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Proceedings : from January to December 1879..xix

ART. XII.—*Wine among the ancient Arabs.*—By E. REHATSEK.

[Read January 25th, 1879.]

Before the promulgation of Islam, the Arabs indulged in wine freely; on certain occasions, however, they made vows to abstain from it. Thus Amrulkays, who had composed his *Diván*—except perhaps the first and the third poem of it—before the year 564 of the Christian era, and therefore seven years before the birth of Muḥammad,¹ swore that he would not drink wine until he had avenged the death of his father on the Banu Asad; strangely enough, however, on receiving the sad news of it he recited some verses, and among them also the following:—

O my two friends! Nothing is this day to sober the drinker from his intoxication.

But also to-morrow, whatever may happen, he will not drink.²

After this he drank continually for a whole week, and when he had recovered from his intoxication, he swore that he would not eat meat, nor drink wine, nor use perfumes, nor have intercourse with any woman until he had accomplished his vengeance. After having fulfilled his vow, he said:—

Wine has become licit to me, and I was a man
Prevented from drinking it by the greatest cares.
But this day I shall drink without incurring
A sin towards God, nor an obligation to men.³

¹ MacGuckin de Slane, p. XXIV. of the Pref. to his Ed. of the *Diván* of that poet.

• خَلِيلِي لَا فِي الْيَوْمِ مُصْحِي لِشَارِبٍ وَلَا فِي غَدٍ وَكَانَ مَا كَانَ مَشْرَبٍ

Ibid., Life of Amrulkays, extracted from the *Kitáb Allaghany*, p. 15.

• حَلَّتْ لِي الْخَمْرُ وَكُنْتُ امْرَأً عَنْ شُرْبِهَا فِي شُغْلٍ شَاغِلٍ

فَالْيَوْمِ اسْتَقَى غَيْرَ مُسْتَحَبِّبٍ إِذْ مَا مِنْ اللَّهِ وَلَا وَاعِلٍ

Ibid., p. 37

Also another pre-islamitic poet, Tábaṭ Sharrá, says, after taking vengeance on the Hoḡaylys:—

Wine has become licit and it was forbidden; but with difficulty it scarcely became licit.*

Wine sellers used to travel about even in the deserts among the various tribes, and a flag being the sign by which a tent where wine was sold, could be recognised. Like the Greeks and Romans, also the ancient Arabs coated the inside of their vessels with pitch for the purpose of curing their wine. These and some other points about wine are elegantly set forth by the celebrated pre-islamitic poet Lebid[†] in the following verses of his Moa'llakah:—

(57) Ah! Thou knowest not how many serene nights, with sweet sport and mirthful revelry (58) I pass in gay conversation; and often return to the flag of the wine merchant, when he spreads it in the air,

حَلَّتِ الْخَمْرُ وَكَانَتْ حَرَامًا وَبَلَّيْ مَا أَلَمْتَ تَحَلُّ

Hamasa, p. ٢٨٥ v. 5.

It may be observed that A. H. 2 (which began on the 2nd June 623), when Abu Sofyán wished to avenge the defeat he had suffered at Bedr from those who had made their profession of Islám under the leadership of Muhammad, he made a vow that he would abstain from perfumes and intercourse with women, until he had attacked Muhammad (see Abulfed *Annales Muslemici*, t. I., p. 86). Another poet who lived before the time of Muhammad, namely Al-Baby' Ben Zyúd, bears witness that many warriors of a tribe had vowed to have nothing to do with their wives, till they had avenged the death of Málek Ben Zuhayr, and asks:—

أَفَبَعْدَ مَقْتَلِ مَالِكِ بْنِ زُهَيْرٍ تَرْجُو النِّسَاءَ هَوَاقِبَ الْأَطْهَارِ

"Do the women hope for the end of their pure state after the murder of Málek Ben Zuhayr."—(*Hamasa*, p. ٤٢٧.)

* Lebid was the only one of the seven authors of the seven suspended poems who made a profession of Islám; he did so to Muhammad himself, after having lived ninety years in paganism. He established himself in Kufah during the reign of O'mar, and died towards the end of the reign of Moa'vyah, at the age of one hundred and forty-five years. (*Notice sur le poete Lebid*, p. 112, by Sylvestre de Sacy in his *Calila et Dimna*.)

57 بَلْ أَنْتَ لَا تَدْرِينَ كَمْ مِنْ لَيْلَةٍ طَلَّقَ لَذِيذَ لَهْوِهَا وَنَدَا مَهْمَا
58 قَدَبْتِ سَامِرَهَا وَغَايَةَ نَاجِرٍ وَأَقْبِتِ إِذْ رَفَعَتْ وَعَزَّ مَدَامَهَا

and sells his wine at a high price. (59) I purchase the old liquor at a decanter in dark leathern bottles long reposed, or in casks, black with pitch, whose seals I break, and then fill the cheerful goblet. (60) How often do I quaff pure wine in the morning, and draw towards me the fair lutanist whose delicate fingers skilfully touch the strings. (61) I rise before the cock, to take my morning draught, which I sip again and again when the sleepers of dawn awake.—Transl. Sir W. Jones.⁶

Another pre-islamitic poet, Alburj Ben Mus-har, says:—

(1) How often have I quenched the thirst of a boon companion who enhances the delights of the goblet, when the stars were about to set! (2) I lifted up his head and by pure wine removed from him the blame of cavillers. (6) Then he filled [with wine] his boon companions, and carried to them ewers, the bowls of which overflowed. (7) Thou seest it [the wine] in the vessel, strong, of a reddish black like leather, (8) which made the drinkers stumble, that they appeared like men enfeebled by wounds, (12) and among us there were song-stresses among the drinkers, and gazelles [nice girls] for whom warm water is prepared.⁷

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| 59 اوجونة قدحت وقص خنما بهوتر تانا له ابها مها لاعل منها حين هب نيامها | 59 اغلي السبا بكل ادكن عائق 60 وصبح صافية وجذب كرينة 61 باكرت حاجتها الدجاج بسحره |
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Ed. Silv. de Sacy.

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| 1 وندمان يزيد الكاس طيبا 2 رفعت برامه وكشفت عنه 6 فاشبع شربه وسعي عليهم 7 تراها في آلانا لها حميا 8 ترنج شربها حتى تراهم 12 و فينا صمعات عند شرب وغزلان يعد لها الحميم | 1 مسقت اذا تغورت النجوم بهعرة صلامه من يلوم بابريقين كما سهما رذوم كهيدا مثل ما فقع الاديم كان القوم تنزفهم كلوم و فينا صمعات عند شرب وغزلان يعد لها الحميم |
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Ham., p. 562 The scholiast observes to the last verse, that only for wealthy ladies warm water is prepared in cold weather, to wash their faces, so as not to spoil their skin; and their presence is implied by this allusion of the poet.

Glassware was scarce and costly before the time of Islam, but is mentioned in v. 39 of the *Moa'llakāh* of Antarah (ed. Sir W. Jones) as follows:—

“[I quaff it] in a goblet of yellow glass variegated with white streaks, whose companion is a glittering flaggon well secured by its lid from the blasts of the north.”⁹

Shabrumah Ben Al-Ṭufail, who sung before the time of Islam, compares wine to blood, hence its colour must have been red:—

How many long hot days were abridged by the blood of the leather bottle and by striking the lyre!

From morn till I reached the eve, whilst my boon companions disobeyed the prohibitors with upturned noses.

As if the wine-pitchers in the evening were geese, on the high banks of E'rāḳ, with crooked necks.⁹

The ancient Arabs seem to have been fond of the morning draught, for we read in the *Moa'llakāh* of Ṭarafah, v. 46:—

“When you visit me in the morning, I offer you the flowing goblet; and if you make excuses, I bid you drink it with pleasure, and repeat your draught.”¹⁰

Also A'mru alludes to the early libation with its effects:—

“Holla!—Awake, sweet damsel, and bring our morning draught in thy capacious goblet; nor suffer the rich wines of Endereyn [a place in Syria] to be longer hoarded.

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| قَرْنَتْ بَازُهْرُ نِي الشَّمَالِ مُقَدِّمَ | هـ بَزْجَا جَهْ صَفْرَاءِ ذَاتِ امْرَةٍ |
| أَلْزَقَ عَنَا وَأَصْطَفَا قِ الْمَزَاهِرِ | هـ وَيَوْمَ شَدِيدِ الْحَرِّ قَصْرَ طَوْلِهِ دَمِ |
| عَمَاءَ عَلِيٍّ الْإِنَاهِينَ شَمِّ الْمُنَاخِرِ | لَدُنْ غَدْوَةٍ حَتَّى أَرْوَحَ وَصَحْبَتِي |
| بِأَعْلَى الطَّفِّ مَوْجِ الْخَفَاجِرِ | كَانَ ابْرَارِيقُ الشَّمُولِ عَشِيَّةَ أَوْزِ |

It may be observed in this place that *Boṭṭah*, which means both duck and goose, is also the name for drinking vessels, which the poet in the last verse compares to geese, but he uses the pl. of *Abryk*, arabized from the Persian *Abryz*, “water-pourer.”

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| وَأَنْ كَذَتْ عَنْهَا غَايِبَا مَاعِنَ وَأَزْدَ | هـ مَتَى تَأْتِينِي أَصْبَحُكَ كَأَسَا رُوِيَّةِ |
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Bring the well tempered wine, that seems to be tinctured with saffron; and when it is diluted with water, overflows the cup.

This is the liquor which divests the anxious lover from his passion, and as soon as he tastes it, he is perfectly composed.

Hence thou seest the penurious churl, when the circling bowl passes him, grow regardless of his pelf."¹¹

Drunkenness occasionally indulged in does not seem to have been considered blameable, and Amrulkays is, in his life in the Kitáb-allaghány, reported to have uttered the following encomium on Sa'd, who appears to have been a great toper (p. ۳۱ of Diwan. Ed. Mac-Guckin de Slane):—

“Sa'd charms us by his entertainments; his beneficence scatters gifts; in the morning he comes to us with dishes and camels in order to provide us with food.

Thou mayest recognise in him the noble qualities of his father, of his uncle, and of Yezid and of Hojr.

The goodness of the first, the piety of the second, the probity of the third, and the liberality of the last; and such is the case whether he be sober or drunk.”¹²

Poets considered the odour of wine to be so pleasing that they attributed it to the mouths of their mistresses; hence Ka'b Ben Zuhayr says in the beginning of his celebrated Ka'idah:—

“She displayed brilliant teeth when she smiled, from a mouth fragrant as if it had been frequently moistened with wine which had

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| ۱۱ اَلا هَبِي بِصُحُوكِ فَاصْبِحِينَا وَلَا تَبْقِي خُبُورَ الْاَنْدَرِينَا | ۱۲ مَشْعُومَةً كَانَتِ الْعَصَّ فِيهَا تَجُورُ بِذِي اللَّبَانَةِ عَنْ هَوَاةِ |
| اِذَا مَا اَلْمَاءُ خَالَطَهَا سَخِينَا اِذَا مَا ذَاقَهَا حَتَّى تَلِينَا | تَرَى الْلِحْزَالَ الشَّحِيمَ اِذَا امْرَتْ عَلَيْهِ لَمَالَهُ فِيهَا صُهِينَا |
| ۱۳ وَيَقْدُو عَلَيْنَا بِالْجَفَانِ وَبِالْجَزْرِ | وَيَقْفَهُنَا سَعْدٌ وَيُنْعِمُ بِالنَّالِ |
| ۱۴ وَمَنْ خَالَهْ وَمَنْ يَزِيدُ وَمَنْ حَجَّرَ | وَمَنْ تَعْرِفُ فِيهِ مِنْ اَبِيهِ شَمًا يَلَاءُ |
| وَمَنْ نَأَيْلُ ذَا اِذَا صَمَا وَاِذَا سَكَّرَ | سَمَاحَةً ذَا وَبَرْدًا وَوَقَاءَ ذَا |

been mixed with fresh, limpid deep lying water, from a vale on which the north-wind blows, taking away all impurity, and which high white mountains (inundated by morning clouds) fill with water."¹⁵

Some drunkards squandered away their whole property, and one of them is made to say (*Ham.*, p. ۲۶۶) :—

“ And indeed I drank wine by giving away for it my small and my large property.

And when I am drunk I am the lord of the khavarnaḡ and of the throne.”¹⁴

The scholiast who desires to prove that the small and the large property means quadrupeds, cites two more verses :—

“ I drank by giving away mares and stallions excelling in beauty.”¹⁵

And :—

“ I drank by giving away my she-camel, whose name was *Kyrāt*, and I made my companions drunk, and I went away owing money to the wine sellers.”¹⁶

A'ntarah says in his *Moa'llaḡah*, v. 40 :—

When I drink it [the wine] my wealth is dissipated, but my fame remains abundant and unimpaired.¹⁷

Tarafah sings, vv. 52 and 53 :—

Thus I drink old wine without ceasing, and enjoy the delights of life ; selling and dissipating my property, both newly acquired and inherited ;

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- ١٥ نَجْلُو عَوَارِضِ ذِي عِلْمٍ إِذَا ابْتَسَمَتْ كَانَهُ مِنْهُلٍ بِالرَّاحِ مَعْلُولٍ
شَجَّتْ بَدْيِي شُبْمٍ مِنْ مَاءِ مَحْنِيَّةٍ صَافٍ بِأَيْطَحِ أَضْحَى وَهُوَ مَشْمُولٍ
تَنْفِي الرِّيَاحِ الْقَذِي عِذَهُ وَأَنْفُطَهُ مِنْ صَوْبِ غَادِيَةِ بِيضٍ يَعْالِيلُ
١٥ وَ لَقَدْ شَرِبْتُ مِنْ أَلْهَامَةِ بَاصْفِيرٍ وَ بَاصْفِيرِ
فَإِذَا أَنْشَيْتُ فَإِنِّي رَبُّ الْخَوْرَنْقِ وَالرَّيْرِ
١٥ وَ شَرِبْتُ بِالخَيْلِ الْإِنَاثِ وَ بِأَهْطَهْمَةِ الذَّكُورِ
١٥ شَرِبْتُ بِقَيْرُطٍ وَ اسْكُرْتُ مَحْبَنِي وَ رَحْتَ ولى عِنْدَ التِّجَارِ حَسَابُ
١٧ فَإِذَا شَرِبْتُ فَإِنِّي مَسْتَهْلِكُ مَالِي وَ عَرْضِي وَ أَنْفِرَامِ يَكْلَامِ

Until the whole clan reject me, and leave me solitary like a diseased camel, smeared with pitch.¹⁸

In the *Hamasa*, p. 504, a pre-islamitic poet tells us how a man sold his clothes to a wine dealer :—

I trailed my cloak and garments to the nearest dealer [in wine] and shook my hair.¹⁹

The smell of wine must have been a very familiar one, because Málek Ben Asmá reproaches certain persons that if he had come with it, instead of the odour of musk, even the house-dog would have recognised him :—

Had I carried wine on the day I visited you, the dog would have known me as belonging to the house.

But I came with the odour of musk filling my nostrils, and the amber of India which I had been burning.

Accordingly the dog knew not my odour when he saw me, whilst he was acquainted with the smell of the leather bottle and of pitch.²⁰

Among the pre-islamitic Arabs who prohibited the use of wine and abstained from drinking it, was also Asad Ben Kurz, the chief of the Bajilah tribe, and his son Yazid ; both of them lived to see the promulgation of Islám and made their profession of it. The prohibition

١٨ و ما زال تشرابي الخمر و لذتي

و بيعي و انفاقي طريقي و منلدي

الي ان تحاصذي العشيّة كلها

واقردت افراد البعير العبد

١٩ اذ اسحب الرطب و المروط الي ادني تجاري و انقض اللهما

٢٠ لو كنت اعمل خيرا يوم زرتكم لم يذكر الكلب اني صاحب الدار

لاكن اتيت و ربح المسك بفقهي و عنبر الهند اذ كيه على النار

فانكر الكلب ربحي حين ابصرني وكان يعرف ربح اليزق و النار

to drink wine was issued by Muḥammad A. H. 4 (began 13th June 625) whilst he was besieging the Jewish tribe Bani Noḡayr ²¹; but he ordered also the vineyards of the Thaḡyrites to be destroyed towards the end of A. H. 8 (began 1st May 629) after having vainly besieged Ṭayf ²²; the act is not to be ascribed to his aversion to wine, which he was himself accustomed to drink in a weak form; this liquor, called Nebyḍ, was generally prepared for him by putting grapes or dates into water, and allowing them to ferment slightly; but he never kept it longer than two or three days. In the Korán there are three passages disparaging the use of wine, but only the third of them may be considered as a stringent prohibition. They are as follows:—"They will ask thee about wine and lots. Say, in both of them there is great sin and profits to men, but their detriment is greater than their profit."²³ "O believers! approach not prayers whilst you are drunk; until you understand what you say."²⁴ "O believers! surely wine, lots, and images

١٥ ذكر غزوة بني النضير من اليهود * و صار رسول الله اليهم و
حاصرهم في ربيع الاول سنة اربع ونزل تحريم الخمر وهو محاصولهم

Abulfedæ Annales, p. 102.

٢٥ ولما انهزمت ثقيف من حنين الي الطائف سار النبي اليهم
فاغلقوا باب مدينتهم فحاصرهم النبي نيفا و عشرين يوما وقاتلهم
بالمجنيق و امر رسول الله بقطع اعناب ثقيف فقطعت

Abulfedæ Annales, p. 163 seq.

٣٥ يسألونك عن الخمر و آلهيهر قل فيها اثم كبير و منافع للناس
و اثمها اكبر من نفعها— II. 216.

٤٥ يا ايها الذين آمنوا لا تقربوا الصلاة و انتم سكارى حتي تعلموا
ما تقولون— IV. 46.

This passage was revealed before the prohibition of wine, because after an entertainment given by A'bd-al-rahman B. A'wf, at which several of the prophet's companions had been present, the man who prayed when the hour for evening prayer had come, committed a shameful blunder, as he, like the majority of the company, had been overcome by liquor. A similar prohibition of drinking wine before prayers occurs in *Leviticus* x. 9:—"Do not drink wine nor strong drink, thou, nor thy sons with thee, when ye go into the tabernacle of the congregation," &c.

and divining arrows, are an abomination and the work of Satan ; therefore avoid them, that ye may prosper. Verily Satan seeketh to sow dissension and hatred among you by means of wine and lots, and so divert you from remembering God and from prayer ; will you not therefore abstain ?”²⁵

Pious Moslems not only condemn the use of wine, but also of the various intoxicating drugs so common in the east, such as opium, bhang, hashish, ganja, &c., whilst others believe that a moderate indulgence in wine is sanctioned in the following passage, where it is mentioned in connection with the various benefits vouchsafed by the Almighty to mankind :—“ And God sendeth down from heaven water wherewith He revives the earth after its death ; verily herein is a sign unto people who hearken. Surely you have also in cattle an example ; we quench your thirst by that which their bowels contain between chyle and blood ; namely pure milk pleasing to the drinkers. And of the fruits of palm-trees and of grapes, you prepare an intoxicating liquor and good nourishment.”²⁶

و يا ايها الذين آمنوا انما الخمر والانساب والالزام
رجس عمل الشيطان فاجتنبوه لعلكم تفلحون * انما يريد الشيطان
ان يوقع بينكم العداوة والبغضاء في الخمر والانساب ويصدكم عن
ذكر الله وعن اسراره فهل انتم صنتهون — 92, 93. v.

و الله انزل من السماء ماء فاحيا به الارض بعد موتها ان
في ذلك لاية لقوم يعنون * و ان لكم في الانعام لبرة نسقكم مما
في بطونه من بين فرث ودم لبنا خالصا سائغا للشاربين * و من ثمرات
التخيل و الاعناب نتخذون منه سكرا ورزقا حسنا. — 28, 27. xvi.

ART. XIII.—*On the Arabic Alphabet and Early Writings.* By
E. REHATSEK. (With a table of Alphabets.)

Read 19th March 1879.

Although the Phœnician alphabet itself has been derived by Mr. Halévy from Egyptian hieroglyphs¹ and by Mr. Deecke from the later Assyrian cuneiform writing,² no doubt exists that it is the parent of all the other Semitic alphabets, and that in them the principal letters of it have been strictly retained. To show this accurately, it would be necessary to produce a larger table of intermediate alphabets, exhibiting the gradual changes of various characters, but also in the subjoined table which contains only six alphabets, the similarity between some of the ancient Phœnician and the present Arabic Neskhi letters is evident enough. I have inserted the Safa alphabet as an important link in the long chain of Arabic alphabets, extending from southern Arabia up to the region east of Damascus, scientifically explored by Messrs. Wetzstein, Waddington, and De Vogüé in the interval from 1852 to 1862; but the inscriptions have not been correctly deciphered until Mr. Halévy took them up, and gave us the Safa alphabet³ with a large essay in which he discusses and interprets numerous inscriptions.

As may be seen from the subjoined table of alphabets, the Arabs, although they no doubt always possessed their 28 sounds, represented by the present Neskhi characters, had only 18 different signs for them in the Kufic alphabet, the absence of diacritical points in which must have caused grievous confusion in reading, and compelled them to introduce such points as well as a few other distinctive signs in course of time. Nevertheless the charm of elegant monumental forms of writing, to which the Kufic character readily lends itself in the hands of artistic calligraphers, is so great that it cannot be resisted even in modern times, so that now unpointed Kufic inscriptions on gems, metals,

¹ *Mélanges d'épigraphie et d'archéologie sémitiques*, pp. 168—183.

² *D. M. G.* XXXI., p. 102 seq.

³ *Ibidem* XXXII., p. 167 seq. *Le déchiffrement des inscriptions du Safa.*

⁴ *Journ. As.* 1877, t. X., pp. 293—450.

and stones are sometimes produced, which are puzzles, and must be carefully studied, before it is possible to understand them.*

In the subjoined table of alphabets the letters occur as they stand in their present order, but the Arabs themselves believe that the more ancient arrangement is that of the *Abujad*, which they still use in some

* Such for instance are the quadrangular inscriptions *خط مربع* two in number, brought from Cairo, and inserted in the *Journ. As.* 1833, t. XII., p. 230. I may on this occasion be permitted to enumerate some curious Kufic inscriptions in a variety of styles, published in Journals and copied from them by me for my own amusement.

I shall begin with the inscriptions scattered in the *Journal Asiatique*.—No. 1.—Among the inscriptions in the Caucasus there is one found on the site of Belukan; it consists of 7 lines, is dated A. H. 308 (A. D. 920-31), and commemorates the construction of an edifice. No. 2.—The inscription of the moak of Thebes in Egypt, built A. H. 393 (A. D. 1003) by Hakim Biamrillah; it consists of 6 lines, and its style is different from the preceding one. No. 3.—A sepulchral inscription on 2 stones at Derbend, one containing 7 and the other 6 very short lines, dated A. H. 469 (1076-77), the person buried is called merely the poor servant of God. No. 4.—On the southern wall of Derbend with the date A. H. 580 (1184-85) in words, recording merely the name of a man without mentioning the reason for the inscription. No. 5.—A stone fixed in the base of the ancient moak of Baku, commemorating its erection A. H. 471 (1078-79). The inscription consists of 4 lines separated from each other by bars, but is rather ugly. No. 6.—The epitaph of Yusuf B. Kuluj A. H. 557 (1162) consists of 6 lines in the style of No. 2; it occurs also in vol. VII. of the *Archæologia Britannica* and *Journ. As.* 1837, t. IV., p. 199. No. 7.—Inscription on a monument of Nakitchevan, known by the name of Gumbazi Ata-baba, A. H. 557 (1162), being the place of martyrdom of Yusuf B. Kabyr. Here some letters are placed above the lines, and grotesquely distorted. No. 8.—This the only Persian Kufic inscription of my collection, is also at Nakitchevan. It is dated A. H. 582 (1186-87), and placed on the tower of the Atabegs, but contains merely a sentiment on the transitoriness of life. No. 9.—This is the only inscription with points, and may be considered as a hybrid between the Kufic and Neski character. It is in Dagestan, and commemorates the building of the fort Bijú A. H. 638 (1240-41) after the departure of 'the accursed Tátars,' as the inscription calls them. No. 10.—Here we have an entirely conventional specimen of monumental Kufic writing enclosed in 2 compartments; it is dated A. H. 670 (1271-72), and commemorates the building of a chapel in some locality of the Caucasus. No. 11.—At the distance of a kilometre north of Derbend, there is a curious inscription without date, embodying sentiments on the perishableness of the world. No. 12.—The Arabic monument at Pisa in Italy, with 3 lines of good wishes for its owner, also without date. No. 13.—Epitaph of A'ayahab, daughter of Kafyz, who died A. H. 307 (917), D. M. G. IV. p. 257. No. 14.—Epitaph of Fa'imah, who died A. H. 326 (936). No. 15.—Epitaph

cases for arithmetical notation, as every letter has its numerical value. The *Abujad* is as follows:—

أَبْجَدِ هُوَ حَطِيْ كُلُّنِ سَعْفَصْ قُرْشَتْ نُحْدُ ضَطْعْ

This is the order of the letters in the Hebrew and Syriac alphabets, and it may be considered as a proof, although not a cogent one, from what direction the Arabs received theirs; the more so as not only a few, but 22 of the letters just given agree with the order of the just mentioned 2 alphabets. The 6 remaining letters, forming the last 2 words, which were not indispensable characters in the language when its orthography was yet in an unsettled state—as in that case other letters not greatly differing in sound may have been used for the want of them—must have been added afterwards when more precision was aimed at. As the *Abujad* order of letters is sufficiently well accounted for by the 2 above-mentioned alphabets, and by their parent the Phœnician, the statements of some old authors that the first 6 words of the *Abujad* arrangement were the names of 6 days of the week, or of 6 men, the reputed inventors of the alphabet, are not tenable.

A belief, based on the statements of various authors, prevailed that the Neskhi character was invented long after the Kufic alphabet had

of the mother of Muhammad Ab Ekbal, who died A. H. 427 (1080). This and the preceding came from southern Arabia, but unknown locality; they were published in vol. V. Journ. of the Bom. Br. E. A. S. No. 16.—Epitaph of Faṭimah who died A. H. 439 (1047); brought from Dhalec-el-kibr near Massowa (Journ. E. A. S. II., p. 573), very beautiful. No. 17.—Monument in the island of Dahlak in the Red Sea, dated A. H. 486 (1093), and commemorating the taking possession of it (D. M. G.). No. 18.—A very beautiful inscription from Boḡrah, written some time before A. H. 544 (1149), interpreted by Mr. Karabacek D. M. G. XXXI., p. 135 seq. It is the bequest by Anar of the revenues from an oven and a mill, for ransoming prisoners taken by crusaders; and after that for aiding orphans, widows, and destitute persons. No. 19.—Very large and elegant epitaph of Maymunah, who died A. H. 569 (1173-74); on the wall of a house in Malta (vol. V., Boy. As. Soc.).

° In my printed *Catalogue raisonné* of the Mulla Firuz library, I described an Arabic MS., Sect. I. No. 55, p. 31, to which are appended what the author calls *Tables of Farangi Calculation*; they are our Logarithms. The trouble may be imagined which the author had taken to convert our easy decimal into the clumsy ancient *Abujad* notation, which is not much better than that of the so-called Roman numerals. It shows however with what tenacity writers still adhered to the old notation even in the 17th century (A. H. 1014, A. D. 1605), when this MS. was composed.

come into use, and that it superseded it only in the fourth century of the Hegira. Now we shall quote authorities to that effect, and the manner in which they were overthrown by the discovery of coins, and papyri of a much earlier date, written in a character closely resembling the present Neskhi alphabet.

