon confirms this view, and makes it probable that the early Chaldaean temple was a building in three stages, of which the first and second were solid masses of brickwork, ascended by steps on the outside, while the

third was a small house or chamber highly ornamented, containing the image and shrine of the god. [PLATE IX., Fig. 2.]

In conclusion, it must be observed that only the lower story of the Mugheir temple exhibits the workmanship of the old or Chaldaean period. Clay cylinders found in the upper story inform us that in its present condition this story is the work of Nabonidus, the last of the Babylonian kings; and most of its bricks bear his stamp. Some, however, have the stamp of the same monarch who built the lower story and this is sufficient to show that the two stories are a part of the original design, and therefore that the idea of building in stages belongs to the first kingdom and to primitive times. There is no evidence to prove whether the original edifice had, or had not, a third story; since the chamber seen by the Arabs was no doubt a late Babylonian work. The third story of the accompanying sketch must therefore be regarded as conjectural.

It is not necessary for our present purpose to detain the reader with a minute description of the ancient temple at Abu-Shahreïn. The general character of this building seems to have very closely resembled that of the Mugheir temple. Its angles fronted the cardinal points: it had two stories, and an ornamented chamber at the top; it was faced with burnt brick, and strengthened by buttresses; and in most other respects followed the type of the Mugheir edifice. Its only very notable peculiarities are the partial use of stone in the construction, and the occurrence of a species of pillar, very curiously composed. The artificial platform on which the temple stands is made of beaten clay, cased with a massive wall of sandstone and limestone, in some places twenty feet thick. There is also a stone or rather marble, staircase which leads up from the platform to the summit of the first story, composed of small polished blocks, twenty-two inches long, thirteen broad, and four and a half thick. The bed of the staircase is made of sun dried

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brick, and the marble was fastened to this substratum by copper bolts, some portion of which was found by Mr. Taylor still adhering to the blocks. At the foot of the staircase there appear to have stood two columns, one on either side of it. The construction of these columns is very singular. A circular nucleus composed of sandstone slabs and small cylindrical pieces of marble disposed in alternate layers, was coated externally with coarse lime, mixed with small stones and pebbles, until by means of many successive layers the pillar had attained the desired bulk and thickness. Thus the stone and marble were entirely concealed under a thick coating of plaster; and a smoothness was given to the outer surface which it would have otherwise been difficult to obtain. The date of the Abu-Shahreïn temple is thought to be considerably later than that of the other buildings above described; and the pillars would seem to be a refinement on the simplicity of the earlier times. The use of stone is to be accounted for, not so much by the advance of architectural science, as by the near vicinity of the Arabian hills, from which that material could be readily derived.

It is evident, that if the Chaldaean temples were of the character and construction which we have gathered from their remains, they could have possessed no great architectural beauty, though they may not have lacked a certain grandeur. In the dead level of Babylonia, an elevation even of 100 or 150 feet must have been impressive; and the plain massiveness of the structures no doubt added to their grand effect on the beholder. But there was singularly little in the buildings, architecturally viewed, to please the eye or gratify the sense of beauty. No edifices in the world --not even the Pyramids--are more deficient in external ornament. The buttresses and the air-holes, which alone break the flat uniformity of the walls, are intended simply for utility, and can scarcely be said to be much embellishment. If any efforts were made to delight by the ordinary resources of ornamental art, it seems clear

that such efforts did not extend to the whole edifice, but were confined to the shrine itself--the actual abode of the god--the chamber which crowned the whole, and was alone, strictly speaking, "the temple." Even here there is no reason to believe that the building had externally much beauty. No fragments of architraves or capitals, no sculptured ornaments of any kind, have been found among the heaps of rubbish in which Chaldaean monuments are three-parts buried.

The ornaments which have been actually discovered, are such as suggest the idea of internal rather than external decoration; and they render it probable that such decoration was, at least in some cases, extremely rich. The copper nails and blue enamelled tiles found high up in the Mugheir mound, have been already noticed. At Abu-Shahreïn the ground about the basement of the second story was covered with small pieces of agate, alabaster, and marble, finely cut and polished, from half an inch to two inches long, and half an inch (or somewhat less) in breadth, each with a hole drilled through its back, containing often a fragment of a copper bolt.

It was strewn less thickly with small plates of pure gold, and with a number of gold-headed or gilt, headed nails, used apparently to attach the gold plates to the internal plaster or wood-work. These fragments seem to attest the high ornamentation of the shrine in this instance, which we have no reason to regard as singular or in any way exceptional.