It is known well enough that in southern Arabia the Hemyaritic alphabet was in use already before the Christian era, but as the Neskhi was not derived from it nor the Kufic, this knowledge cannot elucidate their origin. Authors are also reticent about the period when writing was introduced in Mekkah, although it is now pretty certain that *Marámer*—composed of *Mar*, a word designating a Syrian priest, and the proper name *Amer*—had adapted the Syriac alphabet to the Arabic language:—"The first who wrote in Arabic were 3 men of the Bólán which is a tribe; they lived in Anbár, where they assembled and placed separate as well as connected letters; they were Maramer B. Morrah, and Aslam B. Sedrah and A'ámer B. Jedrah; and it is said Marwah and Jedlah. As to Marámer he placed the figures, and as to Aslam he separated and connected, and as to A'ámer he placed the diacritical points; and the 'people of H̄yrah being asked, from whom have you taken the Arabic [writing], they said from the people of Anbár.'" As No'mán I, Ben Amrulkays who reigned in H̄yrah from A.D. 390 till 418 was a Christian, there is no doubt that Syrian monks were at that early time domiciled not only in Anbár but also in H̄yrah, but as we shall afterwards see, the art of writing was only two centuries afterwards propagated in Mekkah. Already the illustrious de Sacy maintained that the character which was afterwards called Kufic from Kufah—a town founded only during the reign of O'mar—where it had been brought to perfection, had originated from the Syriac character called *Estranghelo* (evangel-writing), invented in the second century of the Christian era, and had been brought from Mesopotamia a short time before Muhammad, and propagated among the inhabitants of the H̄ejáz.⁸ Also Ebn Khaldún states that the art of writing was brought from H̄yrah to the people of Tayif and to the Kōraysh, but by a man from Yemen.⁹ That the people of Mekkah must have been ignorant of writing appears from another interpreta-

⁷ Fihrist, p. ۶.

⁸ Mém. d'hist. et de litt. orientale extraits du t. IX. et X. des Mémoires de l'Institut. Par M. le Baron Silvestre de Sacy, p. 73.

⁹ *Ibidem*, p. 77.

tion of the words *Ahl kitáb*, 'the people of the scripture'—usually applied to the Jews because they had received the Pentateuch, and to the Christians who had received the Evangel—given by Shahrastany:—"The 2 classes of men opposed to each other before the mission of Muḥammad were the people of the scripture [*i.e.* those who could write], and those called *Ommy*, by which name all are designated who do not know to write. The Jews and Christians dwelt in Medynah, the *Ommy* in Mekkah." ¹⁰

Ebn Khallikan¹¹ makes the following statement:—"Relative to the art of writing (*it is said*) that Ismail (*the patriarch*) was the first who wrote Arabic; but what the learned hold of the truth is, that Maramer Ebn Marwah, a native of Anbar, was the first who did so. It is said that he belonged to the tribe of Murra. And from al-Anbar the art of writing spread through the people. Al-Asmai states that it was related of the tribe of Koraiṣh that, on being asked whence they had received the art of writing, they answered, from Hira. The same question, says he, was then addressed to the inhabitants of Hira, and they replied, from Anbár. It is related by Ebn Kalbi and Haitham Ebn Adi, that the person who introduced the art of writing from Hira to Hejar was Harb, the son of Omayya, the son of Abd Shams, the son of Abd Menaf, of the tribe Koraish. He had visited Hira and brought back with him this art to Mekka. The two *Hafz* just mentioned relate also that Abu Sofyan, the son of Harb, was asked from whom his own father had learnt the art of writing, and he answered 'From Aslam B. Sidra,' and he (Harb) stated that he had addressed the same question to Aslam, and that he replied: 'from its inventor Maramer Ebn Murra.' It hence appears that this (*art of Arabic*) writing came into existence at but a very short time before Islam. (*The tribe of*) Himyar had a sort of writing called *al-Musnad*, the letters of which were separated, not joined together." Some authors have asserted that the characters first used in Mekkah were called *Jazm* (amputation, disjunction) because they had been derived from the Hemyaritic *Musnad*, it however is quite possible that these characters afterwards named Kufic, and derived from the Syriac Estranghelo,¹² were in their

¹⁰ P. 172.

¹¹ Vol. II., p. 284. Transl. MacGuckin de Slane.

¹² As the author of the *Fihrist* made it his business only to collect a mass of information without in any way commenting on it, he failed to connect Maramer with Syriac writing, but he alludes to the Estranghelo on p. 17 as follows:

primary and rude state not only disjointed like the Hemyaritic letters, but that the *i'jám* or diacritical points to distinguish them were introduced a long time afterwards during the time of the first Omniade Khalifs.¹³

But the chief reason for making the above quotation from Khalkan was because we obtain from it the first historical date on the introduction of writing in Mekka by Harb, about A. D. 560 as fixed by De Sacy.¹⁴

The just mentioned Harb is alluded to in the "Kitáb-al-Fihrist"¹⁵ as follows:—"He who wrote this Arabic *Jazm* was a man of the Bani Mukhallad B. Al-Naḍar B. Kenanah, and then [after that time] the Arabs were writing. According to another tradition he who carried the [art of] writing to the Koraysh in Mekkah, was Abu Kays B. A'bd Menáf B. Zohrah, and verily it is said [that it was] *Harb B. Omayyah*." A few lines further on we observe that the grandfather of Muḥammad was able to write, as a document in his handwriting is mentioned thus:—"In the treasury of [the khalif] Mámún there was a writing by the hand of A'bd-al-Muṭalleb B. Háshem on tanned leather. It records a debt due to A'bd-al-Muṭalleb B. Háshem, inhabitant of Mekkah, by A. B. the son of C. D., a Hemyarite, inhabitant of Wazl, in [the district of] Çana'á, who owed him one thousand dirhems,

"The Syrians have three pens [styles of writing], namely, the open one, which is called *Estranjál*; it is the most celebrated and handsomest; it is called the heavy writing, and resembles the pen [style or character] of the Koran, &c." This appears to be a sufficiently distinct evidence of the analogy between the Syriac and the *Jazm* character of Mekkah, afterwards named Kufic.

¹³ Caussin de Perceval. *Essai sur l'hist. des Arabes*, t. I., p. 293.

¹⁴ *Mém. de l'Acad.*, t. L., p. 302. On this subject F. Lenormant, in his *Essai sur la propag. de l'alphabet Phénicien*, t. II., p. 141, says:—"On arrive à ce résultat de deux manières, qui l'une et l'autre concordent. D'abord en examinant les données chronologiques de la généalogie de Mahomet et en déterminant d'après ces données l'époque ou doit vivre Harb, dont le père, Omeyya, était cousin germain d'Abd-el-Mottalib, aieul de Mahomet et qui par conséquent lui même se trouvait cousin issu de germain d'Abd-Allah père du Prophète. En suite en fixant par un autre moyen la naissance de Harb :—Son fils Abou Sofyán mourut en l'an 81 ou 82 de l'Hegire (661 ou 652 de J. Ch.) âgé de 90 ans; il était donc né vers 561—562 de notre ère, i. e. qui place la naissance de Harb vers 528—529, en comptant l'intervalle d'une génération moyenne entre le père et le fils."

¹⁵ P. 4.

measured at Hodaydah,¹⁶ and promised to pay when called upon to do so, calling to witness Allah and the two angels. He said that the writing resembled the writing of women."¹⁷

Bishr, who married the daughter of Harb in Mekkah, imparted the art of writing to Abu Sofyán, the son of the latter and his own brother-in-law, as well as to several of the inhabitants of Mekkah,¹⁸ after which time it spread more and more, and the famous seven poems suspended in the Ka'bah were written in letters of gold; but there is no doubt that in this primary stage the characters must have been rude and uncouth.¹⁹ Nevertheless, already during the first century of the Hegira not only the number of celebrated copyists of the Korán had become very considerable, but also the variety of styles in which they wrote; thus we find in the Fihrist²⁰ under the heading of *Khuṣūṭ al-*

¹⁶ The word is *الحديد* which can only be at Hodaydah, a well known place; the editor in his note however would not simply transliterate, but translate it by "Eisengeräth," iron vessel, and very properly remarks that it gives an impossible sense.

¹⁷ The word is *خط النساء* misprinted *خط النساء* on p. 141 t. II. of *Essai sur la propagation* and implies perhaps not a special kind of character, but merely some peculiarity inherent in female handwriting; just as we sometimes make the remark that a letter appears to be written by a lady.

¹⁸ Caussin de Perceval, p. 294.

¹⁹ De Sacy (p. 79) quoting Ebn Khaldán says:—"L'écriture arabe jusqu'au commencement de l'islamisme, n'atteignit donc jamais un degré éminent de régularité, de perfection et de beauté: elle n'atteignit même pas ce mérite à un degré médiocre, à cause que les Arabes conservaient les mœurs de nomades, leurs habitudes sauvages, et leur éloignement pour les arts." Notre auteur prouve cela par la manière dont les exemplaires de l'Alcoran étaient écrits par les compagnons du prophète, puis par les *Tabis*, c'est-à-dire par ceux qui avaient vécu avec les compagnons de Mahomet et se faisaient un honneur et un mérite de les imiter en tout; et il réfute l'opinion de ceux qui, au lieu d'avouer l'ignorance de ces premiers disciples de l'islamisme, ont recours à des subtilités ridicules pour justifier leurs fautes. Il fait voir qu'il n'y a aucune raison de recourir à de pareils subterfuges, et que l'honneur des premiers musulmans n'est nullement compromis par cette sorte d'ignorance qui était une conséquence nécessaire de leur position sociale.

²⁰ P. 7. It may be observed in this place that the characters alluded to here, and also by Slane (see further on here, footnote 24 *infra*) are mentioned also in Macnaghten's edition of the *Atif Laila*, vol. I. p. 97, where the man who has been changed into a monkey writes in that state distichs in 6 different styles of writing; 2 distichs in each style, namely, the *Rekâ'yi*, the *Rak'ân*, the *Thuluth*, the *Neski*, the *Támár* and *Muḥakkak* style.

moçâhef or "writings of Koráns," that there were not only styles peculiar to various towns, such as Mekkah, Medinah, Kufah Boçrah and Ecfahán, but also triangular, round, slanting, &c. &c. "Muhammad Ebn Esahák said, the first who wrote Koráns in the first Çadr, and was noted for his beautiful writing, was Kháled Ebn-al-Hayyúj; I have seen a Korán in his handwriting; and Sa'd had appointed him to write Koráns, and verses, and news for Wolid B. A'bd-al-Melik [reigned from A. H. 86 to 96, A. D. 705—715] and he wrote the book which is in the Kiblah of the prophet's mosk, with golden letters from the 91st surah to the end of the Korán."

In course of time the Arabs made better progress in the art of writing which spread among them more and more. De Sacy²¹ quotes Ebn Khaldún to that effect as follows:—"When the Arabs had gained dominion, when they had subjugated great cities, acquired provinces, established themselves at Boçrah and Kufah, and when government was under the necessity of employing penmen, they made use of writing, they studied and practised this art, which became common among them. It acquired more precision and beauty, and reached a certain degree of regularity, but was nevertheless far from perfect. Kufic writing is yet known in our times. Afterwards the Arabs spread themselves in various countries and in various kingdoms. They conquered Africa and Spain. The Abbasides founded Baghdád where writing attained the highest degree of perfection, because civilization reached the highest point in this town, which was the capital of Islam and the centre of the Arab empire. The forms of writing in Baghdád became different from those in use at Kufah, because they inclined to become more graceful, more beautiful, and of a more pleasing effect. This opposition—between the Kufic character and that of Baghdád—became stronger during the lapse of years, until at last (Abu) A'ly, son of Moklah the vizier, displayed the banner of this new kind of writing in Baghdád, and was therein followed by A'ly, son of Helal, the Káteb known by the name of *Ebn Albawwáb*. It is he who fixed the practice of this art during the third century and the ensuing times. Then the forms and figures of the character of Baghdád receded so far from those of the Kufic character, that the two kinds of writing may be considered to be quite different. In course of time writing underwent yet other changes," &c. From the following passage in the Fihrist,²² in which the names of some celebrated cali-

²¹ Mem. d'hist. et de litt. orientale, &c., pp. 79, 80.

²² P. 4.

graphers are mentioned, it appears that they used two kinds of ink, namely, *hibr* and *medád*, about which nothing certain is known to us, except that they must have differed from each other either in colour or in their ingredients, as in modern usage both are promiscuously employed to designate common black ink :—“ Muḥammad B. Esahak has said that those of the viziers who wrote with *medád* were the Kátib Abu Aḥmad Ala'bbás B. Alḥsan and Abu Alḥsan A'ly B. E'sa and *Abu A'ly Muḥammad Ebn Moḥlah*, who was born afternoon on a Thursday, when nine days of the month Showál were still remaining in the year 272 (Began 885 June 18), and died on a Sunday when ten days of Showal had elapsed in the year 328 (Began 939 October 18); and those who wrote with *hibr* were his brother Abu A'bdullah Alḥsan B. A'ly, who was born with the dawn on a Wednesday at the end of the month Ramaḍán in the year 278 (Began 891 April 15), and died in the month Rabyi' the latter, of the year 338 (Began 949 July 1); and the like of these two men [as calligraphers] were not seen in past times down to ours, nor like the writing of their father Moḥlah; and the name of Moḥlah was A'ly Ebn Alḥsan B. A'bdullah, and Moḥlah is a cognomen. During the time of these two calligraphers there were also other writers, and after their time members of their family and their sons, but they could not approach them [in skill], for they scattered letter after letter and word after word.” The manner of writing with disjointed letters is undoubtedly a stage before the introduction or invention of ligatures; accordingly the scattering here alluded to as late as the third century appears to have been not a retrograde but rather an ornamental mode of writing, which has in course of time been entirely abandoned. It appears from certain manuscript Koráns in the National Library of Paris, which were written in the early form of Neskhi characters, that these constitute a separate alphabet, derived in the opinion of Lenormant and Rénan from the Sinaitic characters. Hence this is one, and the Syriac—Kufic issuing from Estranghelo—another origin of Arabic writing; and these two alphabets although independent of each other, are nevertheless closely related and referable to the Syriac.

The two alphabets just alluded to, and in which even the Korán was written, were so imperfect that they necessitated improvements already in the first century of the Hegira. The greatest fault of these alphabets was that they were applied to a language for which they had not been made. On the one hand they represented in an incomplete man-

ner the peculiarities of the Arabic language, on the other hand many of the letters were similar, so that they were confounded with each other. These defects produced much hesitation in reading the Koran, and differences arose, which frightened the purists. To remedy this insufficiency, two devices were employed, namely, the *diacritical points* in order to distinguish letters of the same form, and *vowel marks* as well as orthographical signs in order to fix the sounds of changeable vowels, and certain varieties of pronunciation. The introduction of vowel marks in Arabic took place simultaneously, also in Syriac and Hebrew. This attempt to fix the reading of three Semitic languages in a more regular way took place everywhere during the 7th and 8th century of our era, and the synchronism cannot be accidental.

It is said that the copies of the authorised edition of the *Ḳorán* published by O'thmán, contained no other characters, marks, or signs except the letters of the alphabet. According to the tradition of the Arabs, Abul-Aswad (who died A. H. 69, A. D. 688) introduced the abovementioned reforms which were at first distasteful to strict Moslems, but the erroneous lections which were constantly on the increase ultimately enforced the adoption of these expedients. The use of the diacritical points and vowel marks was important in a religious and political sense, because it compelled readers and commentators of the *Ḳorán* to adopt a fixed and determined sense, whilst the original state of the book had left them the option to choose between several manners of reading and understanding it. To satisfy scrupulous men, the vowel marks and orthographical signs were written with an ink of a different colour from that used for the text. As to the diacritical points, they were not written with a different ink, because they were considered not to add anything to the text, but only to facilitate the reading of it; they are moreover used in a rather irregular manner, not only in Kufic but in much later manuscripts.

We have already, from a source referred to in foot-note 21, alluded to the celebrated *Kátib A'ly B. Moqlah* and to *Ebn at Bawwab*; and now we shall give a detailed account of the latter from *Ebn Khallikan's Biographical Dictionary*²³:—"Abu Hasan A'li Ebn Helál, generally known by the appellation of *Ebn-al-Bawwab*, was a celebrated *kátib* possessing a skill in penmanship to which no man ever attained in ancient or modern times. It was *Abu A'ly Ebn Moqlah* who first took the present system (*of written characters*) from the (*style of*)

²³ Vol. II. pp. 282-283. Transl. from the Arabic by MacGuekin de Blane.

writing employed by the people of Kufah, and brought it out under its actual form. He had therefore the merit of priority, and it may be added that his handwriting was very elegant; but to Ebn Al Bawwáb pertains the honour of rendering the character more regular and simple, and of clothing it in grace and beauty. But it is said that the author of the written character called *al-Mansúb*** was not Abu A'ly, but his brother Abu A'bdullah al-Hasan, of whom mention is made in the life

** As the individual mentioned in this note, in which afterwards the remarks of Slane on the *Mansúb* character occur, is said to have surpassed Ebn Al-Bawwáb in caligraphy, I insert it in this place for both these reasons, although it belongs properly to p. 331 of the book:—

Abu Talib al-Mubárah Ebn al-Mubárah al Karkhi (a native of Karkh) is generally known as the *disciple of Ebn al-Khall*, under whose tuition he had studied the doctrine of the Shafite sect. He wrote so well that the species of character called *al-Khatt-al-Mansúb*, and of which mention is made in the life of Ebn Al-Bawwáb that he was considered to be a better penman than that celebrated Kátib. It was particularly in the 2 sorts of hand called *Támar* طومار and *Thuluth* ثلث, that he fully displayed his talents; but he was so jealous of his skill in giving *fatwas* to persons who asked them with the hopes of thus obtaining specimens of his writing that he broke the point of the pen before using it. In A. H. 581 (A. D. 1185-6) he succeeded Abu Khair al-Kazwini as professor at the *Nizamiya* college, and introduced numerous pupils in jurisprudence. He then cultivated the art of penmanship till he surpassed Ebn al-Bawwáb, but having conceived a dislike for such an occupation, he devoted the rest of his days to study. He died in the month *Da-l-Ka'dah* A. H. 585 (Dec. 1189), aged 82 years.

I shall now offer some observations suggested by the words *Khatt-al-Mansúb* which occur in this notice. That no uncertainty may remain on the point of their being here used to designate a particular species of written character, I reproduce the original text:—

و كتب الخط المنسوب الي ان قيل انه اكتب من ابن البراب

“And he wrote the *Mansúb* writing till it was said of him that he surpassed Ebn al-Bawwáb in that art.”

In Ebn Khallikan's article on Ebn al-Bawwáb (vol II. p. 262) we read these lines:—

وقيل ان صاحب الخط المنسوب ليس ابا علي المذكور

“And it is said that the author (or inventor) of the *Mansúb* writing was not the Abu A'ly above mentioned.”

Al-Dahabi says in his *Tarikh al-Islám*, in his article on Ebn Moklah:—

محمد بن علي بن الحسن بن مقله ابو علي الوزير صاحب الخط المنسوب

“Muhammad B. A'ly B. al-Hasan B. Moklah Abu A'ly the vizier, the author of the *Mansúb* writing.

of Abu A'ly; it will be found among those of the persons, whose names were Muḥammad. When Abu O'bayd al Bakri, the native of Spain and author of the works (*which are so well known*), cast his eyes on the handwriting of Ebn Moḳlah, he recited the lines :—

' When a man feeds his eyes (*moklah*) with the sight of Ebn Moḳlah's handwriting, all the members of his body would like to be eyes.'

It is agreed by all that Ab al-Ḥasan (*Ebn al-Bawwāb*) stood apart (*in his superiority*); it is his system which is yet followed, but none have ever reached nor pretended to reach his pitch of excellence, and yet there are people in the world who lay claim to (*talents*) which they do not possess. We may add, that for a person to maintain such

In Abn-l-Mabasin's *Najūm*, year 423, we find Ebn al-Bawwāb styled, the author of the excellent *Mansūb* writing *صاحب الخط المنسوب الفائق* He then adds :—" He surpassed all his contemporaries in the *Mansūb* writing, so that his renown spread east and west." He employs again the same term when speaking of Ebn Moḳlah.

It appears from these passages that there existed a particular species of writing called, for what reason I cannot discover, *al Mansūb*. Ebn Khallikān and other historians say that Ebn al-Bawwāb drew it from the style of writing used by the people of Kufah, and the perfection to which he brought it is univorsally attested by them. But there is nothing in Ebn Khallikān's statement which can lead us to suppose that this improved character is the same as that which is now called *Neskhi*, and generally employed in Arabic MSS. He says, it is true, that it is Abul Hasan Ebn al-Bawwāb's system which is still followed, or as the original text has it; *it is on his loom they weave, i.e. they take him for a model*. But it cannot be logically concluded from these words that the *Neskhi* did not exist before his time, or that later penmen took him for their model when writing in the *Neskhi* character, neither can it be deduced therefrom that the learned Moslems suppose the Kufic to have been in general use till the time of Ebn Moḳlah. Hāji Khalfa says positively under the article *علم خط* that under the Ommayyades different styles of writing or pens *قلام* as they are called, had already been brought into existence. The passage will be found in the 3rd vol. of the edition published by Prof. Flügel.

I have insisted particularly on these points, because the Arabic scholars of Europe generally concluded from Khallikān's words that Ebn Moḳlah invented the *Neskhi*, and that before his time (he died A.H. 328) the Kufic was the sole character employed. This opinion was completely overturned by the discovery which M. de Sacy made of some passports in Arabic drawn up in the 2nd century of the Högira, and of a letter dated A.H. 40, all written in what is called the *Neskhi* hand. The consequence was that the authority of Ebn Khallikān and of all other Arabic writers, who speak of Ebn Moḳlah's improvement, appeared to have sustained a severe shock; whereas a more

a pretension is a thing which we never saw nor heard of; all agree that he surpassed competition and that he never had a rival.

It will now be proper to review the Neskhi documents cursorily alluded to in the preceding foot-note :—

In 1825 M. Drovetti, the Consul General of France in Egypt, sent to Paris two Arabic papyri discovered in an earthen vase at Sakkarah. These were two passports delivered A. H. 133 (A. D. 750-51) issued by Jáber B. O'bayd, governor of the province of Memphis, in the name of the Amir A'bd-al-Melik, the son of Yazid, viceroy of the Khalif in Egypt, to certain inhabitants of Memphis who were departing with their families. It appears from the facsimiles of these papyri,²⁵ which have no diacritical points or marks whatever, and have all their strokes perpendicular, that they are clearly Neskhi. There exists also a third passport of the same kind and period, which is at present in the British Museum. In 1827 De Sacy received a yet earlier papyrus, namely of A. H. 40 (A. D. 660-61), which he published in the *Journal Asiatique*, t. X. p. 209 seq., and came to the conclusion that the Neskhi character is at least two centuries anterior to the celebrated vizier Ebn Moqlah, to whom the invention of it had been generally attributed. The last mentioned document is not a passport, but a confidential letter written to Osamah, also in Neskhi; but the clay seals impressed on these 3 papyri are in Kufic letters. There exists also a tablet of pottery representing either an order or a receipt for some grain probably; it bears the name of the same Osamah—a historical name of that period—and is deposited in the Louvre. The legend is as follows in Neskhi characters :—

من اسامه بن زيد ربع قسط وان

“From Osamah B. Zayd. A quarter of a *qasf*. Full measure.”

attentive examination of their words would have completely justified their statement.—I think it necessary to state that oriental scholars have generally given too great an extension to the signification of the word *Neskhi*. With them the characters *Thuluth*, *Rihán*, *Rikáa*, &c. are all *Neskhi*, but this is an error, the *Neskhi* itself being a particular character (particular in its dimension not in its form), and yet on this very error they have founded their reasonings when endeavouring to trace the variations which the Arabic written character has undergone.

²⁵ They may be seen in the *Journ. des savants* for July 1825, in t. X. of the *Mém. de l'Acad. des inscript.* and p. 66 seq. of the *Mém. d'hist. et de litt. orientale*.

In the 3rd chapter of Jámy's Beháristan, the Khalif O'mar is reported to have written an order to the governor of Boçrah on a potsherd, which is probable enough, considering that many portions of the *Ḳorán* itself had at first been written on bones.

But the most interesting of the early documents known to us is undoubtedly the letter of the prophet himself, which is in a very dilapidated condition, although the text has been restored after much trouble and study. M. Belin⁸⁸ describes the manner in which M. Barthélemy discovered the letter in a Coptic monastery circumstantially, gives a facsimile of it, and the text which is worth inserting in this place :—

بسم الله الرحمن الرحيم من محمد عبد الله ورسوله الي المقوقس
عظيم القبط سلام علي من اتبع الهدى اما بعد فاني ادعوك بدعاية
الاسلام فاسلم تسلّم يونيك الله اجرک مرتين فان توليت فعليك اثم
القبط يا اهل الكتاب تعالوا الي كلمة سوا بيننا وبينكم ألا نعبد إلا الله
ولا نشرك به شيئاً ولا يتخذ بعضنا بعضاً ارباباً من دون الله فان
تولوا فقولوا اشهدوا باننا مسلمون



Translation.

“ In the name of God the merciful, the clement. From Muḥammad the servant of God and His apostle, to Al-Maḳókus, the chief of the Copts. Salutation to him who follows the right course. But after [this preliminary] I invite thee to accept Islám ; make a profession of it thou wilt be safe, God will give thee thy reward twice ; but if thou refusest, the sin of the Copts will be upon thee. [Say] o people of the Scripture, come to the word [of the profession] which will equalize us and you. We adore only Allah, and associate nothing to

⁸⁸ Journ. As. 1854, t. IV., p. 483 seq.

him. Let us not take each other for lords besides God. If they refuse, then say [to them] :—Bear witness that we are Moslems.”

Of God
Apostle
Muhammad

There is no doubt that the prophet sent a letter also to Μακρόκω, the governor of Alexandria, who is in all the standard biographies of Muhammad always mentioned among the number of the potentates to whom envoys with such letters of invitations to profess Islām have been sent, as will also be seen further on in this paper, where a list of six such potentates will be given from the most ancient biography of the prophet. This document is not a papyrus but a parchment, but in such a state that the precise nature of the characters cannot be ascertained; to judge from the facsimile, they are more like Neskhi than Kufic, so that they may perhaps be considered to be a hybrid between the two; nor can any points or other marks be discerned. M. Belin is of opinion that the document has not been the production of a forger, like the *Ahd* or letters patent of Muhammad, preserved by the Armenians of Asia Minor, and presented to the government of the Viceroy of Egypt in order to recover some rights and immunities conceded to them by the prophet,⁹⁷ but that it is genuine.

In vol. VIII. of the D. M. G. for 1854, also a few facsimiles of early writing occur, which are referable to Christian Arabs, as they contain verses from the New Testament. Thus for instance Tim. II. II, 25-26, is written in a Yakuti character still very near to the Kufic; the copyist had added the points in red ink, but not seldom, falsely; this is of the 8th or at the latest the 9th century of our era. Another specimen

⁹⁷ The circumstance that in most of the letters patent or diplomas purporting to have been granted by Muhammad, some privileges are granted, has made them suspicious; hence also the authenticity of the document he had given to the Christians of Najrán was impugned (see Journ. of the Bombay Br. E. A. S. vol. XIII. p. 97). Such a document is also in the possession of the Parsee community of Bombay. It was published in Arabic with a Persian and Guzerati translation in 1851 by Mr. Sorabjee Jamsetjee Jejeebhoy, under the title of “Tuqviinti-din-i Mazdiasna, or a Mehzur or Certificate, given by Huzrut Mahomed, the prophet of the Moosulmans,” &c. This document may also be seen in the Tarikh Guzideh (composed A. H. 730, A. D. 1329-30), but is somewhat amplified in the Parsee edition.

containing Matt. XIV. 31-34, is a stiff Neskhi beginning to develop itself from Kufic, it is said to be of about the 9th century of our era, and in it the letter ق is marked by a dot below, as is customary in some parts of Africa.

The bronze coins struck by the Moslems in the beginning of the second century of their era mostly bear *Neskhi* legends, and the following, which is of the first century, is probably one of the earliest :—

عبدالله عبد الملك امير المؤمنين Of the servant of God, A'bd-al-melik, commander of the faithful.

لا اله الا الله محمد رسول الله No God except Allah, Muḥammad the apostle of Allah.

واف بقنسرين Full weight. At K̄ansaryn.

The numerical value of the word و اف is A. H. 87 (Began 23rd December 705). On the other hand, the oldest gold Dinárs of the Ommiade Khalifs (A. H. 76) and their oldest silver Dirhems (A. H. 78) all bear *Kufic* legends; and the same is the case with the earliest coins of the Khalifs (from A. H. 20 to 93, A. D. 641 to 704) who retained Pehlevi legends with Zoroastrian symbols, such as the mitred Sasanian head and fire-altar, on them in the newly conquered provinces of Persia according to the fashion of their predecessors the Sasanians, but with the addition of the invocation *Bismillah* in *Kufic* characters.

Accordingly from all that has preceded the conclusion may be drawn, that both *Kufic* and *Neskhi* were in use even during the first century of the Hegira, but that the former was found to be more adapted to monumental, and the latter to cursive documents.²⁹

The hypothesis that the Moslems had destroyed the literature of the pagan Arabs is of course incompatible with the fact that writing had not become known to the Arabs earlier than a century before Muḥammad; in the Hemyaritic inscriptions written some centuries before his time in southern Arabia, numerous idols are indeed mentioned, but this only shows that polytheism prevailed there before other Arabs had learnt to write, and does not lead us to infer that any very valuable literature existed among the Hemyaritic Arabs of Yemen. On the other hand, it is hard to believe that poems purporting to have been composed on some special and not very important subjects, several centuries before Muḥammad should have been preserved when the art of writing

²⁹ Lenormant, *loco laudato*, pp. 158-160.

was yet unknown, but supposing such to have nevertheless been the case, doubts must arise whether oral tradition was sufficiently faithful to hand them down to later times perfectly unchanged. Amrulkays, the most ancient of the seven poets of the Moa'llakát, was born about A. D. 500, and all the other pre-islamitic bards—the most celebrated of whom were Shanfara, Thabbat-Sharran, Tarafah, Antarah, Hareth, B. Hillizeh, Zoheyr, A'mru B. Keltúm, Asha, Nabeghah and Lebid—must be ranged between that period and the promulgation of Islam.

The diction of the pre-islamitic poems is not different from that of modern literary Arabic, and although the Moa'llakát contain many locutions and words which have fallen into disuse, their language is on the whole not such as might be called archaic; although it cannot be denied that those poems have since a long time become obscure even to the most learned Arabs; they are always accompanied by commentaries, in which not seldom 2 or 3 explanations of one and the same verse are given. Moreover, the poems in question, which were composed more than 150 years before the unity of Arabia was established, and among various tribes living at great distances from each other, contain scarcely a vestige of provincialisms. Hence the conclusion must be drawn, that long before the time of Muḥammad the literary language of Arabia extended from one end of the country to the other, whereas the unity of the classical language *is said* to have been established only by the preponderance of the Kōraysh, and the exclusive use of the Mekkah dialect in the Kōrán; it is on the other hand also certain that the Kōraysh had but a small share in the composition of pre-islamitic poetry, in which scarcely any allusions to the former religion of the Arabs occur, who might be supposed to have had none whatever, except on the supposition that every trace of paganism was expunged from the poems after the conversion of the Arabs to Islám. Afer all, however, the doubts just hinted at, which would be decisive for other languages, are not of so much weight when applied to Arabic. The immoveableness of the Semitic languages appears however not only in Arabic, but manifests itself also in Hebrew in so striking a manner that all the monuments of that literature, extending over a long series of centuries—much longer than any specimens of Arabic literature—bear the stamp of identity of grammar and unity of language. Accordingly we must conclude that also Arabic had become fixed rather early, that its purity had become the fashion long before the time of Muḥammad, and that the ancient *Kaçidahs* have never been altered on purpose. The strict metrical

arrangement of the old poems furnishes us with another argument in favour of their integrity, and the origin of Arabic versification is very obscure ; the poetical portions of the Korán however—the latter Surahs—show nothing of this metrical arrangement, they are composed in the free and loose rhythm founded solely on the turn of the sentence, the parallelism, the alliteration, which are the characteristics of ancient Hebrew, and of Semitic poetry in general. This style has also been called rhymed or modulated prose by those who regard only actual verses as poetry.

We shall now discuss the documents which were written about the beginning of the Hegira era.

Muḥammad Ebn Esaḥak (died A. H. 151, A. D. 768) was among the first historians who collected accounts about the prophet, and A'bd al-malek Ebn Heshám (died A. H. 213, A. D. 828) produced from them the *Biography of Muḥammad* published by Dr. Wüstenfeld in 1860. The first written document mentioned in this work, is a cloth of brocade on which there was a writing brought by the angel Gabriel. The presentation of this document is narrated as follows, in the words of the prophet himself:—"He came whilst I was sleeping, [he came] with a cloth of brocade on which there was a writing, and said—'Read.'⁹⁹ I replied:—"I do not read;" then he pressed me with it till I thought I was dying; then he let go his hold of me, and said—'Read.' I replied—"I do not read." He again pressed me, and said—'Read.' Then I asked—"What shall I read?" and this I said because I feared he would again repeat his former treatment; then he said—"Read. In the name of thy Lord who created, who created man from a clot of blood—Read. Thy Lord is the most bountiful who taught by means of the pen, taught man what he knew not." Accordingly I read these words. He had finished [his message], and departed from me. I awoke from my sleep, and felt as if a writing had been written in my heart."

The above is well known to have been the first revelation received by the prophet, and constituting Surah XCVI. 1. This event is alluded to also by Mirkhond and others.

Some little poems are quoted as having been composed in Abyssinia by the first Moslem neophytes who had fled there to escape from

⁹⁹ اقرأ This word is always translated as above; some critics however suggest that it ought to be rendered by *Recite*, because it is believed that the prophet was an *Omyy* or illiterate man, unable to read.

the persecutions of the Koraysh, but it is not said whether they had actually been written down at the time; such however must evidently have been the case, at least with the verses sent by Abu T'áleb, requesting the Najáshy or king to protect the exiles. As the piece is short, it may be inserted here :—

Would that I knew how Ja'fer is in exile
 And A'mru [our] relatives, but [deemed] enemies by our foe
 Whether the good deeds of the Najáshy benefit Ja'fer
 And his companions, or whether an enemy has meddled.
 Be aware that thou who hatest evil, art praised,
 Generous. Let no man who seeks aid be wretched near thee,
 Be aware that God has bestowed on thee power
 And that the means for every good are at thy disposal !
 Thou spendest with overflowing buckets,
 Bountiful to friend and foe.

O'mar, who afterwards became Khalif (A.H. 13-23, A.D. 634-643), could read and write, and the next written document we shall mention, is brought to our notice in connection with his conversion to Islám, which took place as follows :—

“Ebn Esahák says, the Islám of O'mar, as his sister Fátimah, the daughter of Alkhattáb, has informed me, took place as follows :—She had made her profession of Islám with her husband Sa'yd B. Zayd B. A'mru B. Naufel; both however kept their profession secret from O'mar. Khabbáb B. Alláraṭ used to visit Fátimah, the daughter of Alkhattáb, and to read the Korán to her. One day O'mar took his sword and went in pursuit of the apostle of God and a number of his companions, male and female, amounting to nearly forty, who were assembled in a house near Çafá. With the apostle of God was also his uncle Hamzah B. A'bd-al-Muttaleb and Abu-Bekr-al-çidyk, with A'ly B. Abi T'áleb and Moslems who had remained in Mekkah with the apostle of God, and had not emigrated. Nu'aym B. A'bdullah met him, and asked—‘where art thou going, O'mar?’ He replied, ‘I want Muḥammad, that apostate who has separated himself from the interests of the Koraysh, has declared their men to be fools, disparaged their religion, and blasphemed against their gods. I shall kill him.’ Nu'aym replied, ‘Verily thy passion is endangering thy life, o O'mar! Dost thou think the Banu A'bd Menáf will allow thee freely to roam about the earth after killing Muḥammad? Wouldst thou not return to thy family and mind their business?’ He asked, ‘What family?’ Nu'aym con-

tinued: 'Thy brother-in-law and cousin Sa'yd B. Zayd B. A'mru and thy sister Faṭimah, the daughter of Alkhaṭṭáb; verily they have professed Islám and have followed Muḥammad with his religion; therefore look out for them.' Accordingly O'mar returned straight to his sister and brother-in-law; with them was Khabbáb B. Alláruṭ, who had a volume containing T. H. [title of Surah XX. of the Korán] which he was reading to her. When they heard O'mar approaching, Khabbáb concealed himself in a bed chamber they had, or in some other part of the house, whilst Faṭimāh, the daughter of Alkhaṭṭáb, took charge of the volume and placed it under her thigh. O'mar, however, whilst nearing the house, had heard Khabbáb reading to her, so that when he entered, he asked—'what is this low muttering which I have heard?' Both replied, 'Thou hast heard nothing.' He rejoined, 'By God I have! And I am informed that you are following Muḥammad in his religion.' And O'mar assailed his brother-in-law Sa'yd B. Zayd, whereon his sister Faṭimah, the daughter of Alkhaṭṭáb, arose to keep him off from her husband, but he struck and wounded her; after he had done this, his sister and his brother-in-law exclaimed, 'Indeed we have professed Islám, and we believe in God and in his apostle! Now do as thou listest.' When O'mar perceived how much blood was flowing from his sister, he repented of what he had done, and became frightened; nevertheless he said to his sister—'Give me instantly the volume you were reading, that I may see that [revelation] which Muḥammad has brought.' O'mar was a writer, and to his demand Faṭimah replied—'I fear thou wilt injure it,' but he said—'Be not afraid,' and swore to her by his gods that he would peruse and immediately return it to her. After this promise she conceived the hope that he might be induced to embrace Islám, and said—'O brother, thou art impure in thy idolatry, and no one but a pure person is to touch this writing.' Accordingly O'mar got up, and after he had washed himself she gave him the volume containing the Surah T. H., and after he had read the beginning of it, he said—'How beautiful are these words!' and praised the book. When Khabbáb heard this [expression], he came out and said—'O O'mar! Verily I hope that God has elected thee by the prayers of his prophet, for I have heard him saying last evening, 'O God, strengthen Islám through Ab-ullḥakam B. Heshám or through O'mar B. Alkhaṭṭáb. God is God, O O'mar!' To this O'mar replied—'Then direct me to Muḥammad, O Khabbáb, that I may make my profession of Islám!'"

This account occurs likewise in Mirkhond, with many details concern-

ing the conversion of O'mar, and appears to be only an amplification of the above; also the volume containing the 20th Surah of the Korán is mentioned, but as it consists only of 135 verses, it must have been small indeed, unless perhaps very large characters without ligatures were used in the writing. It appears at all events that even in the earliest stages of Islám not only separate verses, but whole chapters of the sacred book, were in circulation.

Muhammad was protected by his family, which was on that account isolated from the other people of Mekkah, and concentrated itself for mutual protection in the quarter of the town called the Shi'b, where most of them dwelt. The written document, the actual text of which is however not given, was composed on this occasion:—"E. E. says, when the Koraysh saw that the companions of the apostle of God had gone into a country where they had found security, and that the Najáshy was protecting those who had sought refuge with him; that O'mar had made profession of Islám, and that he was with Hamzah B. A'bd-al-Muttaleb on the side of the apostle of God and of his companions, and [lastly] that Islám had begun to spread among the Qaby-lahs, they assembled and determined among themselves to write a writing wherein they pledged themselves neither to intermarry nor to trade with the Bani Heshám and the Bani Al-Muttaleb. When they had agreed on this subject, they consigned it to writing, then they made a covenant and firm alliance with each other on it; then they suspended the page in the interior of the Ka'bah as a reminder for themselves. The writer of this agreement was Manqúr B. E'kramah. E. H. states that it is also said that the writer was Al-Naqar B. Al-Háreth, against whom the apostle of God uttered a prayer, so that several of his fingers withered away." According to Mirkhond forty Koraysh chiefs had affixed their signets to this document, which was suspended from the *door* of the Ka'bah. The material on which this writing was made is not mentioned, but it could not have been very substantial, as all accounts agree that when the document was to be destroyed, it was found that insects had already eaten it up, except the expression 'In thy name, O God.' Had the document been suspended outside the door and visible to all, the ravages committed by the insects would have been perceived, but as they were *discovered* it must have been inside. E. H. says, some learned men state that the apostle of God said to Abu Táleb—"Uncle! My Lord has given power to the worms over this writing of the Koraysh, and they left all the names relating to God, but destroyed

everything referring to wickedness, separation and falsehood.' He asked—'Has thy Lord informed thee of this?' He said—'Yes.' Then Abu Ṭāleb said—'By God, no one shall enter to thee.' After that he went out to the Koraysh, and said—'O Koraysh, my nephew has informed me so and so; bring the writing, and if the case be as he states, make an end of your estrangement from us, and leave off your evil designs; but if it be false, I shall surrender to you my nephew.' The people answered—'We agree to this'; they made a mutual promise, examined the writing, and it was as the apostle of God had asserted; this however only augmented their evil intentions; nevertheless, on this occasion, a faction of the Koraysh carried out their determination of annulling the document."

Relating to certain verses concerning apostates, but especially Surah XXXIX 54—55 "Omar says, I wrote these words with my own hand on a page which I sent to Heshām, B. Ala'ái," &c. It is nowhere stated whether any schools existed among the Koraysh, but there is no doubt that the Christians of Najrán and the Jews of Madynah maintained a few institutions of the kind, as we observe that Muḥammad paid a visit to one which is called *Beyt-al-medris*, for the purpose of converting the people connected with it:—"The apostle of God entered a school in which a company of Jews was assembled, and these he invited to God. Whereon [a Jew] Nu'mán B. A'mru asked him—'What is thy religion O Muḥammad?' He replied—'The sect and religion of Abraham.' They continued—'Abraham was a Jew.' Then the apostle of God said—'Bring the Pentateuch, and let that decide between us and between you'; they however refused," &c.

Also A'ly B. Abi Ṭāleb, the cousin, first convert and son-in-law of Muḥammad, was a writer; his hundred sayings as well as some of his poetical compositions are still read. He was also to have written the treaty of peace concluded in the sixth year of the Hijret (A. D. 627—28) between Muḥammad and Suhayl B. A'mru; but after all, the latter wrote it. The account is as follows:—"The apostle of God called A'ly B. Abi Ṭāleb, and said—'Write:—In the name of God the merciful, the clement.' Suhayl said—'I do not know this; I shall write—In thy name, God,' The apostle of God said—'Then write—In thy name, God.' Accordingly he wrote," &c.

When Muḥammad determined A. H. 7 (A. D. 628-29) to send letters to the adjoining kings, he got a signet-ring of silver prepared for the purpose of affixing his signature by means of it to each letter; the words 'Muḥammad the apostle of God' being engraved in such

a manner as to form 3 lines, the uppermost containing the name of God, and the lowest that of Muḥammad. The letters were six in number, and were despatched by as many envoys. The potentates were in these letters invited to embrace Islām, and their names are as follows:—Najashy the king of Abyssinia, Heraclius the Emperor of Byzantium, Khosru Parviz the king of Persia, Makokus the Governor of Alexandria, A'áruth B. Shammaar the king of Syria, and Haud Jayfy the Governor of Yamamah. These letters were no doubt all written on papyrus, else Khosru Parviz could not have so easily torn up that which was brought to him.

In Mirkhond the following text of a letter written to the Koraysh by a man named Kháttub B. Abi Tabá'h occurs:—"His holy and prophetic lordship is engaged in preparations for a campaign, and in collecting the army. Most likely the destination of his lordship is no other than Mekkah. I wanted to oblige you, and have therefore indited this epistle. Farewell." Kháttub gave this letter to a woman who concealed it in her hair, and started for Mekkah, she was however caught, and the letter discovered.

The oldest biography of Muḥammad, from which most of the notices concerning written documents have just been given, contains no statement whatever of his asking for writing materials when in his last sickness and on his deathbed, and that the demand was not complied with by O'mar and the other companions present. This circumstance is however narrated by most historians, and Mirkhond gives the very words uttered by the prophet on that occasion:—"Bring an inkstand and a sheet that I may write something which will not mislead you after me."⁸⁰ Some European writers, and among them also Dr. Sprenger—no small authority in this matter—have, from these words as well as from other indications, concluded that Muḥammad could not only read but also write. Without entering into a discussion on this point, we may observe that at all events, according to the Korán, there was a period—probably the youth—in the life of Muḥammad when he could neither read nor write; for we have the verse in the Korán XXIX. 47, "Thou couldst not read any book before this; neither couldst thou write it with thy right hand," &c. He kept regular amanuenses for writing down verses or larger portions of the Korán whenever he was inspired. The principal four of them were A'ly B.

⁸⁰ Shahrastani, p. 11, gives the words of the prophet according to authentic tradition as follows:—

ايدوني بدوات وقرطاس اكتب لكم كتابا لا تضلوا بعدى

Abi Táleb, O'thmán B. U'ffán, Ab B. Ká'b, and Zayd B. Thábet. It is curious to observe that although both the first mentioned individuals became Khalifs afterwards, they do not appear to have been very skilled writers, as the two latter ones had always to revise their writings and to correct their errors. If none of these four men happened to be present, the prophet called any other companion who was at hand if he could write, and dictated to him.

As Muḥammad was born in 571 before Bisher had definitively introduced the art of writing in Mekkah, it would be quite natural that he had not learnt it. M. Lenormant⁸⁰ is of opinion that before the time of Harb and Bisher, the ignorance of the Koraysh with reference to the art of writing was complete, or at least that they had no national writing, since learned men such as Waraqáh Ben Naufal, uncle of Khodayjah, the first wife of the prophet, used foreign alphabets, but especially the Hebrew, with which he also wrote his Arabic translation of the Gospels. The case was of course different with other portions of Arabia, such as Yemen and E'râk for instance, where the people left written monuments of an earlier date even than the Christian era.

Christians were employed as writers, accountants, &c. but already the Khalif O'mar (reigned from A. H. 13 till 23, A. D. 634 till 643) discountenanced intercourse with them. He wrote to one of his lieutenants—"He who has a Christian writer with him is not to live in common with that man, nor to entertain any affection for him, nor to make him sit down near himself, nor to consult him for his opinion; because neither the prophet of God, nor the Khalif his successor, has ordered to make use of Zimmis in employments." He also received the following letter from Moavia (who afterwards became Khalif, and reigned A. H. 41—60, A. D. 661—679):—"O commander of the faithful! I have in my province a Christian writer, without whom I am unable to raise the land-tax, but I did not wish to invest him with that duty without taking your orders." O'mar replied:—"May God preserve us all from misfortune! I have perused the despatch thou hast sent me with reference to the Christian. Know that this Christian is dead."⁸¹ From this we conclude that hereby O'mar commanded Moavia to dispense with the services of the Christian, as if he had died.

⁸⁰ Essai sur la propagation de l'alphabet Phénicien, t. II., p. 144.

⁸¹ Fetoua relatif à la condition des Zimmis et particulièrement des Chrétiens en pays Musulman, depuis l'établissement de l'Islamisme jusqu'au milieu du 8e siècle de l'Hégire. Traduit de l'Arabe, par M. Belin, Journ. As. 1851, 4e série, t. XVIII., p. 429.

The general inability of the Arabs to write, as they were men of the sword and not of the pen, often induced them even in the 2nd century to employ Christian writers, and stringent orders were issued not to do so. Thus when the Khalif Mahdi (reigned from A. D. 775 till 785) bestowed on Hammád the government of the province of Sewád—district of Kufah and of Boçrah,—he ordered him to go down to Anbar and to the other provinces, and not to allow any governor to entertain a Zimmi writer. He added, moreover, that in case he should be informed of any Musalmán having taken a Christian into his service, he would get the hand of the Christian cut off; this was actually done to Sahuna and to many other scribes.³³

Some large and important tribes had embraced Christianity very early, which flourished also during the 4th century of our era in southern Arabia, so that there cannot be a doubt that writing was known, and a literature, though probably of small extent, existed among the Christian congregations; we have, moreover, not only the testimony of historians, but of the Korán itself (ch. CV.) that the Christian king Abrahah was powerful enough to march with a powerful army against Mekkah.³³

We have already above mentioned that O'mar was a writer, but from the following passage quoted by Dr. Sprenger,³⁴ it will appear that books on the religion of the Jews and Christians were not only current, but were copied by the Arabs, and even by O'mar himself, who afterwards greatly opposed the growth of written literature, and was the chief agent in the destruction of the famous library of Alexandria:— 'Kháled B. O'rfotah relates: I was sitting with O'mar when there came a man of the A'bd al Qays tribe, who dwelt at Sus. O'mar asked him, Are you A. B., the son of C. D., of the A'bd al Qays tribe? Answer: Yes. Do you reside at al-Sús? He answered again in the affirmative. O'mar struck him with a pointless spear which he had in his hand. The man said, What is my fault? O'mar upon this repeated the verse of the Korán XII, 1—3, and gave him three more strokes with the cane. The man again asked, What is the matter? O'mar replied: You are the man who has copied the book of Daniel *الذي نسخت دانيال*. The man said, Tell me what I am to do, and I will obey. The Khalif answered: Go and efface it

³³ Ibidem, p. 440.

³³ My paper "Some Beliefs," &c. Journ. of the Bombay Br. R. As. S. 1876, vol XII., p. 195 seq.

³⁴ Journ. of the As. Soc. of Bengal, 1857, vol. XXV., p 310.

with hot water and white wool, and do not read it nor give it to anybody to read. And if I hear that you read it or gave it to anybody to read, I shall punish you severely. Upon this he permitted him to sit down, and when he was seated he said: I went and copied a book of the believers in the scripture. Then I bound it in red leather, and brought it [to the prophet], and he asked: What have you in your hand, O'mar? I answered: A book which I copied in order to increase the knowledge which we already possess. The prophet got very angry, so much so that he became quite red. We were just going to the Friday prayers, and the Ançar said: The prophet is angry—to arms! and they surrounded his pulpit. The prophet said: The revelation which has been given to me contains all others, and seals them, and it is an abstract of them. My revelation is of unalloyed purity, do not allow yourselves to be made confused, and do not follow those who are confused [the Jews and Christians].”

There is no doubt that not only the uncle of the prophet's first wife, as has already been mentioned above, wrote Arabic with Hebrew characters, but also others, and naturally also the Jewish Arabs, by contact with whom it must have come into vogue. This mode of writing was of course abandoned very soon after the propagation of Islâm, and was never practised by the older companions of the prophet, most of whom were entirely illiterate men.

The religious prejudices against writing, the reluctance to, and the ignorance of this useful art diminished very soon even during the conquests of O'mar; and the Arab officers in their new possessions, such as Syria, Persia, and Egypt, instead of employing Christians, Jews and other unbelievers as scribes, were, by the force of circumstances, compelled to lay aside their prejudice, and to learn how to write first for purposes of business, and afterwards for those of literature and science, in which they achieved no mean position, so that they became the guardians of Greek science, which they transplanted into the universities they had founded in Spain and Italy, whence the torch of the “Revival of learning” was kindled in Europe during the eleventh century of our era.

ART. XIV.—*Magic*. BY E. REHATSEK., M.C.E.

[Read 2nd April 1879.]

Spiritual magic is either licit or illicit, *i. e.* divine or Satanic ; but there is yet a third kind, which, although it does not belong to the former, can nevertheless not be classed with the latter ; most of its branches are however considered licit, and it has been called natural magic. “ Muḥammad B. Eshaḳ Al-nadym states that those who make use of spells and sorceries, believe devils, genii and spirits to be obedient to them, to serve them, and to be entirely at the disposal of their commands or prohibitions. As to the incantators who obey the law, they are believed to operate in obedience to God (Whose name be glorified), praying to Him and adjuring the spirits and devils through Him. They are supposed to abandon every kind of lust, and to pursue every kind of devotion ; whereon the genii and devils obey them, either from obedience to God (*w. n. b. g.*) by Whom they adjure them, or from fear of Him (Whose name be blessed and exalted), because His names (Whose mention be hallowed and glorified) have the peculiarity of subduing and of abasing them. But as to the sorcerers, they are believed to obtain the services of devils by offerings, by sinful acts, and by transgressions, the abandonment whereof pleases God, but the performance whereof pleases the devils ; namely, to neglect prayers and fasting, to hold bloodshed, the committing of incestuous marriages, and similar wicked acts to be licit. . . It is believed that certain philosophers and astrologers construct talismans from their observations of stars for their performance of every kind of wonderful acts, for winning the affections of persons or subjugating them. They draw figures on stones, they have their amulets and beazles. This science has spread among philosophers, and the Hindus believe in it, and possess wonderful performances ; the Chinese have stratagems of another kind. The science of contemplation is however peculiar to the Hindus, and they have books treating thereon, some of which have been translated into Arabic. The Turks are likewise acquainted with sorcery, and one in whose honesty I trust, has informed me that they perform wonders in putting to flight armies, slaying foes, crossing waters, and performing long

journeys in short periods of time. In Egypt and Syria there are many talismans plainly visible, but they are no longer effective, as their period of operation has elapsed."¹

DIVINE MAGIC.

In ancient times Ulemmas, saints, inspired and spiritual men sometimes possessed, according to Moslem authors, the secrets of divine magic; they performed miracles; they caused the moon to shine when it was not on the sky, or when eclipsed, or they split it in twain. They likewise caused the sun to appear in the night; they produced

قال محمد بن اسحاق النديم زعم المعزّمون والسحر ان الشياطين والجنّ والارواح تطيعهم وتخدمهم وتصرف بين امرهم ونهيهم فاما المعزّمون ممن ينتحل الشرايع فزعموا ان ذلك يكون بطاعة الله جلّ اسمه والا بهتال اليه والاقسام علي الارواح والشياطين به وترك الشهوات ولزوم العبادات وان الجنّ والشياطين يطيعونهم اما طاعة لله جلّ اسمه لاجل الاقسام به واما مخافة منه تبارك وتعالى ولان في خاصية اسمائه تقدست وذكره علا وجلّ تمعهم واذلالهم فاما السحر فزعمت انها تستعبد الشياطين بالقرابين والمعاصي وارتكاب المحظورات مما لله جلّ اسمه في تركها رخصا وللشياطين في استعمالها رخصا مثل ترك الصلوة والصوم وابعاح الدماء ونكاح ذوات المحرم وغير ذلك من الافعال الشرية ... زعم طائفة من الفلاسفة وعبدة النجوم انهم يعملون الطلسمات علي ارماد الكواكب لجميع ما يريدونه من الافعال البديعة والتهيجات والعطوف والتسليطات ولهم نقوش علي الحجارة والخرز والفصوص وهذا علم فاشي ظاهرة في الفلاسفة وللهند اعتقاد في ذلك وافعال عجيبة وللصين حيل ومحر من طريقة اخري وللهند خاصة علم التوهم ولها في ذلك كتب قد نقل بعضها الي العربي وللترك علم من السحر قال لي من اثق بفضله انهم يعملون عجائب من هزائم الجيوش و قتل الاعداء ومبور المياه وقطع المسافات البعيدة في المدّة القريبه والطلسمات بارض مصر والشام كثيرة ظاهرة الاشخاص غير ان افعالها قد بطلت لتقدم العهد ٣٠٩ p. Kitáb al-fihrist,

thunder, lightning, and storms of wind, strong enough to overthrow walls and to uproot palm trees, they made torrents of water flow nearly like those of the deluge, and boisterous waves; they also caused the withering of fruitful trees and the like.