The Chaldaean remains which throw light upon the domestic architecture of the people are few and scanty. A small house was disinterred by Mr. Taylor at Mugheir, and the plan of some chambers was made out at Abu-Shahreïn; but these are hitherto the only specimens which can be confidently assigned to the Chaldaean period. The house stood on a platform of sundried bricks, paved on the top with burnt bricks. It was built in the form of a cross, but with a good deal of irregularity, every wall being somewhat longer or shorter

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than the others. The material used in its construction was burnt brick, the outer layer imbedded in bitumen, and the remainder in a cement of mud. Externally the house was ornamented with perpendicular stepped recesses, while internally the bricks had often a thin coating of gypsum or enamel, upon which characters were inscribed. The floors of the chambers were paved with burnt brick, laid in bitumen. Two of the doorways were arched, the arch extending through the whole thickness of the walls; it was semicircular, and was constructed with bricks made wedge-shaped for the purpose. A good deal of charred date-wood was found in the house, probably the remains of rafters which had supported the roof.

The chambers at Abu-Shahreïn were of sun-dried brick, with an internal covering of fine plaster, ornamented with paint. In one the ornamentation consisted of a series of red, black, and white bands, three inches in breadth; in another was represented, but very rudely, the figure of a man holding a bird on his wrist, with a smaller figure near him, in red paint. The favorite external ornamentation for houses seems to have been by means of colored cones in terra cotta, which were imbedded in moist mud or plaster, and arranged into a variety of patterns. [PLATE IX., Fig. 3.]

But little can be said as to the plan on which houses were built. The walls were generally of vast thickness, the chambers long and narrow, with the outer doors opening directly into them. The rooms ordinarily led into one another, passages being rarely found. Squared recesses, sometimes stepped or dentated, were common in the rooms; and in the arrangement of these something of symmetry is observable, as they frequently correspond to or face each other. The roofs were probably either flat--beams of palm-wood being stretched across from wall to wall--or else arched with brick. No indication of windows has been found as yet; but still it is thought that the chambers were lighted by

them, only they were placed high, near the ceiling or roof, and thus do not appear in the existing ruins, which consists merely of the lower portion of walls, seldom exceeding the height of seven or eight feet. The doorways, both outer and inner, are towards the sides rather than in the centre of the apartments--a feature common to Chaldaean with Assyrian buildings.

Next to their edifices, the most remarkable of the remains which the Chaldaeans have left to after-ages, are their burial-places. While ancient tombs are of very rare occurrence in Assyria and Upper Babylonia, Chaldea Proper abounds with them. It has been conjectured, with some show of reason, that the Assyrians, in the time of their power, may have made the sacred land of Chai the general depository of their dead, much in the same way as the Persians even now use Kerbela and Nedjif or Meshed Ali as special cemetery cities, to which thousands of corpses are brought annually. At any rate, the quantity of human relics accumulated upon certain Chaldaean sites is enormous, and seems to be quite beyond what the mere population of the surrounding district could furnish. At Warka, for instance, excepting the triangular space between the three principal ruins, the whole remainder of the platform, the whole space within the walls, and an unknown extent of desert beyond them, are everywhere filled with human bones and sepulchres. In places coffins are piled upon coffins, certainly to the depth of 30, probably to the depth of 60 feet; and for miles on every side of the ruins the traveller walks upon a soil teeming with the relics of ancient, and now probably extinct, races. Sometimes these relics manifestly belong to a number of distinct and widely separate eras; but there are places where it is otherwise. However we may account for it--and no account has been yet given which is altogether satisfactory--it seems clear, from the comparative homogeneousness of the remains in some places, that they belong to a single race, and if not to a single period, at any rate to only two, or, at the most, three

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distinct periods, so that it is no longer very difficult to distinguish the more ancient from the later relics. Such is the character of the remains at Mugheir, which are thought to contain nothing of later date than the close of the Babylonian period, B. C. 538; and such is, still more remarkably, the character of the ruins at Abu-Shahreïn and Tel-el-Lahm, which seem to be entirely, or almost entirely, Chaldaean. In the following account of the coffins and mode of burial employed by the early Chaldaeans, examples will be drawn from these places only; since otherwise we should be liable to confound together the productions of very different ages and peoples.