It has been observed above that even wicked genii may be subjugated by divine magic, and we may here quote the instance of King Solomon who desired the throne of the queen of Sheba to be brought, and "a terrible genius answered, I will bring it unto thee, before thou arise from thy place,"³ and this E'frit fulfilled his promise. There are also prayers, the recitation of which will procure the aid of genii,³ but everything is accomplished by appropriately uttering the great names of God. The *ineffable name* was engraved on the sealing of Solomon, and by means of it he subjected to his dominion not only genii and men, but animals and the powers of nature. This greatest name is revealed only to few holy men, and others must content themselves with the lesser ones, or even with those of the Prophet or the angels, which are also written together with verses from the Korán, and used as charms in a variety of occasions. "It is said—but God knows best and is most wise—that Solomon, the son of David—salutation to both of them—was the first who subjugated genii and devils, and used them in his own service; it is also said that the first man who used them in his service was in the religion of the Persians, Jamshed the son of Unján."⁴ Amulets, formulas or recipes against diseases, talismans, and all operations of a magic nature with prayers, verses from the Korán, and invocations with great names belong to this branch, and some consider that even sorcery practised for benevolent purposes is a part of divine magic.

SATANIC MAGIC.

The "Black Art" is called *Sehr*, and believed nearly always to depend on the agency of evil spirits. By means of enchantment or sorcery—persons may not only be afflicted with various kinds of diseases and

³ Korán XXVII. 39.

⁴ As for instance on p. 312 of "The Evil Eye, Amulets," &c. vol. X. of this Journal.

، يقال والله اعلم واحكم ان سليمان بن داود عليهما السلام
اول من استعبد الجن والشياطين واستخدمها وقيل اول من
استعبدها علي مذهب الفرس جهشيد بن اونجان
Kitáb-al-fihrist—

passions, but may be rendered demoniacs, transformed into beasts, and even be deprived of life. "The wicked way [of magic] is sorcery. Those who are acquainted with the matter, state that Baydakh, the daughter of Eblys—or his grand-daughter—has a throne on the water, and that if one who is a disciple in this business does what she desires, he joins her and she subjugates to him whom she likes; she performs his affairs, and he is not deprived of her aid. He makes offerings to her of rational and of irrational animals, he omits religious duties, and does whatever is considered blameable according to common sense."⁵

The last two Surahs of the Korán which are believed to be very efficacious against every kind of enchantment and sorcery are as follows:—“(CXIII.) Say, I fly for refuge unto the Lord of daybreak, against the malignity of those beings which he has created, and from the malignity of the moon when she is eclipsed, and against the malignity of women who blow on knots, and from the malignity of the envious man when he wishes to do harm. (CXIV.) Say, I fly for refuge unto the Lord of men, the King of men, the God of men, against the malignity of the perfidious whisperer, who whispers evil suggestions into the breasts of men; and against (the malignity of) genii and men.”⁶

Once the prophet was under the impression that he had been bewitched, whereon the two Surahs just quoted were revealed. Muhammad found his strength giving way to such a degree that he believed his death to be near at hand. The reason was, because a Jew, Lobeid by name, had with his three daughters, in conformity with the rules of

« فاما الطريقة المذكورة وهي طريقة السحرة فزعم من يخبر ذلك ان بيدخ ابنة ابليس وقيل هي ابنة ابن ابليس وان لها عرشا علي الماء وان المراد لهذا الامر متي فعل لها ما تريد وصل اليها و اخذته من يريد و قضت حوائجهم ولم تكتجب عنها و الذي يفعل لها القرابين من حيوان ناطق و غير ناطق وان يدع المفترضات و يستعمل كلما يقبح في العقل استعماله Kitáb-al-fihrist p. 311

« قل اعوذ برب الفلق من شر ما خلق و من شر غاسق اذا وقب و من شر اللفائات في العقد و من شر حاسد اذا حسد
قل اعوذ برب الناس ملك الناس اله الناس من شر الوسواس الخناس الذي يوسوس في صدور الناس من الجنة و الناس

witchcraft, set up a fearful charm which consisted of a little wax figure representing Muhammad pierced with many needles. The Jew had also taken some hairs from a very irascible woman, and had tied eleven knots on them; he had likewise blown on them and on the figure, concealing both, after the operation, in the bottom of a well.

In magical operations of this kind the belief was, that the incantations performed on the figure would affect also the living person it represented; and Virgil describes the incantations employed by a forlorn maiden to recover the affections of her lover, whose name is Daphnis; she also ties knots on the figure of her inconstant lover.⁷ Also Horace describes magic rites in the fifth epode and the eighth satire of Book I., where however two images were used, one of larger size and made of wool, the other smaller and composed of wax. The former represented Canidia the sorceress, the latter the intended victim of the charm, and this one stood in a suppliant posture before the other, as about to receive some signal punishment. The general rule in the magic rites of the Romans seems to have been, to make the images of those who were to be benefited of wool, and to employ wax in the case of those who were to be operated upon. The wool was deemed invulnerable, whereas the wax was either pierced with needles, or was made to melt away in magic fires.⁸

Amulets inscribed with sentences of the Korán, but especially the abovementioned two *Surahs*, are considered very efficacious against

⁷ Carmina val cælo possunt deducere Lunam;
 Carminibus Circe socios mutavit Ulyxi;
 Frigidus in pratis cantando rumpitur anguis.
 Ducite ab urbe domum, mea carmina ducite Daphnim.
 Terua tibi hoc primum triplici diversa colore
 Licia circumdo, tanque hæc altaria circum
 Effigiem duco: namoro deus imparo gaudet.
 Ducite ab urbe domum, mea carmina ducite Daphnim.
 Necte tribus nodis tornos, Annuylli colores, &c.—*Ætolog.* VIII.
⁸ Lanca et effigies erant, altera cerea; major
 Lanca, qua poenis composcerot inferiorum.
 Cerea suppliciter stabat, servilibus ut quæ
 Jam peritura modis, &c.—*Sermonum, Lib. I.* 8.

This process of making a wax figure of the person to be destroyed is alluded to also in Cap. 102 of the mediæval tale-book, the *Gesta Romanorum*, where the person thus operated upon by means of his wax-effigy is allowed to see the process in a magic mirror; and on being asked what he sees, replies:—“Quendam clericum in mea domo video, qui unam imaginem de cera ad similitudinem meam in pariete fixit,” &c.

TALISMANIC MEDICINE CUP



ments of the figures are analogous to those on the convex side, of which alone a facsimile is here presented. On some lines, traces of silvering occur, and there is also a hole on the margin of the cup for the purpose of suspending it. There are seven medals with figures, and as many tablets with inscriptions, one of which, however, is not in them but runs all round the margin. All the rest of the writing is in so-called magic characters, few in variety but often repeated. The transcript of the just mentioned circular inscription is as follows :—

هذه الطاسة المباركة للسوم كلها و قد جمع فيها منافع مجربة وهي
 للسهة الحية والعقرب والحما و للمطلقه و للفرس و المغلة و الكلب الكلب
 و للهقص و القرونج و الشقيقه و الضربان و لحما الكبد و الطحال و للقوة
 و لرمي الدم و لوجع القلب و لوجع القلب [twice] و للعين النظرة و للرمد
 و النزله و لرياح السيوله و الارواح و البواسير و للخلط البارد و الاستسقاء
 و لاهضروع و لجمع العلل و الاثات و تسقى منها المروجع او رسوله في ماء
 او زيت اولين فانه يبري باذن الله تعالى رصدت و نقشت و نقلت من
 خير انه المامور و هو ما انفقت عليه ابيه الدين و الخلفاء الراشدين
 لمنافع المسلمين و تسقى فيها بما من حضرماء او زيت اولين فانه يبري
 باذن الله الارحم جمعت من معادن و رصدت و نقشت في شهر الله
 الفرد رجب في طالع سعيد عز لمولانا السلطان الملك العادل محمود
 ابن زكي بن قشقر [؟] في سنة ج س ت نورالدين

“ This blessed cup is against all poisons, and embodies well-trying advantages, namely, against the stings of serpents and scorpions against fever, travail of parturition, the belly ache of a horse, bad milk of nurses, bites of mad dogs, bowel complaints, colic, hemicrany, wounds, heat of the liver, of the spleen, and for strength. Against bloody issues, heart-ache [twice], the evil eye, blear-eyedness, discharges, fluxes, winds, hemorrhoids, cold humours, the dropsy, epilepsy, and against all kinds of diseases and complaints. The sick person, or his messenger, is to drink from this cup water, oil, or milk, and he will get well by the permission of God the Most High. It was prepared, engraved, and copied under good auspices, for such is the injunction; and this is whereon the Emáms of the religion, and the divinely guided Khalifs, have agreed for the benefit of Moslems. Whatever of water, oil, or milk may be ready at hand is to be drunk from it [by the patient], and he will get well by the permission of the most merciful God. It was collected from mines, prepared and engraved in the unique month of

God, Rajab, under a propitious aspect of the stars. Glory to our master the Sulṭán, the just king Maḥmūd Ibn Zenky Ben Kaḥḥār [?] in the year ج س ت [if these three letters designate the year, they make up the number of 463, which year began on the 9th October 1070] Núr-al-dyn [this appears to be the name of the maker].”

Now I shall describe the medals containing the figures and the tablets of Arabic inscriptions alternating with the former.

Medal I.—Contains above what appears to be a lizard or crocodile, the rest is filled with magic characters.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ شَهِدَ اللَّهُ أَنَّهُ لَا إِلَهَ إِلَّا هُوَ وَالْمَلَائِكَةُ
وَأُولُو الْعِلْمِ قَائِمًا بِالْقِسْطِ لَا إِلَهَ إِلَّا هُوَ الْعَزِيزُ الْحَكِيمُ إِنَّ الدِّينَ عِنْدَ اللَّهِ
الْإِسْلَامُ وَمَا اخْتَلَفَ الَّذِينَ أُوتُوا الْكِتَابَ إِلَّا مِنْ بَعْدِ مَا جَاءَهُمُ الْعِلْمُ
بِقِيَاسِهِمْ وَمَنْ كَفَرَ بآيَاتِ اللَّهِ فَإِنَّ اللَّهَ سَرِيعٌ الْحَسَابِ قَالَ مُوسَى
مَا جِئْتُمْ بِهِ السِّحْرَ إِنَّ اللَّهَ سَابِطُهُ إِنَّ اللَّهَ لَا يَصْلِحُ عَمَلَ الْمُفْسِدِينَ

After the invocation “In the name of God, the merciful, the element,” we have *Surah* III. 16, 17, thus:—“[16] God hath borne witness that there is no God but He; and the angels, and *those who are* endowed with wisdom, *profess the same*; who exccuteth righteousness; there is no God but He; the mighty, the wise. [17] Verily the *true* religion in the sight of God is Islám; and they who had received the scriptures disser t:d not therefrom, until after the knowledge of *God's unity* had come unto them, out of envy among themselves; but whosoever believeth not in the signs of God, verily God will be swift in *bringing him to account*.” Then we have v. 81 of *Surah* X. with the omission of the beginning in brackets, thus:—“[And when they had cast down their *cords and rods*] Moses said *unto them*, the enchantment which ye have performed shall God surely render vain; for God prospereth not the work of the wicked doers.”

Medal II.—A hunting dog with curled tail, in the act of running, surrounded by magic characters.

لَهُ مَعْقِبَاتٍ مِنْ بَيْنِ يَدَيْهِ وَمَنْ خَلْفَهُ يُحَفِّظُونَهُ مِنْ أَمْرِ اللَّهِ
إِنَّ اللَّهَ لَا يَغَيِّرُ مَا بَقِيَ حَتَّى يَغْيُرُوا مَا بَانَفْسِهِمْ وَإِذَا أَرَادَ اللَّهُ
بِقَوْمٍ سُوَّةً فَلَا مَرَدَّ لَهُ وَمَالِهِمْ مِنْ دُونِهِ مَنْ وَالٍ وَيُنزِلُ مِنَ الْقُرْآنِ مَا
هُوَ شِفَاءٌ وَرَحْمَةٌ لِّلْمُؤْمِنِينَ يَا أَيُّهَا النَّاسُ قَدْ جَاءَكُمْ مَوْعِظَةٌ مِنْ رَبِّكُمْ
وَشِفَاءٌ لِمَا فِي الصُّدُورِ

After the invocation we have Surah XIII. v. 12:—" Each of them hath *angels* mutually succeeding each other, before him, and behind him; they watch him by the command of God. Verily God will not change *his grace* which is in men, until they change the *disposition* in their souls *by sin*. When God willeth evil on a people there shall be none to avert it: neither shall they have any protector besides him."

Then comes v. 84 of Surah XVII., thus:—" We send down of the Korán that which is a medicine and mercy unto the true believers [but it shall only increase the perdition of the unjust]."

This tablet ends with v. 58 of X. as follows:—" O men, now hath an admonition come unto you from your Lord, and a remedy for the *doubts* which are in *your* breasts [and a direction and mercy unto the true believers]."

Medal III.—A horse with magic characters.

Tablet III. و انذر هم يوم الازقة اذ القلوب لدي الحناجر
 كما ظميين ما للظالمين من حميم ولا شفيق يطاع يعلم خائنه الاعين وما
 تخفي الصدور والله يقضى بالحق والذين يدعون من دونه لا يقصرون
 بشي ان الله هو السميع البصير

After the usual Bismillah the following four verses occur from Surah XL:—" [18] Wherefore warn them, *O prophet*, of the day which shall suddenly approach; when *men's* hearts shall come up to their throats, and strangle *them*. [19] The ungodly shall have no friend or intercessor who shall be heard. [20] *God* will know the deceitful eye, and that *their* breasts conceal; [21] and *God* will judge with truth: but *the false gods* which they invoke besides him, shall not judge at all; for *God is* he who heareth and seeth." The last line consists of talismanic numerals, probably inserted only to fill out the empty space.

Medal IV.—A winged figure with some numerals, talismanic characters, and the adjoining magic square, the numbers of which added up make 15 in all the directions, except one of the diagonals.

| | | |
|---|---|---|
| 1 | 6 | 8 |
| 8 | 1 | 6 |
| 6 | 8 | 1 |

Tablet IV.—ردوها علي فطفق مسحًا بالسوق والا عناق الذي
 خلقني فهو يهدين والذي هو يطعمني ويسقين واذا مرضت فهو يشفين
 علمت نفس ما احضرت فلا اقسم بالخدش الجوار الكنس والليل اذا
 عسعس والصبح اذا تنفس انه لقول رسول كريم ذي قوة عند ذي
 العرش مكين

After the Bismillah, this tablet contains verses from three different Surahs, beginning with XXXVIII. “[32] Bring the *horses* back unto me. *And when they were brought back*, he began to cut off *their legs and their necks.*”

Then comes XXVI:—“[78] who hath created me, and directeth me, [79] and who giveth me to eat and to drink, [80] and when I am sick, healeth me.”

Then comes LXXXI., thus:—“[14] *Every* soul shall know what it hath wrought. [15] Verily I swear by the stars which are retrograde, [16] which move swiftly, and which hide themselves, [17] and by the night, when it cometh on, [18] and by the morning when it appeareth, [19] that these *are* the words of an honourable messenger, [20] endued with strength, of established dignity in the sight of the possessor of the throne.”

Medal V.—Human cross-legged figure with magic characters.

Tablet V. اذ اسماء انشقت و اذنت لربها و حقت و اذنا الارض
مدت و اقلت ما فيها كذلك تلقي الحامل و ادها سالما باذن الله تعالى
خان مع العريسرا فان مع العريسرا والله اخرجكم من بطون امهاتكم
لا تعلمون شيا و جعل لكم السمع و الابصار [و الافيداء لعلكم تشكرون]

After the invocation we have LXXXIV. (Conf. also p. 152, vol. X. of this journal for 1874):—“[1] when heaven shall be rent in sunder, [2] and shall obey its Lord and shall be capable *thereof*, [3] and when the earth shall be stretched out, [4] and shall cast forth that which is herein.”

Then the following passage comes, which is not from the Korán:—
“In the same manner will a pregnant woman be delivered of her child safely, by the permission of God the Most High; for with difficulty there is ease, for with difficulty there is ease [twice].”

Lastly, we have almost the whole of v. 80 from Surah XVI., thus:—
“God hath brought you forth from the wombs of your mothers; ye knew nothing, and he gave you *the senses of hearing and seeing*, [and understanding, that you might give thanks].”

Medal VI.—A scorpion with the usual accompaniments.

Tablet VI. ولقد نادانا نوح فلنعم المجيبون ونجيناها واهله
من الكرب العظيم وجعلنا ذريته هم الباقين وتركنا عليه في الاخرين
سالم علي نوح في العالمين انا كذلك نجزي المحسنين انه من عبادنا
المومنين

After the Bismillah we have the following verses from XXXVII.:—
 “ [73] Verily Noah called on us, and we heard him graciously, [74] and we delivered him and his family out of the great distress, [75] and we caused his offspring to be those who survived to people of the earth, [76] and we left the following salutation to be bestowed on him by the latest posterity, namely [77] Peace be on Noah among all creatures. [78] Thus do we reward the righteous, [79] for he was one of our servants the true believers.” Conf. also this with p. 154 *ut supra*. The numerals 1289 inserted after the last word fill out only the space, but may be intended also to possess magic force.

Medal VII.—Two serpents; the upper one with coils, the lower one merely undulating. Besides the talismanic characters only the words قوله الحق “His word is the truth” occur under the first serpent, and the words وله الملك “and to Him belongeth the kingdom” under it, with the number 12.

Tablet VII. وما تلك بيديك يا موسى قال هي عصاي انكرو
 عليها واهش بها علي غنمي ولي فيها ما رب اخري قال القها يا موسى
 فالقاها فاذا هي حية تسعي قال خذها ولا تخف قال لا تخافا انني
 معكما اسمع واري بكفيكم الله وهو السميع العليم

After the invocation the following verses of Surah XX. occur, “ [18] Now what is that in thy right hand, O Moses? [19] He answered, It is my rod whereon I lean, and with which I beat down leaves for my flock; and I have other uses for it. [20] *God said unto him*, Cast it down, O Moses. [21] And he cast it down and so it became a serpent which ran about. [23] *God said*, Take hold of it, and fear not.”

After that we have: “ [48] *God said*, do not ye to fear, for I am with both of you, I hear and see.”

The following words which terminate this piece are not in any particular Surah together, but do occur in various parts of the *Koran*:—
 “ God is sufficient for you; He is the all-hearing, the all-wise.”

Plate VIII. of Reinaud represents a metallic mirror ornamented on its reverse with two beautiful griffins, and a circular inscription. The design is like that in the folio edition of Pococke's travels, but superior in workmanship; the circular inscription is however on both the same, as follows:—

بركة و يمن و سرور و سعادة سلامة و علو و عافية و تاييد و تقدير
 و نصر و استقامة و بقا اعاجبه

“ Blessing, happiness, joy, prosperity, safety, high station, health, divine aid, power, victory, stability, and long life to its owner.” The reading of the characters, which is extremely difficult, does not occur in Poccoke, and is here given from Reinaud.

In the east nothing is believed to happen by chance, but everything takes place by fate, *Naçyb*. God will reveal the fate of any man if proper means are taken to ascertain it. Everything in the physical or moral world which will happen is predestined, and may be read in the stars by astrologers; there is no such thing as chance, and even the throwing up of coins to see whether heads or tails will appear, if undertaken in a spirit of religion, and with certain preparations, may be considered as an oracular operation through which God declares his will, and according to which people may confidently and piously shape their course of action in various undertakings. By divination even the thoughts of persons can be ascertained, events predicted, articles stolen recovered; and a story how the celebrated Alkindi, who had been accused of knowing not more than common jugglers, recovered his prestige at the court of the Khalif Mámun at Baghdad, is reported as follows:—When the just mentioned accusation was hurled at the philosopher, who was also an adept in astrology, he replied—“ I know what you do not know, and you do not know what I know.” A proof of this assertion having been demanded, two circles were drawn on the ground, Alkindi taking his position in the one and his antagonist in the other, both having a number of books and instruments with them. After a deal of preparation Alkindi’s antagonist drew forth a scrap of paper, and pretending to write for some time, at last folded it, and handed it to the Khalif for safe keeping. Now came the turn of Alkindi, who exclaimed, after uttering some gibberish:—“ You have written only two words on the paper; the first is the name of a plant, and the second is the name of an animal.” The Khalif immediately opened the paper and found to his great surprize that Alkindi had divined correctly. The two words were *Açá Músa* *عصا موسى* “ staff of Moses.”

When divination is performed through Satanic agency, it becomes unlawful; devils listen by stealth to the conversation of angels, and although shooting stars are sometimes thrown at them,¹¹ they nevertheless succeed in bringing true information to magicians,

¹¹ Korán XV. 18. who listeneth by stealth, at whom a visible flame is darted.

who are thus enabled to accomplish many things which they could not do without the aid of supernatural agencies. In treating on the "Modes of divination intermediate between spiritual and natural magic," we shall briefly mention seven kinds of divination in the last part of this paper. It will suffice now to state that a fluid mirror of ink is also used in divination for various purposes, but it is chiefly studied for the discovery of hidden treasures. All ancient buildings and ruins in the East are supposed to contain treasures buried in former times under-ground by their owners either during times of trouble, or for safe keeping. In some of the sepulchres, temples, palaces, wells, or cisterns, the treasures are said to be guarded by powerful talismans, and even by dragons or serpents. It is curious to observe that the wax figures and the tying of knots, alluded to above, when misfortune is to be brought on a person or his affection secured, play a part also in the preparation of talismans, by means of which treasures are sought to be discovered. The operation itself takes place at the moment when the sign Leo rises on the horizon, and when clouds cover the Moon; but a great deal depends whether the propitious day and hour have likewise been hit upon.

NATURAL MAGIC.

The name for this kind of magic is *Simya*, but the learned have no great regard for it, although extraordinary transformations may be accomplished by means of it. A great deal depends often from the optic arrangements of the locality in which operations of this kind take place, and still more from the food and drink of which those who witness them, are made to partake. The effects of hashish, opium, and of various other drugs on the imagination are too well known to be rehearsed in this place, and perfumes as well as fumigations and arrangements of the scenery contribute their part to produce the required illusions. Also alchemy, or the production of gold from other substances, is a branch of natural magic, and much practised all over the East even in our times. The preparation of various kinds of wonderful medicines also belongs to natural magic. Thus for instance a confection, one mithkál¹² whereof will, if eaten, satisfy a man's appetite for three weeks, is prepared as follows:—Take an optional quantity of peeled almonds and throw them into good oil with some

¹² One mithkál weighs 68½ grains English, or 1½ dirhems; one dirhem = 6 dangs; 1 dang = 2 keráts; 1 kerát = 2 tassuj.

fresh violets, placing the whole into a cool shady place ; as soon as the violets become withered and shrink, substitute fresh ones, throwing upon the whole a bowl of peeled almonds as well as one mithkâl of camphor ; after that the almonds are taken away, and the oil is pressed out and preserved. Then take three ukyahs¹³ of gazelle-liver, and thirty ukyahs of sheep's liver, all of which are to be steeped in the just mentioned oil, till they cease to absorb any. Each mithkâl of this preparation lasts two or three weeks, and is good for pilgrims and travellers. Another way of preparing this confection is to take the livers of gazelles, to cut them up, and dry them in the shade, taking also their weight of peeled almonds, crushing them well, and mixing the oil thus obtained with violet flowers, and treating the whole as described above.

To quench thirst, some cummin is to be taken, crushed, boiled, and kneaded with honey and the froth of milk. A dose of this preparation of the size of a nut, if swallowed, averts thirst.

Invocations of Planets.

In the East the belief, long exploded in Europe, that the Sun, the Moon, Mars, Mercury, Jupiter, Venus, and Saturn preside over the seven days of the week, and govern by their bad or evil influences the destinies of every human being, is generally prevalent to this day. These heavenly bodies are all considered planets, and personified as superior beings mighty for good and for evil ; but that also the adherents of a purely monotheistic creed, namely Muḥammadans, should address prayers and invocations to them might be considered somewhat surprising. Astrolatry is well known to have constituted a part of almost every religion of ancient times, and occupied a very prominent one in some ; during the lapse of ages it has however been driven to its last refuge, astrology, and with the extinction of the latter, it must also finally disappear. Accordingly it would be wrong to suppose that invocations of stars are like invocations to pirs and saints, an offspring of later times ; they are of pre-Islamitic origin, and have been so closely interwoven with medical and astrological pursuits, that not even the hottest religious zeal could extirpate them from the books and practices of astronomers and physicians, where they still survive as collateral astrological helps. The invocations now to be given are said to have been taken from the "Book of Treasures" of the celebrated physician and mathematician Ebn Sina,¹⁴ and supposing him to have himself

¹³ One ukyah = 7 mithkâls = 480 grains = one ounce English.

¹⁴ He is to Europeans better known by his latinised name *Avicenna* ; he was born near Bokhara A.H. 370 (A.D. 980), and died A.H. 428 (A.D. 1035).

composed, not copied them from older sources, which is more likely to have been the case, they must be older than eight hundred years.

Invocation to the Sun.

O hot, dry, wise, and world-illuminating Princess,¹⁵ who possesses the leading strings of the stars, and they are led by thee; who art superior to them, and they humble themselves to thee; who recedest from them, but they return to thee; they are kindled by thy light and ennobled by thy splendour, thy glory excels them all; thou art their Queen, they are rendered of happy prestige when thou lookest at them, but ill-boding in the contrary case. I beseech thee to aid me with thy good, but to withhold thy evil influence, to comply with my wishes and intentions; thus O Lord I shall prosper.

Invocation to Venus.

O blessed, moist, temperate, subtle, aromatic, laughing and beautiful Princess, who art the mistress of jewels, ornaments, gold, silver, amusements, and of social gatherings! O lady of sports and jokes, conquering, alluring, repelling, strengthening, love-inspiring, match-making! O lady of joy, I pray thee to grant my wishes by the permission of God the Most High!

Invocation to Mercury.

O veracious, excellent, just, eloquent Prince, who art pleasant to look at, a writer, an arithmetician, a master of wickedness, fraud, trickery and helper in all stratagems! O truthful, noble, subtle and light one, whose nature and graciousness are unknown, as they are boundless, because thou art boding good with the well boding ones, and boding evil with the ill boding; a male with males, a female with females, diurnal with diurnals, and nocturnal with nocturnals, accommodating thyself to their natures, and assimilating thyself to their forms. Everything is thine. I ask thee to do my will, by the permission of God.

Invocation to the Moon.

O cold, moist, beautiful, joyous and prosperous Lord,¹⁶ who art the judge of love intrigues, games, and plays, master of heralds and news; averse to the concealment of secrets; liberal, generous, and wise; who art the celestial body nearest and most profitable to us, as well as the most noxious; who art the arbitrator among them. By thy favour

¹⁵ In Arabic the Sun is feminine.

¹⁶ The Moon is a male in Arabic.

all things come to a good, and by thy displeasure to a bad issue. As God has imparted to thee generosity, nobility, and excellency, I request thee to do my behest in such and such a matter. This invocation is to be repeated thirty-three times.¹⁷

| | | | | |
|----------|---------------|-----------|---------------|---------|
| Saturn | presides over | Saturday, | his colour is | black. |
| The Sun | „ „ | Sunday | „ „ | yellow. |
| The Moon | „ „ | Monday | „ „ | green. |
| Mars | „ „ | Tuesday | „ „ | red. |
| Mercury | „ „ | Wednesday | „ „ | blue. |
| Jupiter | „ „ | Thursday | „ „ | sandal. |
| Venus | „ „ | Friday | „ „ | white. |

That there was a time when the planets were invoked also in Europe, appears from the following prayer of an astrologer of the fourth century of the Christian era in favour of Constantine the Great. See Julius Firmicus Maternus, Book I., Chap. IV., *apud* Reinaud "Description des Monumens," &c. Paris, 1828, t. II., p. 386. It is as follows:—
 "Sun, soul of the world, you, who, being placed in the centre of the heavens, maintain by the wise dispensing of your light, the always twinkling fires of the wandering stars; [moon] luminary of the night, who, being nearer to the earth, perpetuate the germs which it harbours in its bosom; Saturn, who, from the summit of the heavens, allow the rays by which you are crowned, to fall gently upon us; Jupiter, who, presiding over the second sphere of the heavens, revive the earth, and the whole world by the gentle and majestic serenity of your glances, and you, Mars, who rule in the third of the celestial regions, you, whose dreadful aspect causes so much fright; and you, Mercury and Venus, faithful companions of the sun, we implore you in favour of Constantine; that under the auspices of the Deity, and by the happy concurrence of your influences, he and his children may reign over us for ever, in order that the human race may be delivered from its ills, and enjoy unchangeable felicity."

Besides the planets who govern the days of the week, there are also seven angels who do so; each having also his special perfume intended as a fumigation when one of the above invocations is being recited. Three of the names of these angels can be easily recognized as corruptions of the words Gabriel, Michael, and Raphael, but the remaining four it would be more difficult to identify.

¹⁷ After these three invocations, four more ought to follow; perhaps they were lost, but the anonymous disciple of Sheikh Daud the Antiochian, physician, from whom this account is taken, says nothing on the subject.

Seals of the seven angels, with their perfumes.

Seal of the angel Ruḳyayl for Sunday; ا ر ق ي ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا
and his perfume is frankincense.

Jebráyl for Monday; and his perfume is ا ب ر ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا
gum mastic.

The angel Samsamayl for Tuesday; his ا ب ر ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا
perfumes are mastic and blue bdellium.

Mykayl for Wednesday; his perfumes ا ب ر ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا
are wild rue and gum sandarach.

The angel Çar- ا ب ر ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا
fyayl for Thursday; and his perfumes [omitted].

The angel U'nábáyyl for Friday; and ا ب ر ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا
his perfumes are sandarach, mastic, and camphor.

The angel Kasfyáyyl for Saturday; and ا ب ر ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا ي ل ا
his perfume is any good odour.

Symbols of the stars.

Of Saturn \square , of Jupiter γ , of Mars \llcorner , of the Sun \bigcirc , of
Venus \sphericalangle , of Mercury \lrcorner , of the Moon ∇ .

THE MODUS OPERANDI.

Consider the letters of the asker, and of the person or thing asked for, and to what planets the letters belong.¹⁸ Then consider the hour of the planet and produce the required substances for fumigation.¹⁹ Take a piece of wax and divide it into four parts, making them into four figures, placing on the breast of each the appropriate symbol with the suitable perfume. Lastly, throw one of the figures into the fire, suspend one in the air, throw one into the water, and bury one in earth, reciting all the while the invocation, and burning the perfumes as a fumigation.

It is also reported that the Shaikh Ebn Sina had, in the "chapter of the composition of names,"²⁰ given the following rule:—"If we wish to produce love or hatred, we take the first letter of the asker and the first letter of the person or thing asked, as well as the first

¹⁸ To be explained in detail further on.

¹⁹ The perfumes meant are very likely intended here as they stand for the various days of the week in the list of the angels, who preside over the days in conjunction with the planets.

letter of the planet relating to the person or thing asked for, writing them, and putting the sign of the accusative case on a hot letter, that of the nominative on a dry one, and that of the genitive on a moist one, and the thing is done, *e. g.* if we wish to join the letters of Mahmúd and Faṭimah with the letter of the planet representing the thing asked for, namely, Venus (Zuhrah), we take the first letter of Mahmud, the first of Fatimah, and the first of Venus. Then we operate with them, fumigating them with the appropriate perfumes; you must however have your nails cut, put on your best clothes, and be alone; and your wish will be granted by the permission of God."

"The hot letters put in the accusative are ا و ي ل م ع the dry ones in the nominative are ح ت ق س ك ج the moist letters in the genitive are ط ز ر ش ث ب ة ذ ص ض and the cold jezmatized letters are خ ب ا خ ب ا خ Jupiter ا خ ب Saturn ة ب Mars د ا ة د Mercury ع ق ف ا Venus ط ت س ل Sun خ س ك زع Mars د ا ة د Moon ض ص ت ث Let all this be written carefully and pondered over well, but as to authorities for correctness, God alone knows them."

Modes of divination intermediate between spiritual and natural magic.

1. Astrology is called *ʿIlm-al-nujúm*, "the science of stars," and most oriental books treating on astronomy, contain a great deal of it, although it has long ago been eliminated from European science. It is still customary to get the horoscopes of new-born infants drawn out by astrologers, not only among Moslems, but even among Hindus and Zoroastrians. There are moreover lucky and unlucky aspects of stars, which it is considered proper to ascertain in undertaking various kinds of affairs, and in the selection of propitious hours.

2. Geomancy is called *Raml* "sand," because the figures and dots were formerly traced on that material, instead of on paper as at present; the operator is called *Rammál*, and he not seldom calls in astrology to aid him in his vaticinations and prognostications. Books on Geomancy are numerous enough, but the actual *modus operandi* must be learnt from a practical man."²¹

3. Chiromancy and analogous practices bear the name of *Kyífet*; it is fortune-telling from the lineaments on a person's hand, which goes in Europe also by the name of palmistry.

²¹ See *Geomancy*, p. 314, vol. X. of this Journal.

4. Taking the omen or *Fál* is generally practised by opening the *Kurán* at random, and putting the finger on a line, which being read and applied to the case in question, is considered as a solution of it. In such a case the operator first performs the religious ablution, puts on clean clothes, and recites prayers. If the prognostic is taken by a holy man, it is of more value and almost considered as a revelation. If the line hit upon contains a positive command, the affair on which doubts existed is to be undertaken, but if a prohibition, it must be left alone. When the celebrated poet *Háfes* died, some doubts arose whether he ought to be buried according to the ceremonies of *Islám*, as he was known to have been a libertine. Accordingly it was considered suitable to take the omen from his own works, and the manuscript of his *Diván* being opened, the finger of the operator touched a line, which proved to be the last of an ode, and read as follows:—"Withhold not your step from the bier of *Háfes*; for, though he be drowned in sin, he goes to paradise."²³ Having obtained this decision, his foes were obliged to give in, and the poet was interred like any pious Moslem.

The omen is also taken with two dice, *Kábetyn*, or rather eight, four of them being fixed on one axis and four on another, and thus rolled about on a small table with a great deal of *hocus pocus*.

5. The interpretation of dreams, *Ta'byr-al-menámát*, is practised according to rules, and books treat on it; some of these are in alphabetic order, so that any object seen in a dream may be immediately found, and its interpretation seen. Dream-books have almost totally lost their credit in Europe.

6. Vaticination or auguration from the flight or posture of birds is called *Zijr*, but omnia are taken also from quadrupeds. The name of the augur is *Zájer*.²⁴ The belief that birds flying in certain directions bode good, *e.g.* on the right side, and evil, *e.g.* on the left, is exemplified in the verse of an old poet who desires to requite those who wish him ill by good, and says, "and if they drive away birds, that by flying over to me they may bring an evil omen, I drive birds away, that by flying over to them they may be of good omen."²⁵ It is

۲۳ قدم دریغ مدار از جنازہ حافظ * اگرچه فرق گناہت میرود بہ بہشت

²³ His operations are described, and verses on the crow, the lapwing, the eagle, and the dove cited on pp. 170—174 of vol. XII. of this Journal.

۲۴ وان زجر و طیرا بنحس تہربہ ز جرت لہم طیرا تہر بہم سعدا

scarcely necessary in this place to allude to the old European superstitions about a hare, a cat, &c. crossing the road or passing on the left side.

7. It depends a great deal from the position of the stars whether a day is fortunate or unlucky or black, as it is called. Apart, however, from astrological considerations, Thursday and Friday, particularly the latter, are considered fortunate; Monday and Wednesday are doubtful, but the latter is decidedly unlucky when it happens to be the last Wednesday of the month, Çafar, and therefore bears among the Persians the name of *Tchárshabéh shúry*, "unlucky Wednesday;" otherwise however that day is called white, *i.e.* fortunate, because light is said to have been created on it, for which reason it is good to commence all works connected with study and literature on a Wednesday. In each lunar month, however, there are seven evil dates, no matter on what day they may fall, namely the 3rd of the month, the 5th, the 13th, the 16th, the 21st, the 24th, and 15th. For the unluckiness of each of these dates a reason is assigned, namely that on it Kabil (Cain) slew Hábil (Abel); that God cast out on it Adam from Paradise; and so on for the remaining five.

ART. XV.—*Notes on some Old Arms and Instruments of War, chiefly among the Arabs.* By E. REHATSEK. (With Drawings.)

[Read 14th May 1879.]

Names of arms and military engines occur frequently, not only in historical but also in poetical works ; descriptions of them are however extremely scarce, especially as in the present advanced state of civilisation, when the arrow and bow are discarded, whilst other weapons have fallen into oblivion, books about them would be of no practical utility ; accordingly, if any still exist, they must be rotting unread. That in former times such books were written appears from the following noticed (p. 116) in the *Kitáb Al Fihrist*, composed during the 4th century of the Hejret :—“ The books composed on cavalry, the bearing of arms, instruments of war, with their arrangement and practice, composed for all people are as follows :—The book of archery by Behrám Gúr, or Behrám Chubyn. The book on striking with the *Çolján* [a kind of hooked club] by the Persians. The book on military preparations, cavalry exercise, and the manner in which the Persian kings governed the four boundaries, namely, the E, the W., the S., and the N. The book of stratagems by Harthamy Al-Sha'ráuy, which was composed at the behest of Mámúr during the wars. It is divided into two *Maçálahs*, the first of which contains three parts, whilst the second consists of 36 sections and 1025 chapters. The 1st part has 20 chapters divided into 264 problems ; the 2nd has 7 chapters with 42 problems, and the 3rd part comprises 24 chapters, which are divided into 144 problems. The book of A'bd Al-Jabbár Ben A'dy of [the reign of] Mançúr, on Tactics and the constitution of the army. The book of Ashmaity on cavalry. The book on tactics, on conquering forts and towns, on laying ambuscades, on sending out spies and scouts, on expeditions and on armaments ; this is the translation of a work composed for Ardeshir Ben Bábek. The book of Bajhar the Hindu, on the qualities, characters, and uses of swords. The book on the scimitars and their species among the Arabs. The book of Shánán the Hindu, on the art of war, informing the sovereign how much infantry and

cavalry he requires, as well as on their manœuvres, food, and on poison. The book of operation with fire, naphtha, and naphtha throwers in wars. The book on moveable towers, ballistas, stratagems and tricks, which I saw in the handwriting of Ebn Khalyf." On this subject Háji Khulfa says on p. 394 under the heading of *ʿilm-al-alát-al-ḥarbyyet* علم الآلات

البحرية i.e. "Science of the instruments of war":—"This is the instruction showing the manner in which engines of war, such as the *Manjanyk* : (*Máyyavon*) and other instruments are to be constructed; it is a special part of geometry, and its utility is patent to all; it is one of the supports of religion, because the successful issues of sacred wars chiefly depend from it. The sons of Músa Ben Shákir have composed a useful book on this instruction; this is asserted by the author of the book *Mifrálḥ-al-saa'det*; and it is proper here to add the instruction how to shoot arrows from a bow, as also to project balls (*بنادق*), and to mention that this instruction on engines of war and other similar ones contains two parts, the one treating on the invention and construction of these machines, and the other on their use. Books on these subjects exist." Quatremère, who has written extremely valuable notes to his edition, and translation of the first portion of Rashid-al-din's *Jámi'al-továrikh* (containing the life of Holagu, and printed in the Collection des auteurs orientaux), also expresses his regret of not having met with very satisfactory details concerning the military engines of the Orientals; these notes I was very glad to utilise, especially as they embody quotations which are the fruit of very extensive reading. Freytag's well known *Einleitung* has also afforded valuable information, whilst Mirkhond, the *Ḥamasah* and a few other works served to illustrate and to vouch for the assertions made in the following glossary, which is for the sake of order and convenience arranged according to the Arabic alphabet:—

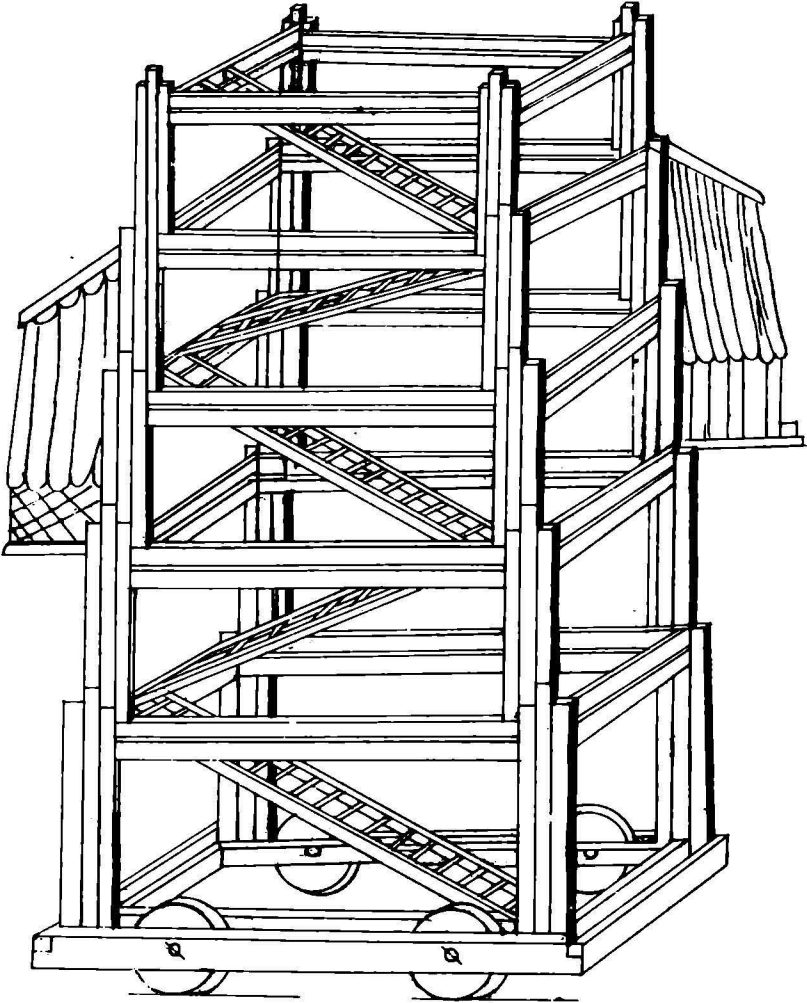
Bárúd is the name for gun-powder in all the Muḥammadan languages which have received it from the Arabs, who were not the inventors of it, but who, owing to their early acquaintance

بَارُودٌ

with the Chinese, communicated their knowledge of this substance to other nations. The pyrotechnical displays required by the civil and religious usages of the Chinese may have had just as much to do with the invention of gun-powder as their military experiments and their acquaintance with the use of naphtha. When they began to mix nitre with their inflammable compositions, they obtained an explosive sub-

stance, which they threw at their foes in the shape of "crackers." The next step was to put the powder with a projectile into a tube, and to discharge it; hence the invention of the cannon and afterwards of the musket. Although it is generally believed that also Europeans first became acquainted with gun-powder through the Arabs, who had learnt to manufacture it from the Chinese, there appears to exist no certain information on the point. In the *Bibl. Or. d'Herbelot* T. IV. p. 260 seq., the following account occurs on the invention of gun-powder:—"I have long searched in the history of China for the inventor of gun-powder and of cannons, but I was never able to find him. Apparently the Chinese themselves likewise know neither him nor the precise time when the invention took place. Here is an irrefragable testimony of my assertion:—During the reign of the last emperor of the preceding dynasty, the whole of China was in arms. The rebels had seized the best provinces of the empire. Tsun-tchin, who reigned at that time, was at a loss what to do. About the end of 1640 he convoked the officers of his court to seek a remedy for an incurable evil. Yamjo-kiao, the inquisitor of the empire, proposed to the emperor the Rev. Father Adam Schall as a man learned in artillery. Leou-tsun-tcheo then stepped forward, and spoke the following words which refer to my subject:—'Before the Tham and the Sum dynasty fire-arms have never been spoken of. Since they have begun to be used in the army, they have been made to constitute all its force. They are the only cause which has ruined everything by introducing cowardice.' It appeared from the face of the emperor that the words of Leou-tsun-tcheo had not pleased him. 'Retire,' said the emperor to him, 'and be aware that the use of fire-arms is one of the prerogatives of China above all the other nations.' What I have just said is taken from the history of the Mim, *i. e.* of the last dynasty, chap. 72, fol. 41. From this conversation two conclusions may be drawn; the first is, that the Chinese are acquainted neither with the inventor of fire-arms, nor with the time of their invention; and the second is, that the use of fire-arms was introduced during the Tham dynasty, that is to say before A. D. 907, which was the last year of it. No certain vestige of this invention occurs in the history of the Tham dynasty, unless the allusion in the history of the five elements be taken as such, in which it is observed under A. D. 620 as a prodigy, that a magpie had made her nest in the machine of a *Pao* on the walls of the town of Pu-tcheu. It is further recorded that whilst the town of Nun-yum was besieged by the troops of Glau-lo-

chan, another magpie made her nest on the machine of a *Pao*, which was in the town, and there raised three young ones, which flew away as soon as their wings had become strong enough. This latter prodigy occurred A. D. 757. The machine of a *Pao* may indeed mean a gun carriage, or even a cannon; but it appears to be more naturally applicable to a balista. I find something more convincing in the history of the Sum dynasty. Fum-ki-chim, the President of the Court of the Militia, and his colleagues, presented A. D. 970 newly invented fire lances to the Emperor Sum-thai-tsu, the founder of the Sum dynasty. In the year 1000 a centurion of marine troops, whose name was Tham-fu, presented to the Emperor Sum-tchin-tsum fire arrows, fire globes, and fire coltraps. Three years afterwards (A. D. 1003) Leou-yum-sii, commander of a garrison, presented a hand *Pao*. Are not these globes and coltraps, balls and grenades? Might not these hand *Pao* be pistols? The historian of the Sum dynasty continues thus:—In the year 1259 the town of Cheon-tchun-fu presented to the Emperor Sum-li-tsum a number of Thou-ho-tsiang, which means in Chinese, ‘lances vomiting fire.’ This lance, continues the historian, had for its barrel a hollow bamboo, at the bottom of which a ball was placed. When fire was put to it, the ball issued, and produced a noise like that of a *Pao*, which could be heard at a distance of more than 150 geometrical paces all round. After this last passage, taken from the history of the Sum dynasty, no doubt can remain that they had cannons, and the comparison of the noise of a musket with that of a *Pao* or cannon, shows clearly that the *Pao* was not an old balista, and that the use of cannon was already ancient. Here the musket is called a lance that vomits fire, and this name is suitable for fire-arms of short range. Even at present they call a musket Niao-tsiang, which means ‘bird lance.’ Hence it is probable that they called fire-arms of long range ‘fire arrows,’ which leads us to infer that the fire *Pao* of the Chinese fleet were camions firing red balls and putting everything in flames. But the following example leaves no doubt on the subject:—In the year 1232 Khai-fum-fu, which was then the capital of the Kin dynasty, being besieged by the Mongols, the latter used all sorts of cannon, but especially that called by the Chinese Tchhin-thien-lei, that is, thunder which makes the sky tremble. These cannons are described as iron tubes filled with gunpowder, and producing a thunder-like noise audible to a distance of ten leagues all round. The fire which they projected filled half an acre of ground, and nothing could resist it, the besieged suspended similar machines by iron chains, which they dis-



Movable Tower or Bury.

charged in such a manner as to smash the miners and the galleries of the besiegers. After this time the use of cannon becomes more frequent in China. The Mongols forced the valiant Chinese Lu-ven-hoan to surrender the town of Siam-yam-fu after a siege of five years, only by the aid of their cannons. This famous siege, where so many human beings perished, commenced during the 9th moon of the year 1268, and the place was surrendered in 1273 during the 2nd month. The Mongols had besieged it with several hundred thousand men by water and by land."

Burj, apparently derived from *πύργος*, designates a moveable tower constructed of wood covered with iron and hides.

س

برج

It was used for approaching the ramparts of a besieged town in order to make assaults

and to shoot arrows, stones or other projectiles. Towers of this kind are mentioned in oriental books, but I have not met with any description; the accompanying drawing may serve as one; it is taken from the Latin translation of a Greek work, the title of which is "Heronis mechanici liber de machinis bellius. Venetüs 1572," and shows the machine on wheels; it could be built to almost any height by gradually making each succeeding storey smaller. See also further on the word *دبابة*.

Bunduk meant first a hazelnut, afterwards an arquebuse or the ball which it projects, and at last a *Tufung*, i.e.

س

بندق

musket. The Indian matchlock likewise bears this name. I was told by some Arabs

that a matchlock can be had at Koweyt for Rs. 2, they alleged that this cheapness, and the safety with which the women who make the wicks, load, and often handle these ancient firelocks, abundantly counter-balance their clumsiness. This term occurs already in Masu'dis 'Golden meadows' *رصاص خمسين بندقه* "fifty balls of lead;" and further on *قوس بندق* "an arquebuse." Ebn Kotrob has *رمي عصفورا* "he shot a sparrow with a ball." In the *Kitáb-al-sulúk* of Makrizi "*arquebusiers*" *رصاص البندق* are mentioned, and further on *قسي النشاب وقسي البندق* "arblasts and arquebuses." The history of Egypt by Abu'l Mahásen has *رصاصه بالبندق* "He discharged an arquebuse at him"; and the history of the conquest of Yemen:— "Therein was placed a small musket, of the kind which is carried in the hand [a pistol]."

Sometimes this word occurs in the form **بندقية** and in the plural *e.g.* لم يكن اهل الهند يعرفون المدافع والمكاحل والبندقيات "The people of India knew neither cannons, nor muskets, nor pistols," and further on:— "وجدوا بندقية صغيرة في فم النقب... وصالوها من... الذي رمى بالبندقية" They found a small musket [pistol] at the mouth of the mine . . . and asked it from him who had shot the small musket." At present **بندقية** means a pistol. Hand fire-arms, or small arms, were known in Italy in 397 as the hand-cannon gave place to the hand-gun, which in its turn was superseded by the arquebuse. This weapon, discharged by means of a trigger, was evidently designed after the model of the arblast or cross-bow. But these weapons were not brought into general use until nearly three centuries after their first invention (see Note 90 of "Arms and Armour" of Lacombe. Translation of Boutell.)

Bandukány meant an arquebusier. In Makrizi the phrase "shops of the arquebusiers" **دكاكين البندق قانين** occurs; and in the history of Yemen the same word means fusilier **قدامة** كان يمشي **سبعماية** "seven hundred fusiliers were marching before him." The term **بندقي** is employed in the same sense further on **كان عنده** "He had with him 1000 men, 600 of whom were fusiliers." The word **بندق** is analogous in the phrase **ما بين فارس و بندق و راجل** "Among cavaliers, fusiliers and men on foot"; and further on **بندق و نابل** "Fusiliers and archers."

Turs was the defensive weapon of the Arabs, and means "shield," but appears never to have been much used by them, although there are, in conformity with the great wealth of the language, several other names for it, such as **حجفة** *Hajafah*, and **درقه** *Daraqah*, which were made of wood and covered with leather; there is also another name which is the same with the Hebrew **קַשׁ** (Gen. XV. 10. Ps. XLII. 10, &c.) and occurs also in several places of the *Ĥamasah*, *e. g.* p. 324

يكون نذير من وراءى جنة وينصرنى منهم جلي واحمس

"Nadyr will be behind me a shield, and Julayyon with Alhmason will defend me against them." Here the word is used as a metaphor

designating protection, as often happens also in Hebrew. I add one more example p. ۵۰۳

قَبَلْتُ اِلَيْهِ ظَهْرَ الْجَنِّ فَلَمْ اَدِمْ عَلَيَّ ذَاكَ اِلَّا رَيْتُ مَا اَلْحَوْلُ

“ I turned the back of my shield to him, but persevered not therein ; only till I turned.” A man is said to turn the back, *i. e.* the outside of his shield upon people to whom he has become an enemy. The Arab shields were of a circular form, pretty nearly as we now see them ; there was no great luxury of decoration and variety of form. See the next article *Turak*, which is likewise a shield but of large size.

Turak, also spelt تورا is more of a *mantlet* than a shield, in lieu of which it was carried by soldiers, and when circumstances required, planted on the ground as a cover, from which they could shoot arrows or balls against the walls of a fort. In the *Zafar-nameh* the phrase “ from fear they threw away the mantlets” از بیم توراها انداخته occurs, and further on—“ they placed in their front shields and mantlets” سپرها و توراها در روی کشیده elsewhere “ the garrison of the fort caught up planks and mantlets, and began to fight” اهل قلعه تختها و تورا گرفته بچنگ مشغول شدند. The *Habib-al-saar* (III.) has “ the warriors...carried on their heads shields and mantlets” و توراها در سر کشیده and the *Matla-alsaa'dyn* has “ they erected hurdles, dug a ditch and fixed mantlets” [چپر] جر زدند The *Akbar-nameh* has “ let between every 2 waggons 6 or 7 mantlets be placed so that the musketeers may cheerfully fire their muskets” در میان هر دو عرابه شش هفت توره تعبیه سازند تا تفنگ اندازان بفراغ خاطر تفنگ توانند انداخت

The *mantlet* was introduced in the English army early in the 15th century, and was also called *paviseor pava*, as a kind of moveable breastwork, which, resting on the ground, covered almost entirely the person of the soldier. The knight had his *pavise* carried before him by his valet, and it sheltered both (see “ Arms and Armour,” p. 137).

Tishek is the Persian name denoting the Asiatic *battle-axe*, which was mostly double edged, and therefore by the Romans called *bipennis*. It was a weapon highly esteemed also by the Anglo-

Saxons. The *battle-axe* was made in various forms according to the times. Some of these axes had very long handles, and resembled pikes, whilst others were short, and intended to be thrown at the heads of

the foes. Our late President, Mr. Gibbs, possesses a very nice battle-axe with an inscription on it.

Jurkh designated an arblast with which either arrows were thrown or naphtha, and the plural *Jurúkh* جُرُوح means catapults (Vita Salad. pp. 35, 80), which amounts to the same thing. E'mád-al-din Isfahani has "The *Dabbabehs* caused the eagles of the arblasts to fly from their nests," *الجروح* اوركارها عقبان الجروح further on "they prepared the arblast for inflicting wounds" *للجرح* فوقوا الجرح also "they arranged destructive arblasts" *فوقوا الجروح المصهيه* The history of Hasan Ben O'mar (M. S.) has:—"He spoke to them with fire tongues from the arblasts of the naphtha-artificers" *خاطبهم من السنة النار* and in Khalil Daheri (M. S.) "he shot with a bow-arblast" *جرخ* يرمي بقوس جرخ Hence the word *Jarkhy* جرخي "arblister" is derived; thus the Kámil of Ebn Athir has "The arbalisters from among the Franks" *الرماة الجرخیة من الفرنج* There is no doubt that *جرخ* is merely arabised from *Charakh*, accordingly we find in Mirkhond (vol. 5. p. 129) the expression "90 far throwing arblasts" *نود چرخ دور انداز* In the history of the Seljukides (M. S.) "he took into his service the engineers and arbalisters" *المستخدم المنجنيقيه والجرخيه* in the history of Nowairi (M. S.) "The Franks established there 1050 arblasters" *رتب الفرنج فيه من*

الجرخیة الف وخمسين جرخيا

Ja'bah means according to Ebn Doraid a "quiver," in which Arab as well as Persian arrows were kept.

5/5/
جعبة

Quivers had various names according to the materials from which they were made.

The word *Kenánah* كنانة is said to mean a quiver of leather without wood, in which only the Arab arrows called *Nabl* نبل were kept. Thus Ham. p. 153

ان كنت لا ارمى وترمى كفا نتي نصب جانحات النبل كسحي ومنكبي

"If I be not struck, but my quiver is struck, the side piercing arrows will pierce my spleen and side." Here the poet compares his friend to a quiver, as he receives all secrets like the latter the arrows, and takes any offence given to his friend as inflicted on himself. The quiver had

sometimes a cover named *مخذى*, the word *جفير* is according to some a quiver made only of wood, and according to others only of leather, and larger than the *كناة* according to Ebn Doraid *قرن* is a quiver made of two pieces of leather, whilst others state that it is open on the side, so that air may have ingress and protect the arrows from being spoiled. The word *فضه* likewise means a leather quiver, but it appears to mean rather the leather sack of a shepherd in which he carries his provisions, but may also put arrows.