The tombs to which an archaic character most certainly attaches are of three kinds—brick vaults, clay coffins shaped like a dish-cover, and coffins in the same material, formed of two large jars placed mouth to mouth, and cemented together with bitumen. The brick vaults are found chiefly at Mugheir. [PLATE XI., Fig. 1.] They are seven feet long, three feet seven inches broad, and five feet high, composed of sun-dried bricks imbedded in mud, and exhibit a very remarkable form and construction of the arch. The side walls of the vaults slope outwards as they ascend; and the arch is formed, like those in Egyptian buildings and Scythian tombs, by each successive layer of bricks, from the point where the arch begins, a little overlapping the last, till the two sides of the roof are brought so near together that the aperture may be closed by a single brick. The floor of the vaults was paved with brick similar to that used for the roof and sides; on this floor was commonly spread a matting of reeds, and the body was laid upon the matting. It was commonly turned on its left side, the right arm falling towards the left, and the fingers resting on the edge of a copper bowl, usually placed on the palm of the left hand. The head was pillowed on a single sun-dried brick. Various articles of ornament and use were interred with each body, which will be more particularly described hereafter. Food seems

often to have been placed in the tombs, and jars or other drinking vessels are universal. The brick vaults appear to have been family sepulchres; they have often received three or four bodies, and in one case a single vault contained eleven skeletons.

The clay coffins, shaped like a dish-cover, are among the most curious of the sepulchral remains of antiquity. [PLATE XI., Fig. 2; PLATE XII., Fig. 1.] On a platform of sun-dried brick is laid a mat exactly similar to those in common use among the Arabs of the country at the present day; and hereon lies the skeleton disposed as in the brick vaults, and surrounded by utensils and ornaments. Mat, skeleton, and utensils are then concealed by a huge cover in burnt clay, formed of a single piece, which is commonly seven feet long, two or three feet high, and two feet and a half broad at the bottom. It is rarely that modern potters produce articles of half the size. Externally the covers have commonly some slight ornament, such as rims and shallow indentations, as represented in the sketch (No. 1). Internally they are plain. Not more than two skeletons have ever been found under a single cover; and in these cases they were the skeletons of a male and a female. Children were interred separately, under covers about half the size of those for adults. Tombs of this kind commonly occur at some considerable depth. None were discovered at Mugheir nearer the surface than seven or eight feet.

The third kind of tomb, common both at Mugheir and at Telel-Lahm, is almost as eccentric as the preceding. Two large open-mouthed jars (a and b), shaped like the largest of the water-jars at present in use at Baghdad, are taken, and the body is disposed inside them with the usual accompaniments of dishes, vases, and ornaments. [PLATE XII. Fig. 2.] The jars average from two and a half feet to three feet in depth, and have a diameter of about two feet; so that they would readily contain a full-sized corpse if it was slightly bent at the knees.

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Sometimes the two jars are of equal size, and are simply united at their mouths by a layer of bitumen (dd); but more commonly one is slightly larger than the other, and the smaller mouth is inserted into the larger one for a depth of three or four inches, while a coating of bitumen is still applied externally at the juncture. In each coffin there is an air-hole at one extremity (c) to allow the escape of the gases generated during decomposition.

Besides the coffins themselves, some other curious features are found in the burial-places. The dead are commonly buried, not underneath the natural surface of the ground, but in extensive artificial mounds, each mound containing a vast number of coffins. The coffins are arranged side by side, often in several layers; and occasionally strips of masonry, crossing each other at right angles, separate the sets of coffins from their neighbors. The surface of the mounds is sometimes paved with brick; and a similar pavement often separates the layers of coffins one from another. But the most remarkable feature in the tomb-mounds is their system of drainage. Long shafts of baked clay extend from the surface of the mound to its base, composed of a succession of rings two feet in diameter, and about a foot and a half in breadth, joined together by thin layers of bitumen. [PLATE XII., Fig. 3.] To give the rings additional strength, the sides have a slight concave curve and, still further to resist external pressure, the shafts are filled from bottom to top with a loose mass of broken pottery. At the top the shaft contracts rapidly by means of a ring of a peculiar shape, and above this ring are a series of perforated bricks leading up to the top of the mound, the surface of which is so arranged as to conduct the rain-water into these orifices. For the still more effectual drainage of the mound, the top-piece of the shaft immediately below the perforated bricks, and also the first rings, are full of small holes to admit any stray moisture; and besides this, for the space of a foot every way, the shafts are surrounded with broken pottery, so that the real diameter

of each drain is as much as four feet. By these arrangements the piles have been kept perfectly dry; and the consequence is the preservation, to the present day, not only of the utensils and ornaments placed in the tombs, but of the very skeletons themselves, which are seen perfect on opening a tomb, though they generally crumble to dust at the first touch.

The skill of the Chaldaeans as potters has received considerable illustration in the foregoing pages. No ordinary ingenuity was needed to model and bake the large vases, and still larger covers, which were the ordinary receptacles of the Chaldaean dead. The rings and top-pieces of the drainage-shafts also exhibit much skill and knowledge of principles. Hitherto, however, the reader has not been brought into contact with any specimens of Chaldaean fictile art which can be regarded as exhibiting elegance of form, or, indeed, any sense of beauty as distinguished from utility. Such specimens are, in fact, somewhat scarce, but they are not wholly wanting. Among the vases and drinking vessels with which the Chaldaean tombs abound, while the majority are characterized by a certain rudeness both of shape and material, we occasionally meet with specimens of a higher character, which would not shrink from a comparison with the ordinary productions of Greek fictile art. A number of these are represented in the second figure [PLATE XIII., Fig. 2], which exhibits several forms not hitherto published—some taken from drawings by Mr. Churchill, the artist who accompanied Mr. Loftus on his first journey; others drawn for the present work from vases now in the British Museum.

It is evident that, while the vases of the first group are roughly moulded by the hand, the vases and lamps of the second have been carefully shaped by the aid of the potter's wheel. These last are formed of a far finer clay than the early specimens, and have sometimes a slight glaze upon them, which adds much to their beauty.

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In a few instances the works of the Chaldaeans in this material belong to mimetic art, of which they are rude but interesting specimens. Some of the primitive graves at Senkareh yielded tablets of baked clay, on which were represented, in low relief, sometimes single figures of men, sometimes groups, sometimes men in combination with animals. A scene in which a lion is disturbed in its feast off a bullock, by a man armed with a club and a mace or hatchet, possesses remarkable spirit, and, were it not for the strange drawing of the lion's unlifted leg, might be regarded as a very creditable performance. In another, a lion is represented devouring a prostrate human being; while a third exhibits a pugilistic encounter after the most approved fashion of modern England. It is perhaps uncertain whether these tablets belong to the Chaldaean or to the Babylonian period, but on the whole their rudeness and simplicity favor the earlier rather than the later date.

The only other works having anything of an artistic character, that can be distinctly assigned to the primitive period, are a certain number of engraved cylinders, some of which are very curious. [PLATE XIV., Fig. 1] It is clearly established that the cylinders in question, which are generally of serpentine, meteoric stone, jasper, chalcedony, or other similar substance, were the seals or signets of their possessors, who impressed them upon the moist clay which formed the ordinary material for writing. They are round, or nearly so, and measure from half an inch to three inches in length; ordinarily they are about one-third of their length in diameter. A hole is bored through the stone from end to end, so that it could be worn upon a string; and cylinders are found in some of the earliest tombs which have been worn round the wrist in this way. In early times they may have been impressed by the hand; but afterwards it was common to place them upon a bronze or copper axis attached to a handle, by means of which they were rolled across the clay from one end to the other.

The cylinders are frequently unengraved, and this is most commonly their condition in the primitive tombs; out there is some very curious evidence, from which it appears that the art of engraving them was really known and practised (though doubtless in rare instances) at a very early date. The signet cylinder of the monarch who founded the most ancient of the buildings at Mugheir, Warka, Senkareh, and Niffer, and who thus stands at the head of the monumental kings, was in the possession of Sir R. Porter; and though it is now lost, an engraving made from it is preserved in his "Travels." [PLATE XIV., Fig. 2.] The signet cylinder of this monarch's son has been recently recovered, and is now in the British Museum. We are entitled to conclude from the data thus in our possession that the art of cylinder-engraving had, even at this early period, made considerable progress. The letters of the inscriptions, which give the names of the kings and their titles, are indeed somewhat rudely formed, as they are on the stamped bricks of the period; but the figures have been as well cut, and as flowingly traced, as those of a later date. It was thought possible that the artist employed by Sir R. Porter had given a flattering representation of his original, but the newly recovered relic, known as the "cylinder of Ilgi," bears upon it figures of quite as great excellence: and we are thus led to the conclusion that both mechanical and artistic skill had reached a very surprising degree of excellence at the most remote period to which the Chaldaean records carry us back.