Jaftá, and in the plural *Jaftát* or *Jaftyát*, means a kind of palisade or breastwork like *Januyah*, *Sitúrah* and *Túreḳah*, all of which will be mentioned in their proper places. E'mád-al-din Isfahani

says:—"The palisades were stretched out like the necks of camels" *جفتا* Elsewhere "the archers were covered by palisades" *مدت الجفاتي كما نها اعناق البخاتي* and in another passage:—"The Sultán ordered the palisades to be carried there to put them in lines, and the covers to be collected, and the shields to be arranged, and he placed alert warriors as well as arblasters opposite to the vessels of the foes and their stratagems" *امر السلطان بحمل الجفاتي التي هناك وتصفيقها والستائر وتاليفها والتراس و ترصيفها واقعد من ورايها اعي مقابله سفن القوم و ارايها الكماة النجيه و الرماة الجرخيه*

Januyah, as just stated, is also designated a kind of palisade, thus the *Kámel* of Ebn-Athir has, "in the rear of the *Jaftyat* and the the *Januyát*" *من وراء الجفاتي والجنويات* and the work of E'mád-al-din Isfahani "the approaching of the *Jaftyat* [palisades] and the *Januyát* [hurdles]," and further on "they gathered fruit from the plantations of the palisades" *جنوا من مقارس الجنويات* and another passage of the same book has "they stood like a wall in the rear of palisades, bucklers and lances" *وقفوا كالسور من وراء الجنويات والتراس* ; *والقنطريات* in a history of Egypt "no palisade hindered them" *ما منعهم جنويه* ; lastly in the *Kitab-al-sulúk* of Makrizi the phrase "he was taken out on a plank" *اخرج علي جنويه* occurs.

Jayah is the usual name to designate an *army*. Allazbat Ben *Kuri'*, who undoubtedly lived before the time of *Muḥammad*, is according to the scholiast of the *Hamasa* (p. 178) said to have been the

جيش

first who divided the army into two wings جناحين namely, into the right into the left ميسرة and into the centre قلب when he attacked the Hemyarites. Further on the scholiast says that in this war Muḥallam Ben Suwayḡ Aḡdaby "marched with the people, having two wings, a van and a rear guard" وهو الذي سار بالناس وله صجبتان و مقدمة و ساقه On p. ۲۷۹ we read that the right wing was composed of the most trustworthy portion of the army يجعلون علي ميمنه Among a few verses of the poetess Layla Allakhy-alyah there is one in which the army is called *Khamys* خميس on account of its division into five parts, namely, the vanguard, the right and left wing, the centre and the rear guard p. ۷۰۵ expressed above by ساقه but here by جناح which is rather peculiar. It was their custom to place the infantry before the cavalry when they drew up the army in battle order (p. ۷۹ and p. ۳۱۴). When A'ly marched A. H. 36 against A'ayshah, Ṭāleḡ and Zobeyr to Doḡrah his army was already very well arranged.

Chapar was a kind of *hurdle* used for the same purpose as the *testudo* of the Romans, namely, to cover soldiers when exposed to the projectiles of foes, and the author of the *Burhān Kāfi* was probably influenced by the Indian meaning of the word as he lived in this country, and restricted its signification by stating that it designates a house or wall formed of wood and hay, &c. as it is evident from the following passages that the *chapar*, no matter of what materials it may have consisted, was also a moveable protection. The *Zafar-namah* has "placing on their heads hurdles and shields" چپر ها و سپر ها در سر گرفته further on "carrying forward mantlets and hurdles they began so fight" نوراها و چپر ها بيش برده جنگ در انداختند Again "they keep ready mantlets and hurdles" تورها و چپر ها آماده دارند elsewhere "having taken hurdles before them," چپر ها در بيش گرفته and in the *Matla-alsa'din* "bearing in front a shield and hurdle" سپر و چپر و آورده in *Khondemir's Habib-alsear* "throwing off their heads, the mantlets and hurdles" تورها و چپر ها از سر انداخته further on "the Amirs of the army.....placed a mantlet and a shield on their heads" امراي لشكر..تورا و چپر بر سر كشيده دليران elsewhere "The warriors of the army.....placed a shield and a hurdle on their heads" لشكر..سپر و چپر در سر كشيده From the following passages it appears that the *chapar* could also be set up and fixed on the ground

to serve as an entrenchment; thus the *Habib-al-sear* has—"He fortified both sides of the river banks with mantlets and hurdles" هر دو جانب کنار آب را بنوره و چپر مضبوط ساخت. and further on "he surrounded his camp with a high wall, made of carts and burdles" ; گرد معسکر خود از عرابه و چپر دیواری بلند کردانید ; further on, "having dug a ditch, they fixed hurdles" خندق فرو بوده چپرها زدند ; the *Habib-al-sear* also has "the retrenchment which surrounded the camp was extremely strong" ; گرد معسکر... چپر استحکام داشت and the *Zafar-namah* "having formed a retrenchment of planks" ; چپری از چوب ترتیب کرده ; so that after all the *Burhám Káti*' is not far from the truth when it describes the *chapar* as a wall which it may have resembled even when set up in the form of a rampart.

Harb, i. e. war, may be said to have been the normal state of many

س و /
حرب

Arab tribes which were constantly at feud with each other; the warriors were so careful to fight with horses unexhausted by fatigue that each man rode on a camel (Ham. p. ۳۵۸) and led the horse which he was to ride in the battle, without any load by his side whilst even the saddle was placed on the camels, so that the horse should arrive quite unfatigued on the battefield. The ancient Arabs as well as the Persians often fought in single combat with their antagonists, and recited verses. When two parties met they often shouted نزال نزال "Let us alight and fight on foot," but when the challenge was not accepted, the combat took place on horseback (Ham. p. ۳۲۳ line 13). Sometimes also single individuals shouted at each other, came out from the ranks, and fought (p. ۳۵۱ line 1), e. g. p. ۱۲۳:—

تعالوا افاخرکم ااعبا و فقعی الی المجد ادنی ام عشیرة حاتم

"Come; I shall fight you for glory, whether the people of A'yá are nearer to praise or those of Hátim?" The ancient Arabs never went into battle on a full stomach, because they considered it disgraceful to answer a call of nature even when transfixed, as it would be ascribed to fear. A poet reproaches his enemies as falling in battle in this state, and therefore scornfully says about one of them, p. ۶۵:—

الیت لا ادفن قتلاکم فذخروا المرء و صرباله

"I swore I would not bury your dead, therefore fumigate the man and his breeches." It may seem strange that in a piece where a battle is

described, the fact of the combatants having empty stomachs should be worth boasting of, as is done in the following verse. Ham. p. 128:—

١٥/١٥ ١١/١١ ١٥٤ ١١/١٤ ١/١١ ٤١/٥١ ١/٥١
 ردينة لو رايت غداة جينا علي اصماتنا وقد آخترينا

“O Rodainah, hadst thou seen us in the morning when we came full of wrath and with empty stomachs,” but the scholiast observes that the Arabs used light diet when they went to battle, and disliked that when a man was slain or wounded in the abdomen, food should issue from it, which was considered disgraceful. They tucked up their long garments when they fought; but this refers chiefly to those who had neither a horse nor a camel to ride upon. It appears that women were sometimes present and excited the men to fight, and in the battle called “the day of the cut hair,” a girl thus exhorted the warriors in the Rájar measure ٢٥٤

وغا وغا حر الحرارُ والتظا ومليت منه الربا يا حبتا المحلقف بالضحيا

“Fight! fight! the heat has increased and is scorching, and it has filled the hills. How beautiful are those who cut their hair at noon;” and another:—

نحن بنات طارق نمشي علي المنارق ان تقبلوا نعانق او تدبرو نفارق

“We are the daughters of the mighty wanderer, and ride on camel saddles. If you advance, we shall embrace; if you retreat, we shall separate.” The reason for cutting off the hair before the just-named battle was, that the women might thereby recognize the men of their own party when wounded, and bring them water to drink, but kill all the enemies with bludgeons. When the Arabs had declared war they lit bonfires, which custom is alluded to at the end of v. 69 ch. V. of the Korán. When two parties met they advanced towards each other with inverted lances, and endeavoured to make peace; if they failed in the attempt, they inverted them again and fought; this custom is alluded to in the 47th distich of Zohair’s Moa’llakah, thus:—

١٥/١٥ ١٥/١٥ ١٥/١٥ ١٥/١٥
 ومن بعض اطراف الزجاج فانه

١٥/١٥ ١٥/١٥ ١٥/١٥ ١٥/١٥
 بطبع العوالي ركبت كل لهدم

The scholiast explains *زجاج* as the plural of *زج* the lower and *عالي* as the upper end of the lance, and Sir W. Jones translates: “He indeed who rejects the blunt end of the lance (which is presented as a

token of peace) must yield to the sharpness of the point with which every tall javelin is armed." It was customary for the most valiant man to sally out of the ranks, shouting his own name, and challenge others to fight him (Ham. p. ۱۶۴ v. 2).

Before the time of Muḥammad, the leader of an expedition obtained the fourth part of the booty as his share, but after it only one-fifth, as is decreed also in the Korán VIII. 42; he had however also the right to select something for his own use before the distribution of the booty, e.g. a sword, a horse, a girl, &c. and this was called صفى *Ḥafa*, which custom was not abolished after Muḥammad's time. In their raids the Arabs made prisoners of women only to disgrace the men, as it was a sign that they had not defended them. When the Arabs captured a knight, they cut off his forelock and boasted of it (Ham. p. ۳۸۶ line 15 and p. ۴۴۱ line 10). It was customary to redeem and to exchange prisoners, but very likely the following two quotations from the *Ḥamasa* will not be sufficient to warrant the belief that they also cut off their ears. We have p. ۱۰۷ verse 3:—

فان انتم لم تثاروا وَاَتَدَيْتُمْ فَمَشُوا بِاِذَانِ الْنَعَمِ الْاَلصْلَمِ

"If not avenging the slaughter, you accept ransom; walk about like an ostrich with ears cut off;" and p. ۱۱۴ verse 3:—

فان تبغضونا بغضة في صدوركم فانا جددنا منكم وشرينا

"If you hate us with hate in your breasts [it is no wonder], for we have amputated [the ears of] some of you, and sold [some]."

Harbah is a short lance or *javelin* thrown by the hand; it is the famous *pilum* of the Romans, which had, according to Montesquieu, subdued the world. As this weapon was used in Asia, Africa and Europe down to the 14th century, there is no doubt that also the Arabs must have had various kinds of this spear, just as the Romans had their *spiculum*, their *verrutum*, &c. When the *Harbah* was barbed its extraction from the wound became a very difficult matter. This is the *ژوپين* of the Persians.

Ḥejjār حجار was a man employed to throw stones from machines, and in the History of Nowairi the phrase:—"The number of *Ḥejjārs*

and of naphtha artificers was one thousand” ^{عَدَّة الْحَجَّارِينَ وَالزَّرَافِينَ} “and of the artificers of naphtha was one thousand” and the word *Dabbabah* occurs.

The *Dabbabah* was a kind of tower on which soldiers were placed to attack the ramparts of a fortress. . . . which consisted of wood, of lead, of iron and of copper. . . . and this *Dabbabah* was placed on chariots”

دَبَابَة

E'mád-al-din's history of the conquest of Jerusalem mentions it thus :—“The Franks

كان الفرنج قد اتخذوا دَبَابَة عَظِيمَة وهي خشب ورماس و حديد ونحاس... وكانت هذه هائلة... لها اربع طباق... وهي خشب ورماس و حديد ونحاس... وكانت هذه

The second passage is nearly to the same purport but a little more explicit :—“They constructed a large *Dabbabah* which consisted of four storeys. The 1st was formed of wood, the 2nd of lead, the 3rd of iron, and the 4th of copper. It overtopped the wall, it contained soldiers and was approached to the wall”

دَبَابَة عَظِيمَة اربع طبقات الاولى من خشب و الثانية من الرصاص و الثالثة من الحديد و الرابعة من النحاس فكانت تعلو علي السور تقرب فيها مقاتله فقربها من السور

The author of the *Kitáb alsa'datin* says :—“They erected three *Dabbabahs* with their rams”

نصبوا ثلاث دبابات and adds :—“The *Dabbabahs* resemble towers in the size of their timber, their height and their multitude of soldiers”

The historian Beha-al-din describes the engines opposed to the Musulmán's by the Crusaders in the siege of Saint-Jean-d'Acree in 1190, and says (*Journ. As. XII. p. 224*) :—“The most terrible of these machines was a big wooden edifice called *Dabbabah*, which contained a great number of soldiers. It was clad with large iron-plates, and moved on wheels which were put in motion from within. This machine was provided with an enormous iron-head called a ram, which caused terrible havoc ; men placed in the interior, impelled this head, and demolished the strongest buildings. The Christians raised another machine terminating with a platform, which likewise received its motion from the interior. Its form was the same as that of the first, with the only difference that instead of a ram's head, it bore a piece of iron in the form of a plough-share ; in the first, the ram's head operated by its weight ; in the second it acted by its pointed form as well as by its weight. This is the instrument which the Christians call a cat.”

Dera' is the general Arabic name for a cuirass or shirt of mail and *Zereh* زرّ the Persian. It is a long, narrow, blouse-like garment, having short sleeves descending to the middle of the upper arm, which was sometimes formed of interwoven rings, or chainwork, like that preserved in the Museum of the Bombay Branch of the Royal Asiatic Society, but more generally it was constructed of a stout woven fabric, upon which were sewn, or otherwise fixed, in either vertical or horizontal or oblique lines, rows of iron rings, or of small plates of the same metal. In the crusades the Arab chiefs wore armour of ring or chain mail, admirably wrought, strong, and capable of great resistance, yet light and flexible, and in every respect very greatly superior to the more massive and cumbersome personal equipment of the Crusaders. Lacombe pp. 118, 119 contains more on the subject, and the translator of the same author observes on p. 281 Note 48 that the fine examples of oriental mail defences, and particularly the mail armour worn by the Sikhs, of which there is a singularly characteristic collection in the Tower armory, appears to be identical in manufacture and general treatment with that mail of the twelfth and following centuries, which the warriors of western Europe brought from the Crusades, and subsequently established among themselves.

The Arabs had many names for their coats of mail, according to their size, shape, material, place of manufacture, or name of the maker. According to the scholiast of the *Hamasa* the word *Badan* بدن which occurs p. ٤٥٨ verse 2nd was "a small coat of mail" درع قصيرة he uses these two words also to explain *Shalyl* شليل but adds that it was "likewise a garment worn under the cuirass" ايضا ثوب الدرع ibid p. ٧٨١ to verse 4. There are not less than three kinds of cuirasses named in the following two distichs of A'mru's *Moa'l-lakah* (Ed. and Transl. of Sir W. Jones, distichs 78 and 79). The 1st is the *Yalab* made of leather, the 2nd is the *Súbeghah*, a broad cuirass, and 3rd the *Gh'udún*, said to mean in Persian *Shakn Zereh*, or wrinkled cuirass, which was probably a shirt consisting of wire ringlets; the distichs stand thus:—

علينا البيض و اليلب اليماني
و آسياف يقمن و ينجنينا

علينا كل صابغة دلاص
 ترى فوق النطاق لها فضونا

78. We are armed with bright sabres, and clad in habergeons made in Yemen, our scimitars are part straight, part bent.

79. We have coats of mail that glitter like lightning, the plaits of which are seen in wrinkles above our belts.

The best cuirasses were made of steel rings, as exemplified in the following verse, Ham. p. ٨٢ :—

قوم إذا لبسوا الحديد
 يدهم تنمرو حلقاً وقدا

“They are people who whether dressed in cuirasses of rings or of leather thongs are like leopards.” The word *Kidd* is here taken as a synonym of the above mentioned *Falab*, said to be made of camel hide, about the precise signification of which however lexicographers disagree; the same appears to be the case with the cuirass named *Sanavar* (see Ham. p. ٣٥٢ v. 3 and p. ١٤٧ v. 1) believed to be of Persian origin.

The belief of the Arabs that David made celebrated cuirasses which they imitated and called after his name is also sanctioned by the Korán XXI. 80 and XXXIV. 10; hence the allusions of poets, e.g. Zohair Ben Ka'b, distichs 54 and 55.

شم آلعرانيين ابطال لبومهم
 من نسج داود في الهجاء سراويل

“With aquiline noses, valiant, their cuirasses of the texture of David, a protection in war.”

بيض سوايح قد شكت لها حلق
 كانها حلق القفعا مجدول

“Resplendent, perfect, their rings are connected as if they were rings of the *Kafa'* tree, undulating,” and Ham. p. ١٨٩ supra :—

صفايح بصرى اخلاصتها قيونها ومطردها من نسج داود مبهما

“Blades of Boçra well polished by their makers, and a most dense cuirass of the texture of David.” Here not the Boçrah of the Persian Gulf but the Boçra of Syria, the capital of Hauran, is meant. It has been seen above in distich 78 of A'mru that cuirasses made in Yemen were esteemed good, and in a place, of Arabia Felix, called Saluḵ, also excellent ones were made in ancient times, but Nabegh'ah speaking of certain swords says, that “they split a doubly made cuirass of Saluḵ, and elicit sparks from the foot of the mountain” (Ham. p. ۷۷ line 19). Persian cuirasses are mentioned thus, Ham. p. ۳۷۸:—

فقلت لهم ظنوا بالفي مدجج سرا نهم في الفارسي المصدد

“And I told them:—Consider that a thousand armed men, whose leaders wear Persian chain armour, will be present.” We meet also cuirasses of Sugh'd in juxtaposition with those which David made. Ham. p. ۳۶۹:—

قروم نامي من نزار عليهم مضاعفة من نسج داوود والسفد

“Stallions [*i.e.* leaders] of the Nezar tribe who vie with each other for glory, wearing double cuirasses, of the texture of David and of Sugh'd.” The cuirasses which Amrulḳays had inherited from his father, were five in number, and each of them had its own name. The cuirass which was quilted or stuffed with camel hair was called *Thaḳad* ثَقَد and the garment worn under the cuirass *Al'hd* عليها. As the Arabs were light cavalry, they had but seldom armour for their horses; they called it *Tejáf* تَجَاف, and its origin is said to be Persian; but in the crusades there were Arabs whose horses had a protection of this kind.

Rumh is the lance, the chief weapon of the Arabs, because they could wield it better on horseback than the sword. The head or blade of the lance had a variety of shapes, and it varied also in length, but the shaft was generally of uniform thickness; it was never thrown like the javelin. The name for the shorter lances was *Marbu'at* and for the longer *Tevúl*, *e.g.* Ham. p. ۸۰ last line:—

فولوا طرفان الرماح عليهم قوادر مربوعاتها و طرفاها

“They turned their backs, whilst the points of the lances prevailed over them, the short and the long ones.” From the following passage

it appears that there were lances eleven cubits long, which, adds the scholiast, is not considered too long nor too short. Ham. p. ۷۷۹:—

و اصر خطبا كان كمره نري القنب قد ارمي ذراعا علي العشر

“And a brown *Khaṭṭy* [lance], as if its knots were kernels of dry dates, verily it exceeded ten cubits by one.” It was also customary to bandage a lance so that it might not be easily broken; thus v. 4 of the *Divan of Amrullkays* (Ed. MacGuckin de Slane):—

و ظل الثيران لتريم عمام
يداعها بالسهمري العلب

“Bulls [inhabitants] of the sands roared, but he pierced them with a Samharic [lance] bandaged with nerves.” They used to wind the nerve of a camel round the lance in a moist state like a string, and allowed it to dry, and it would so strengthen the lance as to prevent its breaking when forcibly thrust. Lebid describing the flight of a wild cow pursued by dogs, also mentions a lance of this kind (d. 50) as follows:—

فلحقن و اعكرت لها مدرية
كالسهمريه حدها و تمامها

“They rush on; but she brandishes against them her extended horns, as if they were Samharic [lances] both in sharpness and length.”

Good lances are as in the just quoted distichs named after the lancemaker Samhar, or after his wife Rodainah, both of whom lived in the province of Bahrain—as in the following (Ham. p. ۲۲۷):—

و لنا قناة من ردينة صدقة زوراء حاملها كذلك ازور

“And we have a lance of Rodainah, hard, inflexible, its bearer likewise inflexible.” Also *ibid.* p. ۱۸۷:—

تصبح الردينيات فينا و فيهم صباح بنات الماء اصبعن جوما

“Rodainah lances shriek between us and them, like water-birds hungry in the morning.” When the shaft was a little bent, the iron called *Thiḳāf* was used to straighten it (59 *Mo'allakāh* of A'inru):—

اذا عصب الثقاف بها اشبارت
و ولته عشوزنة زبرنا

“When a man uses the *Thikāf* it starts back, is turned, and becomes inflexibly rigid.” Again (*ibid.* 60):—

عشورنة اذا غمزت ارنث
تشبج قفاء المنقف ولجينا

that when it returns to its former state, it rings with a shrill noise, breaking the neck and forehead of the *Muthakkif* [the man who operates with the *Thikāf*].”

Zarrūk is another name for *Naffāt* نفاط, “an artificer who throws naphtha;” and in the history of Nowairi the phrase occurs:—

“The artificers played with naphtha” لعب الزراقون مالنفط

Zereh زره was above, in the article *Dera'* درع said to be the Persian name for a cuirass or shirt of mail, and it may easily be perceived that the origin of both words must have been the same, and they are even now tolerably homophonous. According to the *Burhān Kāfi* the *Zereh* is “a coat made of iron ringlets connected with each other and put on in times of war” جامه باشد که از حلقهای آهنین ترتیب داده اند. According to the English translator, of *Lacombe* (in his Note 57 to p. 119) not much certain knowledge exists concerning the mail armour of the western chivalry before their return from the Crusades; and the term “mail,” when applied to defensive military equipment in Europe, must be regarded as simply a general conventional name for any kind of garment that was strengthened with studs, rings, or small plates of metal attached to its surface. *Mirkhond* (vol. 5th p. 129) reports, however, that when *Muhammad Khodabende* made A. H. 712 preparations for the siege of *Rohbah* in Syria, “1,500 *Zerehs* intended for the use of the *Divān* of *Viziership*, and manufactured in Europe, arrived” هزار و پانصد زره از so that it appears that at any rate, in the 14th century, Asiatics were aided in their wars by European manufactures.

Zunbūrak is sometimes used by Arab writers to designate a kind of

زنبورک

bow, the word is Persian, and means “a little wasp.” The *Kāmil* of *Ebn Athir* has the phrase:—“They began to shoot arrows

of the *Zunbūrak* at him” جعلوا بر مننه بهام الزنبورک Arab writers also use the word *Nāwuk*, which is the Persian diminutive of *Nāw* as

Zanbúrak of *Zanbúr*. The author of the *Burhún Kati* says that *Náwuk* "is a small arrow, whilst others state that it is a hollow wooden instrument into which the *Náwuk* arrow is placed and shot from it, whilst others again affirm that it is a *Náw* of iron into which a small arrow is placed, then put therewith on the bow, and shot" تیرست کوچک و بعضی گویند آلتی است چوبین و میان خالی که تیرناوک را در آن گذاشته می اندازند و بعضی گویند که ناویست از آهن که تیر کوچکي در آن نهند و بعد از آن در کمان گذاشته اندازند Thus E'mád-al-din uses both words in juxtaposition:—"The bodies were gory from the destructive *Zanbúraks* and *Náwuks*" الإبشار دامیه من الزنبورکات and "they spanned the *Zanbúrak* for wounding and throwing" شدوا الزنبورک للقرح و للطرح; further on "In that case there was a blessing in the *Zanbúrak*" هناك في الزنبورک بورك and "the shots of the *Zanbúraks* which made [the arrows] fly, succeeded

each other rapidly" تفاوت نوايب الزنبورکات المطيرة The history of Nowairi has:—"They prepared for the siege, and among the objects of it they brought out 24,000 *Zanbúrak*-bows." استعدوا للحصار. كان في جملة ما اخرجوه للحصار اربعة وعشرون الف قوس زنبورک

In our times the *Zanbúrak* no longer designates a bow or arblast, but a small cannon placed on the back of a camel. The Arab writers who have treated on the wars of the crusades, called the arblast, such as the Christians used, by the name of *Zanbúrak* (*Journ. As.* XII. p. 211 seq.) They mention it for the first time in describing the siege of Tyre by Saladin in 1187. The crusaders used the *Zanbúrak* also in the siege of Saint Jean d'Acre in 1189. The Christians constructed on the banks of the fosses a brickwall in the rear of which they placed a line of soldiers who projected the *Zanbúrak*. According to the historian of the patriarchs of Alexandria, the *Zanbúrak* was an arrow an inch thick and a cubit long, having four sides; the point of the arrow was of iron, and feathers made its flight more sure. This arrow pierced whatever it touched; sometimes it passed at once through two men placed behind each other, piercing at the same time the cuirass and the dress of the soldier; at last it stuck in the ground, or even passed into the stones of walls. According to this description the *Zanbúrak* would appear to correspond nearly to the terrible arm known in the Middle Age by the name of *quadrellus* or *carellus*. The first Arab writer who appears to have mentioned the *Zanbúrak* is Jumál-

Eddin, who speaks of it under the date of 643 (1245) in the siege of Ascalon by the Sultán of Egypt thus : *واثروا الرمي اليها بالجروخ* *والزنبورى* "They shot at the place from Zambúrak and catapults." The use of the Zambúrak, apparently an invention of the Greeks of the Lower Empire, soon became common in the East, and the Ottoman Turks entertained in their armies a corps of soldiers called Zambúrakjis, but, as already hinted at above, this word obtained quite a different meaning after the discovery of fire-arms, so that the Persians at present designate by this "little wasp" a small piece of artillery.

Zyáris is a kind of bow, which, however, does not appear to be often mentioned. Speaking of the Crusaders E'mád-al-din says:—"Flying with their lances *زيار* and visiting with their bows" *بالقنطاريات* and further on:—"one was visited incessantly by bows with strings" *تواترت زيارات الزيارات الموترة* and in the continuer of Elmasin:—"On each chariot there were 4 *zyár*, each of them containing 3 arblasts and 5 drums" *على كل عجلة* Here we again observe the Persian *charkh* "wheel" in its arabised form, designating the arblast or cross bow, which had in the 14th century the reputation of being a terrible weapon. There is no doubt that this arblast was called "wheel" from the mechanical apparatus by which the string was drawn; an apparatus which was more or less complicated, and often contained not only one but several little wheels.

Setarah means "covering," from *Satar* "he covered," but designates in military language a palisade of wood. Thus the Kámil of Ebn Athir has:—"They hindered the making of palisades which might have covered the archers from the projectiles of the machine," *يمنعون من عمل ستائر يستر بها من يرمي عن المنجنيق* and elsewhere:—"They surrounded their camp with a wall covered by a palisade" *اداروا علي معسكرها سورا وستروا* and another author has:—"They erected palisades and shot from their rear" *اقاموا ستائر* *E'mád-al-din* Isfahani has:—"They covered with the darkness of the palisades the face of the lights [of the wall]" *بظلمات الستائر وجو الانوار [الاصوار]* Further on:—"Something was built for it of stone, which served it as a palisade" *بني له من*

Elsewhere :—“ They strengthened with its earth the wall and furnished it with palisades” وثقروا من و ثقروا من Further on :—“ Their intention was thereby to burn the palisades of the tower” قصدهم بذلك احراق قصدهم بذلك احراق and in the history of Ab-al-Mahsen :—“ He sat at the gate of the palisades” and جلس علي باب استناره Lastly :—“ They were placed as outposts to guard the palisades and the approaches of the fortress” كانوا يقيمون علي اليزك لحفظ الستابر وحفظ جوانب القلعة See also *Tárekah*.