It increases the surprise which we naturally feel at the discovery of these relics to reflect upon the rudeness of the implements with which such results would seem to have been accomplished. In the primitive Chaldaean ruins, the implements which have been discovered are either in stone or bronze. Iron in the early times is seemingly unknown, and when it first appears is wrought into ornaments for the person. Knives of flint or chert [PLATE XIV., Fig. 3], stone hatchets, hammers, adzes, and nails, are common in the

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most ancient mounds, which contain also a number of clay models, the centres, as it is thought, of moulds into which molten bronze was run, and also occasionally the bronze instruments themselves, as (in addition to spear heads and arrow-heads) hammers, adzes, hatchets, knives, and sickles. It will be seen by the engraved representations that these instruments are one and all of a rude and coarse character. [PLATE XV.], [PLATE XVI.] The flint and stone knives, axes, and hammers, which abound in all the true Chaldaean mounds, are somewhat more advanced indeed than those very primitive implements which have been found in a drift; but they are of a workmanship at least as unskilled as that of the ordinary stone celts of Western and Northern Europe, which till the discoveries of M. Perthes were regarded as the most ancient human remains in our quarter of the globe. They indicate some practical knowledge of the cleavage of silicious rocks, but they show no power of producing even such finish as the celts frequently exhibit. In one case only has a flint instrument been discovered perfectly regular in form, and presenting a sharp angular exactness. The instrument, which is figured [PLATE XVI., Fig. 2], is a sort of long parallelogram, round at the back, and with a deep impression down its face. Its use is uncertain; but, according to a reasonable conjecture, it may have been designed for impressing characters upon the moist clay of tablets and cylinders--a purpose for which it is said to be excellently fitted.

The metallurgy of the Chaldaeans, though indicative of a higher state of civilization and a greater knowledge of the useful arts than their stone weapons, is still of a somewhat rude character, and indicates a nation but just emerging out of an almost barbaric simplicity. Metal seems to be scarce, and not many kinds are found. There is no silver, zinc, or platinum; but only gold, copper, tin, lead, and iron. Gold is found in beads, ear-rings, and other ornaments, which are in some instances of a fashion that is not inelegant. [PLATE XVI.,

Fig. 3.] Copper occurs pure, but is more often hardened by means of an alloy of tin, whereby it becomes bronze, and is rendered suitable for implements and weapons. Lead is rare, occurring only in a very few specimens, as in one jar or bottle, and in what seems to be a portion of a pipe, brought by Mr. Loftus from Mugheir. [PLATE XVII., Fig. 1.] Iron, as already observed, is extremely uncommon; and when it occurs, is chiefly used for the rings and bangles which seem to have been among the favorite adornments of the people. Bronze is, however, even for these, the more common material. [PLATE XVII., Fig. 2.] It is sometimes wrought into thin and elegant shapes, tapering to a point at either extremity; sometimes the form into which it is cast is coarse and massive, resembling a solid bar twisted into a rude circle. For all ordinary purposes of utility it is the common metal used. A bronze or copper bowl is found in almost every tomb; bronze bolts remain in the pieces of marble used for tessellating; bronze rings sometimes strengthen the cones used for ornamenting walls; bronze weapons and instruments are, as we have seen, common, and in the same material have been found chains, nails, toe and finger rings, armlets, bracelets, and fish-hooks.

No long or detailed account can be given of the textile fabrics of the ancient Chaldaeans; but there is reason to believe that this was a branch of industry in which they particularly excelled. We know that as early as the time of Joshua a Babylonian garment had been imported into Palestine, and was of so rare a beauty as to attract the covetous regards of Achan, in common with certain large masses of the precious metals. The very ancient cylinder figured above must belong to a time at least five or six centuries earlier; upon it we observe flounced and fringed garments, delicately striped, and indicative apparently of an advanced state of textile manufacture. Recent researches do not throw much light on this subject. The frail materials of which human apparel is composed can only under peculiar circumstances resist the destructive

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power of thirty or forty centuries; and consequently we have but few traces of the actual fabrics in use among the primitive people. Pieces of linen are said to have been found attaching to some of the skeletons in the tombs; and the sun-dried brick which supports the head is sometimes covered with the remains of a "tasselled cushion of tapestry;" but otherwise we are without direct evidence either as to the material in use, or as to the character of the fabric. In later times Babylon was especially celebrated for its robes and its carpets. Such evidence as we have would seem to make it probable that both manufactures had attained to considerable excellence in Chaldaean times.