Sayf is the general name for the *sword*, the finest of which were manufactured in Damascus, Toledo and Saragossa. Two-handed swords must, on account of their great weight and unwieldiness, always have been rare. The sword of the Asiatics ought more properly to be called a *sabre*, because it is always more or less curved, and has a single edge only ; in fact, it is only a very large knife, called in Persian *Kard*, which is in the Magyar language transferred to designate a sabre ; it appears, however, from the following quotation (Ham. p. ٥٧ v. 3) in which the Dual *Shafratayn* is used that the Arabs also had two-edged swords :—

مقاديم وصالون في الروع خطوهم بكل رقيق الشقرنين يمان

“Progressing, and bringing nearer in the battle by their steps, every sharp two-edged Yemenic [sword].” Indian swords were mentioned already by the eldest poets known to us, thus Hellál describing the flight of the Hemyarites (Ham. p. ١٦٨ v. 3) says :—

قولو تحت ققطها سراعا تكبهم المهندة الذكور

“But they fled under its [*i. e.* the cloud’s] small hail [of arrows] quickly, whilst hard Indian swords were prostrating them.” And again (p. ٤٦٩ v. 3) :—

مضي وورثناه دريمس مفاضة و ابيض هديا طويلا حامله

“He died and we inherited him ; an old wide [cuirass] and a bright Indian [sword] with a long shoulder-belt.” The swords of Yemen were also often mentioned, *e. g.* (p. ٣٨٤ v. 2) :—

يركب الهول وحيدا ولا يصحبه الا اليماني الالف

“ He braved terrors alone, and was not accompanied except by the Yemeny [sword] full of notches.” Swords are also named after the towns in which they were manufactured. The blades of Boçra have already been mentioned in connection with Davidic cuirasses under the article *Dera'*; the swords of the town of Aryah (Ham. p. ۳۵۸) and of Masháref (p. ۱۹۴), &c. have also been immortalised by poets, one of whom actually attributes to David also the making of celebrated swords, which is quite contrary to the general belief that he only manufactured cuirasses. Thus we have (p. ۳۱۳ v. 3):—

بِيبِي خِفَانِ مَرَهَقَاتٍ قَرَاطِعٍ لِدَاوُدَ فَيَدِيَا ثَرَّةٍ وَخِرَاتِهِ

“ With swift swords, having thin edges, cutting, made by David, on which his marks and sigus are.” This would lead us to infer that, as is customary among Europeans, also the Arab swordmakers placed certain marks on their handiwork by which it might be recognized. From the following quotation it appears that sometimes a sword was long enough to trail on the ground (p. ۷۴۱ 2nd v. *ab infra*):—

بَابِيضٍ خَطَّتْ نَعْلَهُ حَيْثُ ادْرَكَتْ مِنَ الْأَرْضِ لَمْ تَخْطِلْ عَلَيَّ حَمَائِلَهُ

“ With a brilliant [scimitar], the end of which drew lines on the ground where it touched it, although the shoulderbelt was not too long for me.” The shoulderbelt just named *Humayl* was sometimes also called *Nejád*; and its length implied that its wearer was a very powerful man, *e. g.* (۴۴۶ v. 2):—

طَوِيلُ نَجَادِ السِّيفِ وَهَمَّ كَانَمَا نَصُولُ اسْتَنْجَدْتَهُ بِقَبِيلِ

“ Having a long sword shoulderbelt, strong, as if by calling for his aid thou hadst made an assault with a tribe.”

Two old sabres of exquisite workmanship, and still serviceable, having been sent to me by the Honourable Rao Saheb V. N. Mandlik, C. S. I., for the purpose of describing them, I here subjoin the following account:—

No. 1 is 37·7 inches long, has a hilt of whitish bone, the guard of which is broken off, and a hole at the extremity of the hilt through which a string may be passed. The scale of the drawing of both the sabres is one-tenth of the actual size, but the facsimiles of the inscriptions are full size. This sabre has not less than four inscriptions in gold

letters on one side of the blade, marked A on the subjoined facsimile, in which only the profession of Faith within the circle لا اله الا الله لا اله الا الله "No God but Allah. Muḥammud apostle. Apostle of Allah (salutation)" can be made out. The other inscriptions yield no satisfactory meaning, although separate words can be made out, and *Alliah* beneath the circle is very distinct.

No. 2 is 34·9 inches long, has likewise a hilt of white bone but with a small iron cap at the end, as well as a cruciform guard in good condition. This sabre has two inscriptions on the two sides of the blade, which are very legible. B has above a bird and the words:—

ما شاء الله لا حول ولا قوة الا بالله [sic] تعالى العظيم
يا فتاح ٤٧٨

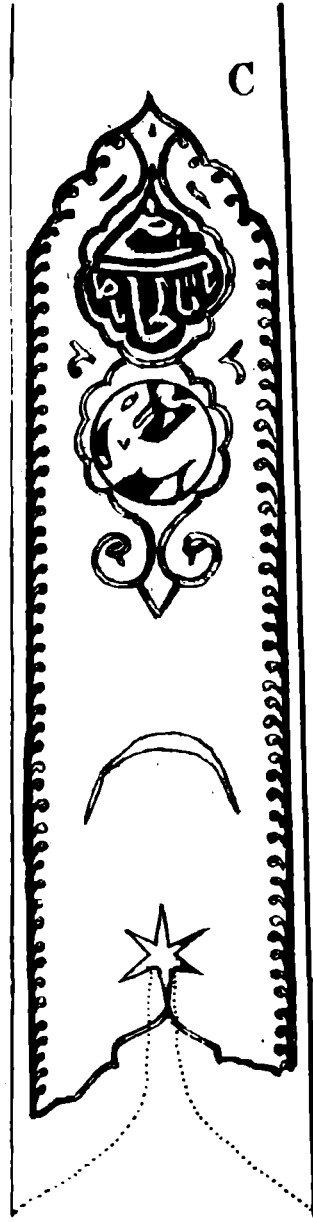
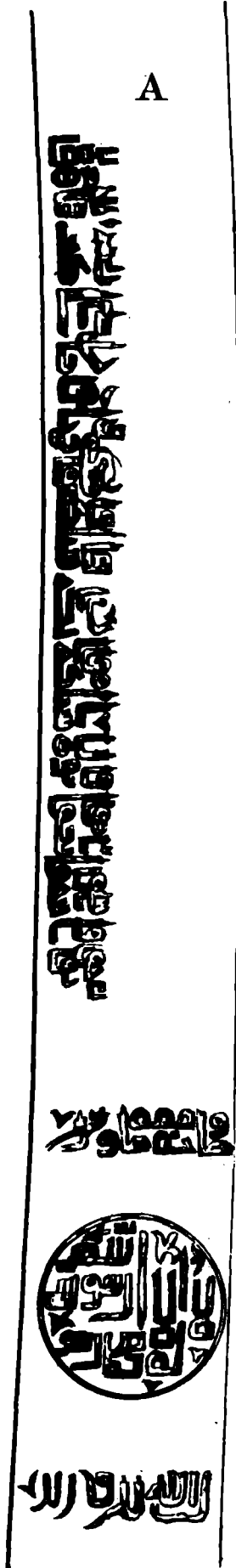
"As God willeth! There is no power nor strength except in God the Most High, the Great. O Conqueror. 478" [Began 29th April 1085]. On C, the other side of the blade, we have only the words يا قاضي الحاجات "O fulfiller of desires," beneath which there is a lion and two Turkish emblems; namely the crescent and the star, which are not engraved, but merely put on in gold like the ornamental border.

Sheytanyah literally means *Sataness*, i. e. female devil, and was perhaps a very destructive machine. The Kámil of Ebn Athir has:—"Against this place one Karabogh'á and twelve Sataness machines were erected." نصب تسعة عشر منجنيقا وهي فرنجية منه "The history of Nowairi says:—"Nineteen machines of war were erected, namely six European

ones, and thirteen Karabogh'ás" نصب تسعة عشر منجنيقا وهي فرنجية منه also in the following passage of the history of Egypt by Marcel the Sheytanyah is mentioned خمسة قرايفرا وخسة عشر شيطانيه "fifteen Karáboghras and fifteen Sheytaniyahs."

Táreḳah was a *mantlet* which a soldier carried, set up, and used as a protection. The history of Nowairi has the passage:—"The Sultán ordered the

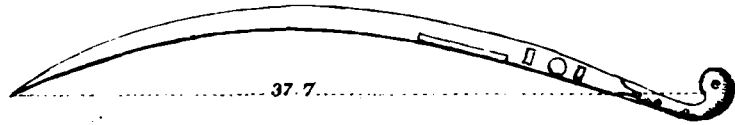
طارقة
mantlets with the palisades [to be brought forward] and they were arranged in a line . . . the archers being posted in the rear of them" . . . السلطان امر بالطوارق والجفاتي فصفت وجعل الرماة وراها للطوارق حاملين وللحملات مطرفين The Crusaders also used mantlets, and E'mád-al-din Isfahai says that "they were carrying their mantlets and lowering their eyes to begin their assaults."



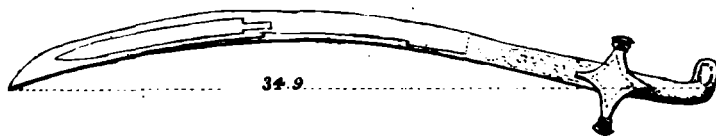
TWO SABRES.

Scale one tenth of actual size.

N° 1.



N° 2.



Further on :—“ the lightnings of its banners shone, and the blows issuing from its mantlets frightened” لعت بوارق بيارقه وراعت Elsewhere :—“ The French prisoners as on the day of their battle rode their horses, carried their mantlets and their banners” اساري الفرنج علي هيه يوم قراعها راكبة حصنها في طوارق و بيارق and further on :—“ Their ditches protected them from sudden assaults, and their mantlets defended them from surprises” هم بالخنادق من البوابق محتومون وبالطوارق من الطوارق معتمومون قد اتخذ طارقته “ he made of his mantlet a shell for his body” Further on :—“ They covered themselves from the attacks of the besieged by means of their coverings and mantlets” نستر عن طوارق البلد بستايبره و طوارقه and “ the battle was transferred from the mantlets to the roads” انتقل القتال من الطوارق الى الطرق In a history of Egypt :—“ Mantlets of wood were erected to protect the archers” عرض طوارق خشب لسبب الرماة بالنشاب In the history of Nowairi :—“ The Sultán ordered the mantlets and palisades [to be brought forward], and they were erected along the seashore from the beginning of the narrow pass to its end, the archers being posted in the rear” السلطان امر بالطوارق و الجفاني فصفت صابلي Further on :—“ helmets, mantlets and torches” البحر من اول المضيق الى آخره وجعل الرماة وراها خود و طوارق و فوانيس In the history of Egypt by Ebn Aiás :—“ A great quantity of wood was brought and mantlets were begun to be made” احضر اشياء كثيرة من الاخشاب و شرع في عمل طوارق Further on :—“ Then 200 camels were led forth loaded with mantlets which were about 1,500 in number” ثم استجبت مايتا حمل محملة طوارق نحو الف و خمسمائة طارقه In a history of Egypt :—“ No mantlet nor palisade hindered them” ما منعهم طارقة ولا In the history of Ab-al Mahasen :—“ The citadel of Damascus was closed, and provided with palisades and mantlets.” In Makrizi’s description of Egypt :—“ It is a large gate with military palisades on it, painted, as was customary with the gates of Cairo, with the gates of the fort, and of the houses of the Amirs” باب كبير عليه طوارق حربية مدهونة علي ما كانت العادة في ابواب القاهرة و ابواب القلعة و ابواب بيوت الامرا From these passages it would appear that the *Tarekah* must have been of various forms and sizes, from the portable buckler of a soldier, to the immoveable breastwork on a wall.

A'rradah was a machine, smaller than the *Manjanyaḳ*, by which stones were projected to a great distance ;
 عَرَادَة / عَرَادَة
 it was a kind of small balista or darting engine. As it is mentioned in connection with cannon, it was still in use after the invention of the latter. Thus the Persian life of Shah A'bbas has the expression "with a cannon and an A'rradah" بَانُورٍ وَعَرَادَةٍ and further on : "they fortified their rear with an A'rradah, with a bridge and with cannons" پِشْتِ خُودِ رَا بَعْرَادَةٍ وَجَسْرٍ وَتُورٍ اسْتَحْكَامِ دَادَهُ اِنْدَ It is very probable that the A'rradah became in course of time a mere gun-carriage, when it was found that cannons are infinitely superior to every kind of balista. Thus Ferishta has "the gun-carriages of the artillery which were nearly 2,000, in number" عَرَادَاتِ هِي آتَشْخَانَه كِه عِدْدِ اَن قَرِيبِ دُو هَزَارِ بُوْدِ Bombay Govt. ed. vol. II. p. 616 *infra*.

A'rusek was likewise one of the minor engines of war, and the author of the *Burhān Kāfi* says :—"It is a small *Manjanyaḳ*, namely, an instrument which they make in forts, and throw from it stones, fire, and earth towards the enemy" مَنجَنِيقِ كُورِچِ رَا گُورِندِ وَ اَن اَلْتِي "منجنيق که در قلعهها سازند و بدان سنگ و آتش و خاکستر بجانب دشمن باشد که در قلعهها سازند و بدان سنگ و آتش و خاکستر بجانب دشمن اندازند" and Mirkhond says "the A'rradah, the *Manjanyaḳ* and the A'rusek were full [of projectiles]" عَرَادَةُ وَ مَنجَنِيقِ وَ عُرُوسِکِ مَشْحُونِ بُوْدِ

The earliest mention of the *A'rūs* or bride, of which the Persian *A'rūsak* is the diminutive, appears to occur in Beladori's conquest of Sind (Reinaud. *Fragmens Arabes et Persans*, &c. p. 167 seq.), when an engine of this kind, which had the force of 500 men, was erected by Muḥammad Ben Kāsum in the siege of Daybal early in the ninth century وَ نَصَبِ مَنجَنِيقًا تَعْرِفُ بِالْعُرُوسِ وَ كَانَ بَدَ فِيهَا خَمْسُ مَائَةِ رَجُلٍ It appears that the besiegers could take very accurate aim with this machine, as "the projectiles were thrown against the flagstaff, which was broken, and the event greatly afflicted the unbelievers" فَرَمِي اِد قَل نَكْسَرِ "فَرَمِي اِد قَل نَكْسَرِ" Ferishta's account is substantially the same (vol. II. p. ۶۰۵), but his reason for aiming at the flagstaff was that the top of it contained the *Talisman*, the falling of which would bring Daybal, which, he says, is the present Thathah, into the power of the Moslem. Reinaud (*Mém. géogr.* &c. foot-note 6 to p. 170) was of opinion that it is Karachi.

Faranjiyyah or *Afranjiyyah*, mentioned according to Quatremère in the history of Egypt of Marcel, is a machine which had been imported from Europe. Ebn Athir calls it "the western Manjanikun," it threw a stone weighing 140 Syrian Retls. منجنيق مغربي... كان يرمي حجرا زنتها مائه و اربعون رطلا بالشامي

The *Karabogh'a* has already been mentioned in the article on the Sheytányah, and the work purporting to be by Hosan Ben Ibrahim (M. S.) contains the expression :—"He sent a great machine,

سیر منجنيقا كبيرا سموة قرا بفا the name of which was *Karabogh'a* but from the following three quotations it will appear that this word is also spelt *Karabogh'ra* and *Karabokrá*; thus a phrase almost identical with the preceding one occurs in Muḥammad Nisaivi's life of Sultán Muḥammad Mankberni (M. S.) :—"They sent a great machine which they called *Karabogh'rá*," سيروا منجنيقا كبيرا سموة قرا بفا and the *Zafarnamah* has "a *Manjanyk*, an *A'rrádah* and a *Karabogh'rá*" منجنيق و عراد و قرا بفا and in the *Matla-alsa'din* "They made ready a ladder and *A'rrádah*, a *Manjanyk* and a *Karabogra*." نردبان و عراد و منجنيق و قرا بفا مهيا ميگردانيدند

It appears that Muḥammad used war engines A. H. 8, when he besieged Ṭayf, as we read in the *Sirat-al-rasúl* of Muḥammad Ben Es-hák :—"Neither [the battle of] Honeyn nor the siege of Ṭayf had been witnessed by U'rwah B. Masu'd and by Gh'aylán B. Salamah; they were in Jurash, where they were being instructed in the construction of siege towers, stone-throwing engines, and mantlets. After the apostle of God had terminated the affair of Honayn, he marched to Ṭayf," &c. and further on: "The apostle of God besieged and violently assailed them; they also shot arrows at each other. Ebn Hesham says that the apostle of God projected stones at them from engines; and one in whom I trust has told me that the apostle of God was the first in Islám who made use of engines against the people of Ṭayf (My MS. transl. of the Arabic text ed. Dr. Wüstenfeld.)"

Kuntaryah is an offensive weapon, but according to Freytag supposed after Isfahani to be the shaft of a lance, which is also confirmed by the following quotations taken from Quatre-

قنطارية

mère. Thus the romance of Antarah has—"he fought, and the lance without the iron was in his hand," كان يقاتل والخنطارية بغير سنان; E'mád-al-din has:—"Flying lances" قنطاريات طائرات And lastly:—"They stretched over the swollen waves of the horses, the bridges of the lances" مدوا علي مدود الضوامر الزواخر قناطر القنطاريات

Kaus, the bow, was one of the most ancient weapons, but more especially for hunting, as the Arabs usually fought on horseback where the sword and lance were more handy. In Europe the most dangerous weapon of the soldier was the French or the Turkish bow, and both of them were made of goats' horns which had been brought from the East after the first Crusade (Lacombe's Arms and Armour Engl. Transl. p. 117). Also the Arabs had two kinds of bows, namely, their own and the Persian. The Arab bow was usually spanned with the hand, but when of large size with the foot; it was made of various kinds of wood, but the *Naba'* was considered the best, e.g. Ham. p. ٣٥٨ v. 2:—

تومس

وَفَارِجًا نَبْعَةً وَمِلَّةً جَفِيرًا مِنْ نِصَالٍ تَخَالِهَا وَرَقًا

"And a distended [bow, made of] Naba' [wood] and a quiver full of arrows, thou wouldst fancy they are leaves." Again p. ٦١٥ v. 3:—

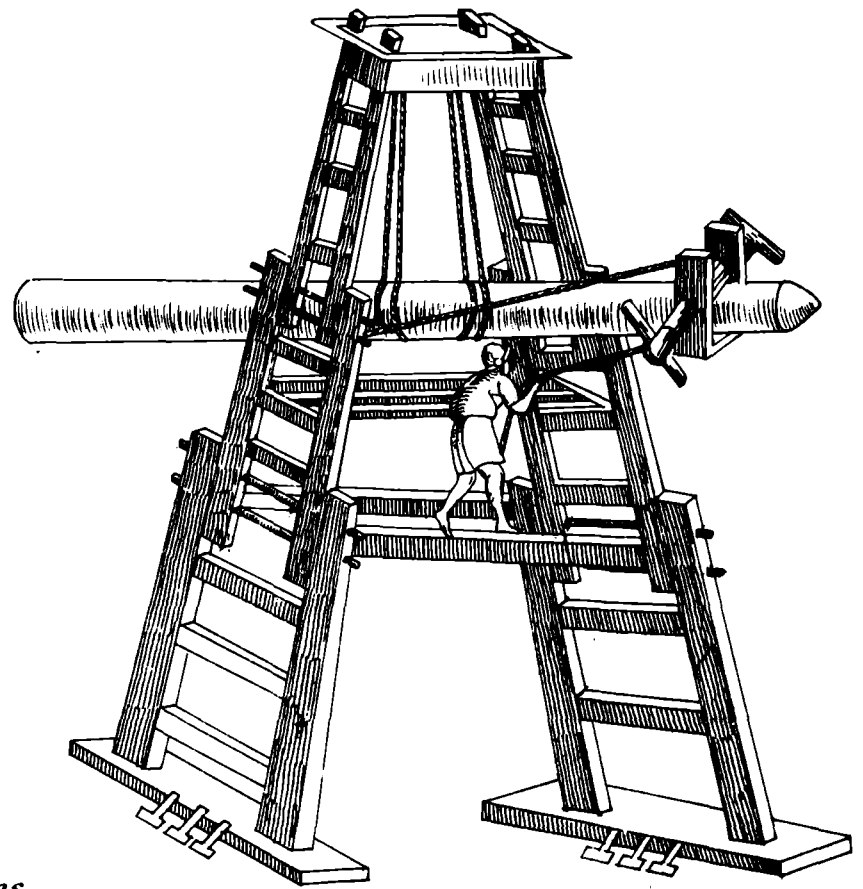
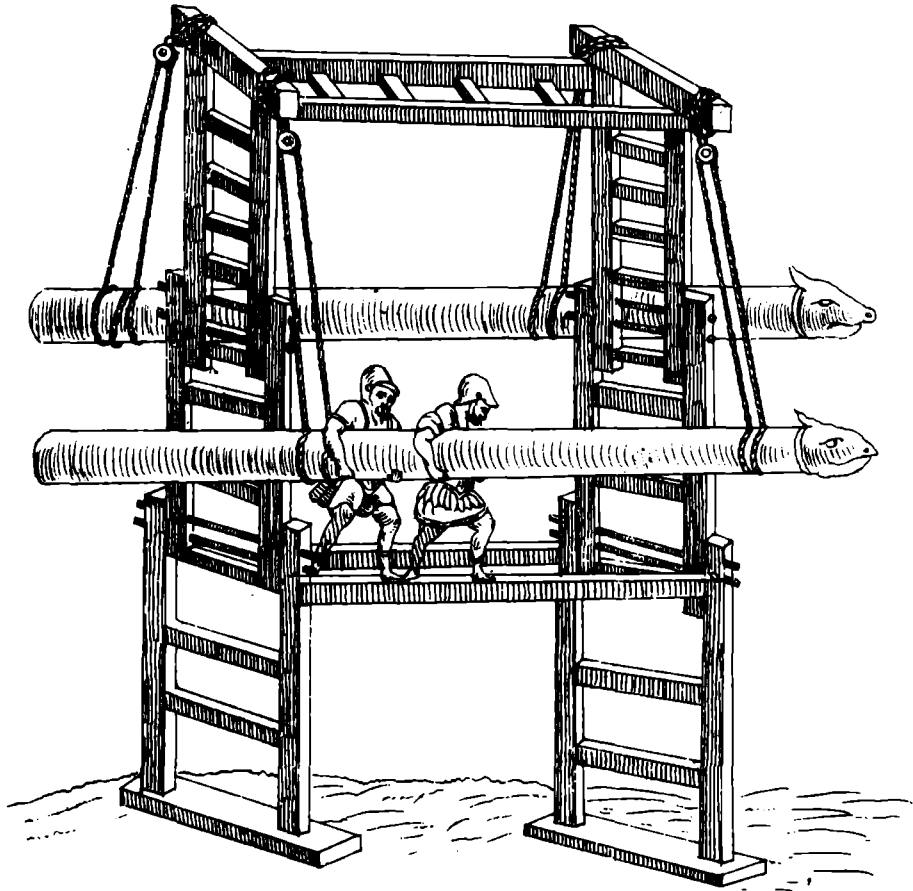
لَيْسَتْ عَلَيْهِمْ إِذَا يَغْدُونَ أَرْدِيَّةَ إِلَّا جِيَادٌ قَمِي النَّبْعِ وَاللَّجْمِ

"There are no cloaks on them when they come in the morning; [they have] only the best bows of Naba' [wood] and bridles [for girdles]."

There are also several other trees of which good bows were made; these the poets mention by name, as well as the various kinds of bows. Even the parts of a bow have names minutely described on p. 258 of Freytag's *Einleitung*.

Kabsk is the Aries or battering ram. It was at first no doubt simply the trunk of a tree, held by several men, and knocked against the wall which it was intended to breach. The next improvement was to put rings on the beam, and to suspend it from a stage by means of ropes or chains, whereby the soldiers were relieved from the burden of carrying the

كيش



Two kinds of Rams.

ram, and would exert their whole force in butting it against a rampart. Then an iron-head, not unfrequently in the form of a ram, was added, and the whole covered with a kind of pent-house, so as to shelter the soldiers who worked it. Sometimes it was sufficient to bore holes into a wall, and enlarging them afterwards, to make a breach, but when this operation could not effect anything, or became very tedious, the Ram or Aries was employed. The crusaders used an enormous head with two horns when they assailed St. Jean d'Acre, and Quatremère states that Isfahani gives long details on the subject; but as the work is not accessible to me, I here append copies made by me of two kinds of rams, from the *Heronis Mechanici liber*.

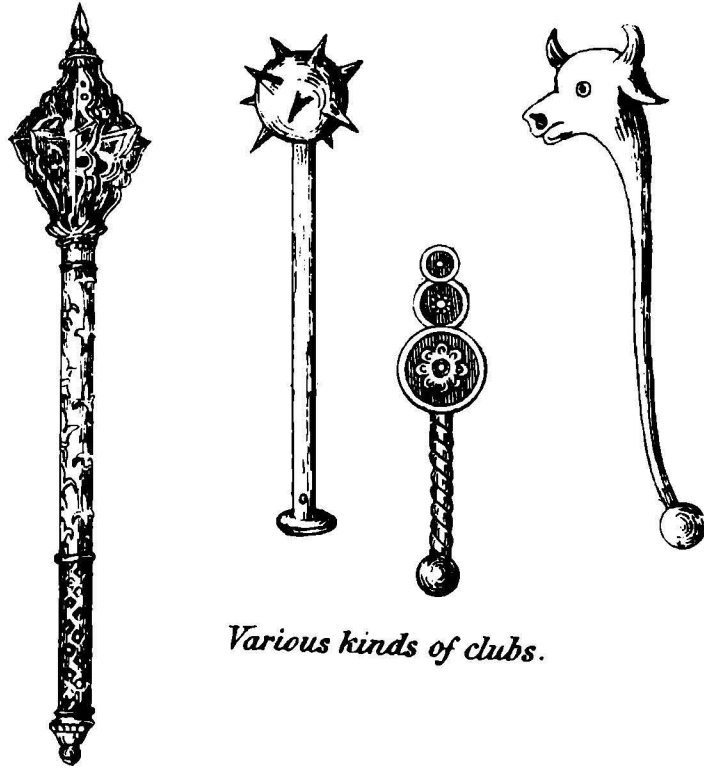
Kemáni-ra'd, or "thunder-bow," is according to the Matla-alsa'din quoted by Quatremère a kind of balista which projected stones of the weight of 400 manns. There is also another machine of this kind called *Kemáni-Gao*, or "ox-bow," which had, according to the author of the *Jehán-Kushai*, been manufactured by the engineers of Khatá (China), and the arrows or projectiles of which had a range of two thousand five hundred paces. It may be seen that at any rate the names, if not the machines themselves, are of Persian origin.

Kamand is the lasso often mentioned in the *Shahnamah* as used by the ancient Persian heroes, and by means of the noose or loop at its extremity a foe could be disabled and captured. It appears to be identical with the long rope still used in Hungary and South America for catching horses. The following description, from which it will be seen that the Patagonians have two kinds of the *Kamand*, will serve very well to give an idea also of the Asiatic one, and is taken from Lacombe (*Arms and Armour*, Engl. transl. p. 87 seq.):—The *bola* is simply a long strong cord, or small rope, having a stone, or a ball of metal fixed at one end; or, rather, it consists of 2 such cords, each provided with a stone or ball. The cords being secured by their other ends to the Patagonian, he whirls the two balls rapidly, and with great adroitness, about his head, and then discharging them at the object, strikes it as with a blow from a flexible club. A blow such as this, struck from the end of a long cord, takes effect with great violence; and the *bola*, having done its work in one instance, may be recovered and be in readiness for use on future occasions. The management of the *bola* requires long practice, and no ordinary skill. The *lasso* is a variety of the *bola*,

which is used after a different fashion. Instead of having been whirled round the head to obtain a momentum, the stone or ball at the extremity of the *lasso* is discharged direct from the hand, propelled simply by the strength of the thrower's arm, and by his dexterity of movement; the cord flies with the missile to which it is attached at one end, and the other end is held by the thrower. Should the aim have been directed to the leg of a horse, either the limb is broken by the blow, if the ball strikes, or, if it only grazes and passes on one side, a jerk of the cord brings the ball back with a rotatory movement round the leg, or both the legs of the animal and the cord thus is entwined around them. The Patagonian, by holding the cord tight, causes the horse to make a false step, or, in its sudden entanglement, he drags it at once to the ground. The *lasso* is also in general use throughout South America, and is constantly constructed with a loop at its thrown extremity, instead of a stone or ball.