The only sciences in which the early Chaldaeans can at present be proved to have excelled are the cognate ones of arithmetic and astronomy. On the broad and monotonous plains of Lower Mesopotamia, where the earth has little upon it to suggest thought or please by variety, the "variegated heaven," ever changing with the hours and with the seasons, would early attract attention, while the clear sky, dry atmosphere, and level horizon would afford facilities for observations, so soon as the idea of them suggested itself to the minds of the inhabitants. The "Chaldaean learning" of a later age appears to have been originated, in all its branches, by the primitive people; in whose language it continued to be written even in Semitic times.

We are informed by Simplicius that Callisthenes, who accompanied Alexander to Babylon, sent to Aristotle from that capital a series of astronomical observations, which he had found preserved there, extending back to a period of 1903 years from Alexander's conquest of the city. Epigenes related that these observations were recorded upon tablets of baked clay, which is quite in accordance with all that we know of the literary habits of the people. They must have extended, according to Simplicius, as far back as B.C. 2234, and would therefore seem to

have been commenced and carried on for many centuries by the primitive Chaldaean people. We have no means of determining their exact nature or value, as none of them have been preserved to us: no doubt they were at first extremely simple; but we have every reason to conclude that they were of a real and substantial character. There is nothing fanciful, or (so to speak) astrological, in the early astronomy of the Babylonians. Their careful emplacement of their chief buildings, which were probably used from the earliest times for astronomical purposes, their invention of different kinds of dials, and their division of the day into those hours which we still use, are all solid, though not perhaps very brilliant, achievements. It was only in later times that the Chaldaeans were fairly taxed with imposture and charlatanism; in early ages they seem to have really deserved the eulogy bestowed on them by Cicero.

It may have been the astronomical knowledge of the Chaldaeans which gave them the confidence to adventure on important voyages. Scripture tells us of the later people, that "their cry was in the ships;" and the early inscriptions not only make frequent mention of the "ships of Ur," but by connecting these vessels with those of Ethiopia seem to imply that they were navigated to considerable distances. Unfortunately we possess no materials from which to form any idea either of the make and character of the Chaldaean vessels, or of the nature of the trade in which they were employed. We may perhaps assume that at first they were either canoes hollowed out of a palm-trunk, or reed fabrics made water-tight by a coating of bitumen. The Chaldea trading operations lay no doubt, chiefly in the Persian Gulf; but it is quite possible that even in very early times they were not confined to this sheltered basin. The gold, which was so lavishly used in decoration, could only have been obtained in the necessary quantities from Africa or India; and it is therefore probable that one, if not

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both, of these countries was visited by the Chaldaean traders.

Astronomical investigations could not be conducted without a fair proficiency in the science of numbers. It would be reasonable to conclude, from the admitted character of the Chaldaeans as astronomers, that they were familiar with most arithmetical processes, even had we no evidence upon the subject. Evidence, however, to a certain extent, does exist. On a tablet found at Senkareh, and belonging probably to an early period, a table of squares is given, correctly calculated from one to sixty. The system of notation, which is here used, is very curious. Berosus informs us that, in their computations of time, the Chaldaeans employed an alternate sexagesimal and decimal notation, reckoning the years by the *_soss_*, the *_ner_*, and the *_sar_*--the *_soss_* being a term of 60 years, the *_ner_* one of 600, and the *_sar_* one of 3600 (or 60 *_sosses_*). It appears from the Senkareh monument, that they occasionally pursued the same practice in mere numerical calculations, as will be evident from the illustration. [PLATE XVIII., Figs. 1, 2.]

In Arabic numerals this table may be expressed as follows:

The calculation is in every case correct; and the notation is by means of two signs--the simple wedge [--] , and the arrowhead [--] ; the wedge representing the unit, the *soss* (60), and the *sar* (3600), while the arrowhead expresses the decades of each series, or the numbers 10 and 600. The notation is cumbrous, but scarcely more so than that of the Romans. It would be awkward to use, from the paucity in the number of signs, which could scarcely fail to give rise to confusion,--more especially as it does not appear that there was any way of expressing a cipher. It is not probable that at any time it was the notation in ordinary use. Numbers were commonly expressed in a manner not unlike the Roman, as will be seen by the subjoined table. [PLATE XVIII., Fig. 3.] One,

ten, a hundred, and a thousand, had distinct signs. Fifty had the same sign as the unit--a simple wedge. The other numbers were composed from these elements.