كوززه *Kurzeh*, and in the Shahnamah *گوز* *Gurz*, was a famous weapon of the ancient Persian heroes, it is the club, mace, hammer, or martel of Europe where it became the surname of the celebrated Charles who defeated the Arabs A.D. 732 in the plains of Tours. In Hungary the *Gurz* is known by the name of *Buzogány*, and the appended drawing shows several forms, the most elaborate of which, taken from Lacombe, appears to be of French manufacture as *le fleur de lis* occurs many times on the handle. No. 4 represents the club of Rustum.

Leva is one of many names by which Arabs designate a banner; it was one of the smaller kind, not unfrequently tied merely to the top of a lance, whilst the *Band* is said to have been a very large Persian standard carried with an army of not less than 10,000 men. The celebrated "Direfsh Gaviani," minutely described in the Shahnamah, was formed of tiger-skins, set with jewels, 12 cubits long, 8 broad, and was taken by the Arabs A. H. 15 in the battle of *Kādesyah*. It was customary for every Arab tribe to fight under its own standard, but when a commander was appointed he received a special one, thus Muḥammad gave a banner to *Çayd B. Thâbet* A. H. 9 at the battle of *Tabuk*; it appears that the banners were of various colours, but on that day Muḥammad's flag was black. Afterwards standards became marks of sovereignty, and were carried above the heads of the *Khalifs*; but also in early times over the general of an army, hence the poetess *Layla Alakhlyyiah*, who had seen a man in



Various kinds of clubs.

poor circumstances and torn clothes, expresses herself thus about him (Ham. p. 705). :—

حَتَّىٰ إِذَا رُفِعَ اللَّوَاءُ رَأَيْتَهُ نَحْتِ اللَّوَاءِ عَلَيَّ الْخَيْسُ زَيْمًا

“Until when the banner is raised, thou wouldst see him beneath it the commander of the army.”

Medfa' is the name for a cannon, but there is no doubt that long before its invention, machines throwing inflammable substances were in use. When the Arabs first invaded Sind they used

مدفع

pyrotechnical machines *آتش بازي* and boxes of fireworks *حقهاي بازي* which they projected from the backs of elephants into besieged places; they had learnt the use of these machines from the Byzantine Greeks and Persians. When the Khalif Harún Alrashid besieged Heraclæa in Asia Minor, he caused stones to be besmeared with sulphur and white naphtha; these were wrapped in cloth, put on fire, laid on the platform of an engine, and projected by it into the fortress, which the besieged were compelled to surrender (Quatremère. *Coll. Or.* p. 150). Cannon, which the Chinese call *Ho-Pao*, “fire machine or balista,” was invented by them; we nevertheless find that the Mongol emperors employ in China Muhammadan artillerists for whom they send. Thus we read in the *Bibl. Or.* D’Herbelot t. IV. p. 427 seq., that the Mongol-Chinese history contains the following account about these artillerists:—In the 8th year of the emperor Kublai, who reigned under the title of Shi-yuen (A. D. 1271), the emperor despatched envoys to a king of his own blood named O-pu-kho [this was Abaka who had in 1264, after the demise of his father Holagu, taken possession of the empire of the Khalifs] to ask him for artillerists. Accordingly O-pu-kho despatched during the same year by post two artillerists, one of whom was called O-lao-vatin [A’lá-uddin] and the other Y-su-ma-in [Esma’il]. As soon as they arrived the emperor Kublai immediately appointed them commanders. Esma’il was sent to besiege the town of Siang-yang-fu with the authority of commandant of artillery. He directed his artillery to the north-eastern corner of the town. When the machines were discharged they made a noise so as to shake heaven and earth. They broke and overturned everything in their way. The balls which they shot weighed 152 Chinese pounds, and penetrated seven feet into a rampart of earth. Liu-ven-huan, being frightened, surrendered the town.

The *Medfa*' which projected stones or naphtha, and became in course of time a cannon, was no doubt at first a balista like the Chinese *Pao*, and the Latin *tormentum*; both of which have been adapted to modern usage, the former being called *Ho-Pao* and the latter *tormentum ignitum* or *bellicum*, whilst the Arabic name has remained unchanged. Quatremère has collected a number of passages from the History of the Mongols showing how cannon was used for throwing projectiles and inflammable substances from the time of Chenghiz Khan their first emperor; he also adduces a passage from the Chinese authors quoted by Father Gaubil, in which the names of the two Muḥammadan artillerymen given above, occur, and his quotations from Moslem authors are as follows:—The History of Ahmad Askalani has the phrase:—"He caused many cannons and culverines to be brought from Çubaybah and Çafad and Damascus, and placed them around the fortress"

استكثر من طلب المدافع والمكاحل من الصباييه و صفد و دمشق
 Elsewhere:—"He placed a cannon to shoot at the
 fort" نصب للرمي علي قلعتها مدفعا "In the Kitáb-al-solúk of Makrizi:
 "One of the stones shot by the cannon struck the dome."

إصاب حجر المدافع المنقطة "Naphtha cannons" Elsewhere:
 "He placed a cannon whose stone weighed 600 Egyptian
 Retls" نصب مدفعاً زنة حجراً ستماية رطل بالهصري "In the history of
 Egypt by Ebn Ayes:—"I shall shoot cannons at him" ارمي عليه
 ركب المدافع "He placed cannons on the towers" بالمدافع
 Further on:—"He shot at the fort with cannons and
 muskets" برمي علي القلعة بالمدافع والبندق "cannons which
 projected masses of granite" مدافع صران See also the article

مكحله Vasco de Gama found, during his voyage to India, on which he had started in 1497 when he arrived on the coasts of East Africa, and particularly about those of Mozambique, where the Arabs had established colonies, that they possessed no acquaintance with artillery which had come into use among European nations, and J. P. Maffei (*Historiarum Indicarum Libri XVI Colonice Agrippinæ. Anno MDXC*) says on p. 50: "Among those nations the ballistas of new subtlety and admirable workmanship have not yet made their appearance; they have a long and equally smooth tube, made of cast brass, and do not throw single darts or are spanned by means of cords; but on their back they have a small aperture where fire is applied, so that the engine, which is loaded with powder of nitre and sulphur as well

as iron balls, chains and other charges, explodes with flames and a horrible thunder-like noise. The Portuguese had several such machines duly arranged and poised in the ports of their ships." The contrary was however the case with the Hindu troops of Calicut, who were of the Nair caste, and acquainted with cannons as well as all other kinds of arms, for we read on p. 59 and translate:—"Formerly their arms were the lance, the arrow, the sword, the buckler; but after these, more recent frauds and engines of the human mind had been imported to them, they learnt the manner of casting, tempering, and poisoning them so well that they use all the larger and smaller cannons and fire-arms very skilfully, and now the Hindu muskets, that is to say their iron tubes and sulphur powder, greatly excel the Portuguese ones."

The earliest engines of war we know of with certainty are those in use one thousand years before the Christian era, and mentioned in II. Chron. XXVI. 15 "to shoot arrows and great stones withal." They were *catapults* and *balistas*. The former of these engines discharged darts armed with iron heads, or with inflammable substances. The largest engine of this kind threw darts six feet in length, which, at a distance of one hundred paces, would pierce through several men. A catapult was generally made from trunks of trees roughly fashioned; and having been bent by means of ropes and pulleys, the pieces of timber, when suddenly released, violently struck the darts that were placed in readiness upon stakes prepared for that purpose, and drove them forwards. The *balista*, a variety of the catapult, was a machine for discharging stones. One or more large stones were placed in a kind of wooden bucket suspended from the end of a beam, which, after having been elevated, fell by a simple contrivance, and projected to a distance the contents of the bucket. From this it may be seen that ancient could never have led the way for the introduction of modern artillery. The earliest cannon of which we have any knowledge, were made of hammered iron, and consisted of tubes strengthened by rings; the tube was made open at both ends, and the charge of powder, with the projectile, was placed in a separate iron case or chamber open in front, which was adjusted to one end of the tube, and joined to it by iron wedges driven into an external case that enclosed the whole of what we may distinguish as the breach of the gun. By this contrivance, the chamber containing the charge and the barrel were kept in close contact at the time of the explosion; and in order the more effectually to secure this important object an iron stirrup was passed round the external

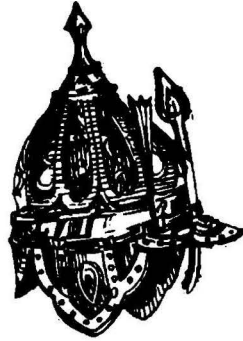
case. The chamber itself was pierced with a touch-hole or *vent*, through which, when the piece was to be fired, a slender rod of iron at a red heat was introduced. More on this subject may be seen in Lacombe p. 219 seq., and there appears to be scarcely a doubt that the cannon just described was, as it were, the starting point for two kinds of developments, the one by diminution which terminated with the invention of the musket and pocket pistol ; the other by enlargement, culminating in the enormous siege gun.

When the Turks besieged Constantinople in 1543 they combined the use of modern with ancient artillery. Gibbon relates that cannon were intermingled with the mechanical engines for casting stones and darts. The bullet and the battering ram were directed against the same walls ; nor had the discovery of gunpowder superseded the use of the liquid and unextinguishable fire. A wooden turret of the largest size was advanced on rollers ; this portable magazine of ammunition and fascines was protected by a threefold covering of bulls' hides ; incessant volleys were securely discharged from the loopholes ; in the front three doors were contrived for the alternate sally and retreat of the soldiers and workmen. They ascended by a staircase to the upper platform, and as high as the level of that platform, a scaling ladder could be raised by pulleys to form a bridge and grapple with the adverse rampart.

Murdif are among Arabs the camels loaded with provisions which accompany them in their wars. These camels, mounted by two men, are like moveable forts provided with everything necessary for defence and nourishment. A skin of water, a bag of flour, one of dry dates, a jar of mutton butter, and the ammunitions of war, form as it were a square tower on the back of the animal. The men, comfortably seated on each side on seats of cordage, have no need of anything. When they are hungry they knead a little flour with butter, which they eat without baking ; a few dates and a little water complete the repast of these sober men ; they do not alight from the camel even for sleeping, but merely stretch themselves out on their backs. When the tribe has no time to stop on the march, and the women are likewise present, a moveable culinary establishment is organised, and at various intervals among the riders women are constantly engaged in its operations. The first woman mounted on a camel loaded with corn has a handmill before her ; as soon as she has ground some she passes the flour to her next neighbour, who kneads it with water in bags sus-

مردی

Helmets.



pended on the flanks of her camel. The dough is then passed to a third woman, who makes flat cakes of it, which she bakes on a brasier containing fire made of wood and straw. These cakes she distributes to the division of warriors she is charged to feed, and who come from minute to minute asking for their share. Other women walk by the side of she-camels and milk them, the liquid being passed from hand to hand to quench the thirst of the people. The horses eat marching, the grain bags being suspended from their heads. (See "Bécit du séjour de Futalla Sayeghir chez les Arabes errans du grand desert. Rapporté et traduit par les soins de M. De Lamartine, pp. 320 and 338. London edition.)

Megh'far is the helmet, originally of leather and afterwards of iron. It appears that the helmet was sometimes encircled by spikes, e. g. Ham. p. ۲۴۹ v. 3.

س / ن
مقفر

وَأَلْثَرَةُ الْحَصْدَاءُ وَالْبَيْضُ الْمَكْلَلُ وَالرِّصَاحُ

"And a firm cuirass; and a helmet encircled by spikes; and lances."

It was also customary to fix the helmet with nails to the cuirass, so that it could not fly off when galloping. *Ibid.* p. ۲۶۳ last line.

شَدُّ دَوَابِرَ بِيضِهِمْ فِي كُلِّ صَحْمَةِ الْقَتِيرِ

"They tied the rear parts of their helmets to the cuirasses made of strong nails." The Arabs had a great variety of helmets, the use of which flourished greatly during the crusades; they were ornamented with bosses, plates, crests, and had very often also cheek-pieces and visors; the helmets given in the subjoined drawing are copied from Lacombe's "Arms and Armour," except the last, which is taken from the *Shahnamah*.

Mikla' is the common name for a sling, but also *Filakhin* نَلَا حَنَ

س / ن
مقلاع

and *Mikhdafah* مَخْدَنَةٌ were used to denote it. In ancient times the most prominent example is that of David, who "put his

hand in his bag, and took thence a stone, and slang it, and smote the Philistine in his forehead, that the stone sunk into his forehead." I. Sam. xvii., 49. In Europe the sling was the most common of

weapons of footsoldiers as far as the 14th century. Even the light troops of the Greek and Roman armies consisted in great part of slingers, but they are not mentioned in the Iliad. The Roman soldiers threw from their slings not only stones, but pieces of lead or plummets called *glandes* of a form between acorns and almonds, cast in moulds. Dr. Freytag (Einleitung p. 260) was of opinion that among the Arabs the sling appears to have been only a toy of children.

Mekhilah is nearly the same thing with the *Medfa'*; it is also translated by 'culverine,' and means in the Life of Timur, t. I. p. 324, according to Freytag in more recent times, a musket; but the following valuable quotations in which this word occurs, are taken from Quatremère's foot-notes to the Life of Hulagu Khán. Thus Ab-al-Mahasen's history of Egypt has the expression:—"A Mekhilah for projectiles was made, the Menjanyik of copper weighed 120 Egyptian Kintárs, and was erected beyond the Karáfah-gate; and they shot therewith in the direction of the mountain, stones, each of which weighed 600 Rittls" عملت مكحلة لرمي النجنيق من نحاس وزنها مائة وعشرين قنطارا بالمصرى ونصب خارج باب القرافة ورموا بها الى جهة الجبل بالحجار زنة كل واحد مئتا مائة رطل The Kitáb-al-solúk of Makrizi has:—"He prepared Madfa's for throwing naphtha, and Mekhilahs for shooting at the stable of the Sultán" اعد مدافع النفط والمكا حل لرمي بها علي Then comes the passage of Ab-al-Mahasen:—"He made a large Mekhilah of copper" عمل مكحلة عظيمة من نحاس and one in the history of Ebn Aias: "They mounted a Mekhilah in the balcony of the college" ركبوا مكحلة في شباك المدرسة And further on:—"They had with them Naphtha-Mekhilahs" معهم مكا حل نطف Elsewhere:—"Camels loaded with Mekhilahs were brought, as well as with men who shot leaden balls from the Mekhilahs on the backs of the camels" عرض جمال و فرقتها مكا حل ورجال يرمون بالبندق في ظهور الجمال In a history Egypt:—"They took the Mekhilahs which were on the carriages" اخذوا المكا حل التي على العجل The above passages led Quatremère to infer that the signification both of the *Medfa'* and of the *Mekhilah* was gradually changed. At first they were forms of the balista and catapult, destined to project stones, the Gregorian fire, or other missiles, and the same names were after the discovery of gunpowder applied to designate cannons or stone-projecting machines.

Manjanyaḳ is the *Mangonel* of the Europeans, but it is not clear to me

whether it is the same with the *Manjanun*

س / ب /
منجنيق

س / ب /
منجنون which appears to be a rare word ;

at all events both seem to be derived from

Máγγanon ; and Franciscus Barocius in his Translation from the Greek of the Book of Heron the mechanician says in a note of his own, p. 34 :—"Monangon est quoddam iaculatorium instrumentum ballistæ simile." Although already Muḥammad used engines of war in the siege of Ṭayf as has been seen above, there is scarcely a doubt that the Arabs had learnt their construction from the Greeks and Persians. The engineer Solmán who assisted Muḥammad in the defence of Madynah when the great fosse was dug, is well known to have been a Persian, which fact is besides many other writers also attested by Abulfeda t. I. p. 104 as follows:—"Then began the 5th year [A.D. 626], in which the war of the ditch, namely, of the confederates is recorded. It took place in the month Showál of that year, when it came to the knowledge of the apostle of God that the Arab tribes had confederated. Accordingly he ordered a trench to be dug around Madynah ; it is said that he had done so by the advice of Solmán the Persian. It became a battle-field in which he was present with the apostle of God ; and during the digging of the trench manifestations of numerous miracles by the prophet took place" ثم دخلت سنة خمس ذكر غزوة الخندق و هي غزوة الاحزاب وكانت في شوال من هذه السنة وبلغ رسول الله تحرب قبائل العرب فامر بجفر الخندق حول المدينة قيل كان باشارة سلمان الفارسي وهو مشهود مع رسول الله وظهرت للنبي في حفر الخندق عدة معجزات Abulfeda also mentions the use of the *Manjanyaḳ* in the siege of Ṭayf (*ibid.* p. 164) as follows:—"The siege of Ṭayf took place when the Thakýf fled from Honayn to Ṭayf, and the prophet pursued them. They locked the gate of their town, but the prophet beleaguered them during more than twenty days, and assailed them with the *Manjanyaḳ*" ذكر حصار الطائف ولما انهزمت ثقيف من حنين الي الطائف سار النبي اليهم فاعلقوا باب مدينتهم فحاصرهم النبي ثيغاً وعشرين يوماً وقاتلهم بالمنجنيق and in t. V. p. 94 we find:—"Then the year 690 [A. D. 1291 Jan. 4.] began, in the month Jomáda, posterior of which, the conquest of A'ká is recorded. The reason for this was because the Sultán Almelik Allashraf had marched with the Egyptian troops to A'ká, and had ordered the Syrian troops likewise to come with their *Manjanyaḳs*. Accordingly Almelik Almuzaffar, the lord of

Hamáh, with his uncle Almelik Allafdal and the whole army of Hamáh marched to Haçan Allakrad with them; and we obtained from them a great Manjanyk named Almançúry, being the load of one hundred gun-carriages; the management of which was distributed to the Hamáh army, but the one given to me required only one gun-carriage [to carry it], because I was at that time a decurion. Our march with the gun-carriages fell into the end of winter, when snow and rain happened to overtake us between Haçan Allakrad and Damascus, and we experienced therefore many hardships in pulling the gun-carriages, because the oxen were weak and died from cold." ثم دخلت منه تسعين وستمائة ذكر فتوح عكا في هذه السنة في جمادى الآخرة فتحت عكا و سبب ذلك ان السلطان الملك الاشرف سار بالعسكر المصريه الي مكا و ارسل الي العساكر الشاميه و امرهم بالحضور و ان يحضروا صحبتهم المجانيق فتوجه الملك المظفر صاحب حماة و معه الملك الافضل و ساير عسكر حماة صحبته الي حصن الاكراد و تسلمنا منه منجنيقا عظيما يسمى المنصوري حمل مائه عجلة ففرقت في العسكر الحموي وكان المسلم التي منه عجلة واحدة لاني كنت اذذاك امير عشرة وكان مسيرنا بالعجل في اواخر فصل الشتاء فانقف وقوع الامطار و الثلوج علينا بين حصن الاكراد و دمشق فقا سينا من ذلك بسبب جرع العجل وضعف البقر و موتها بسبب البرد

When Ebn Zobayr had taken possession of the Hejáz, of Yemen, E'rák, Khorasán and all the mountains as well as a portion of Syria whilst he was in Mekka, the Khalif A'bd-ul-Melik (A.D. 684—705) despatched Hajjáj against him; accordingly he besieged him in the sacred mosk itself, and placed a Manjanyk on mount Abu Kúbays, whence he shot at the Ka'bah, and said in the Çarih measure (Ham. p. ۳۱۹): "Vibrating, trembling like a noble camel (lashing its tail)! How well does it [*i. e.* the Manjanyk] strike the ancient mosk"

خطارة كالجمال الفتيق • اقصد بها للمسجد العتيق Large stones were projected from the Manjanyk, and a joker says (Ham. p. ۸۲۰ v. 2) of a man with a very small voice and a very large head:—

لو سمعت صوته قلت هذا صوت فرخ في عشة عزقوق

او تأملت راسه قلت هذا حجر من حجارة المنجنيق

“Hadst thou heard his voice, thou wouldst say it is that of a bird fed in the nest, (by the mother-bird, who inserts the beak of the young one into her own). But if thou hadst considered his head, thou wouldst say:—This is a stone of the stones of a Manjanyk.” The scholiast observes that according to some the *m* of the word Manjanyk is superfluous, whilst others assert that the first *n* is likewise so; the vowel after the *m* may either be *a* or *i*.

The word *Manjúnún*, which was in the beginning of this article said to be a rare word, had been used already by the poet Almotalammi, who flourished between A.D. 560 and 570; and the commentator explains it by *Dulláb*, which designates the “Persian water-wheel,” well known also in India. Speaking of a place called Aljaun he says (Ham. p. ۳۲۳):—

هلم إليها قد ائبرت زروعها و عادت علیها المنجنون تكسد

“Approach it! Its harvests sprout again, and its water-wheels revolve again.”

The Manjanyk is often alluded to by Mirkhond, and I shall now proceed to quote a few passages from him. When Chenchiz Khán burnt the town of Bokhara, he besieged its citadel in March 1220 (A. H. 617); he placed Manjanyks outside, whilst the Muḥammadans within had A'rradahs for projecting stones and Karúrahs for Naphtha (vol. V. p. ۲۷):—*بعد از سوختن شهر بخارا جوانان را بچنگ اهل قلعه امر کردند و از بیرون منجیقها مرتب ساختند و از اندرون عراده و تارورها نطف روان شد* From the following passage (p. ۲۸) it appears how Timúr Melik defended himself by means of ships, on the river Khojend:—*“Timúr Melik had prepared twelve ships with covered tops; they were overlaid with moist felt and besmeared with mud, so that neither arrows nor fire could take effect on them. Every morning he despatched six of these ships, and from the windows which those ships had, arrows were flying in all directions; the people of Timúr were fighting valiantly and made terrible night attacks”* تیمور ملک دوازده کشتی سرپوشیده ترتیب کرده بود و از نمد تر پوشش آنها بود و با کل اندوده چنانچه تیر و آتش بر آنها کار نمی کرد و هرروز باعداد شش کشتی از آن روان میساخت و از دریجهای که بر آن کشته بود تیر بهر طرف پیران میشد و مردم تیمور جنگهای مردانه میکردند و در جوف ایالی شبخونهای جان کسل بتقدیم آوردند We here also meet again with

the above described *Jarkh*, but in its original Persian form *charkh* "wheel," because the string of this arblast was no doubt spanned by means of a wheel: "They sewed [pinned] the people on [to] each other by means of arrows shot from the Charkh" *بیر چرخ خلا بق را بر* and again (p. ۷۳) when Holagu lays A. H. 656 siege to Bagh'dád:—"Arrows of the charkh, and javelins, and stones, and Manjanyks and slings" *تیر چرخ و زوبین و سنگ و منجنيق و* Táleb the artillerist is also mentioned (vol. V. p. ۶۳), who constructed seven Farangi [European] Manjanyks for the Mongol emperor Kublai. When Hulagu laid siege to Bagh'dád the Mongols threw up earthworks, here called a wall, all round the city *بغداد را* *جوجه کردند و دیواری بر گرد شهر بر آوردند* The stones projected on that occasion from the Manjanyks destroyed several bastions in one day:—"According to one account the attack was commenced on Tuesday the 23rd of Muḥarram A. H. 656, when Aries was in the ascendant; the Manjanyks were erected, the attack was continued for some time, and several towers were destroyed by the stones shot from the Manjanyks." *بقول روز سه شنبه بیست و میوم ماه محرم سنه* *ست و خهسین و ستمایه بطالع حمل جنگ آغاز نهادند و منجانیق نصب فرموده چند گاه از پیکار نیاسودند و بزخم سنگ منجانیق بعضی* Further again:—"They began to shoot stones from the Manjanyks and naphtha boxes" *سنگ منجنيق و قواربر نطف* *روان* When Chenchiz Khán resolved in 1225 again to return to Mongolia, not having advanced on the road to India further than Peshawur; his general Bella Noyán crossed the Ganges, and devastated the country about Multán. Concerning the siege of that city Mirkhond (vol. V. p. ۳۴) says:—"Bella Noyán commenced the siege, placed Manjanyks, threw down some walls of the city by shooting stones at them, and had nearly taken Multán, when it escaped that calamity because the Mongols suffered from the great heat and could not endure it." *بلا نوبان بمعاصره مشغول شد و منجانیق نصب کردند و بزخم سنگ بعضی از دیوارهای شهر بیند اختند و نزدیک بآن رسید که مولتان مفتوح گردد اما بسبب شدت حرارت هوا و عدم مصابرة مغول بر کرما آن بلا از ایشان مندفع شد*

The following passage on the preparations of Mongol Khán, who had become a Musalman, namely, Muḥammad Khodabendeh, for the

siege of Roḥbah in Syria A. H. 712, is also worth quoting, as in it not only the Manjanyk but also a number of other arms are mentioned (vol. V. p. ۱۲۹):—"The army [literally, the attendants on the august stirrups] prepared engines for the siege, and got ready for attack. Chroniclers report that the sum of 55,000 [gold] dinárs were expended for provisions, hurdles, the constructing of Manjanyks and the like, in Senjár and Márdyn; to which also the Manjanyks which were in Bagh'-dád, had been added. Meanwhile also 1500 cuirasses intended for the use of the Divan of Viziership, and manufactured in Europe, had arrived; and it is mentioned in no history that weapons made in a rebellious country are sent to a foreign king. . . . and 90 Charkhs of long range, 11,000 steel-arrows, and 100 foe-burning Naphta-boxes. . and 360 miners with sharp beaked pickaxes, and 50,000 hides for carrying the baggage of the army." ملازمان رگاب همایون بساختن آلات " حصارگیری واستعداد یورش اشتغال نمودند روات نقل کرده اند که مبلغ پنجاه و پنج هزار دینار در صورت چپرو ترتیب مجانیق و امثال آن در سنچار و ماردین صرف شد و منجلیقها که در بغداد بود بآن متضم گشت در مقارن این حال هزار و پانصد زره از مستعملات دیوان وزارت که در تورک ساخته بودند برسد و در هیچ تاریخ مسطور نیست که در بلاد باغی اسلحه ساخته بیادشاه بیکانه رسانند... و نود چرخ دور اندازه و یازده هزار تیر فولاد و صد قاروره نطف دشمن سوز... و سیصد و شصت مرد نقاب با کلندهای تیز منقار و پنجاه هزار پوست جهت گذراندن اثقال لشکر

Nabl is a general name for the Arab arrow made of bamboo, whilst the Persian, called *Neshab* نشاب, is made of wood. An arrow has various names according to its completeness; if it be merely cut in a coarse way its name is *Kata'*, but if well finished and smooth *Bary* بری without point or feathers *Muzjal* مزجال when however provided with both, *Sahm* سهم which is likewise a general name for every kind of arrow. Arrows are dressed with the feathers of vultures; thus (Ham. p. ۳۱۳):—

و زرق کسها ریشها مصرحیه اثیت خوانی ریشها و قوادمه

“And [blue] arrows which the long-winged vulture has dressed with short feathers and long ones.” The allusion to poisoned arrows in the following verse cannot be taken as implying that the Arabs habitually used them (Ham. p. ۲۸۴):—

وَحَرْمِيَّةٌ مِّنْهُرْبَةٍ وَسَلَاجِمٌ خِفَانٍ تَرَىٰ مِنْ حُدُودِهَا أَلْسِمَ قَالِمَا

“And a Hirmian [bow] so called after its [celebrated] maker, with [arrows having] long points, light. You see the points emitting poison.” Bewitching by blowing on knots is mentioned in the Korán (see CXII. and Sale’s foot-note *x.* to it), but it appears that arrows were likewise used for that purpose (Ham. p. ۲۰۹):—

فَإِنْ يَبْرَأْ فَلَمْ أَنْفُثْ عَلَيْهِ وَإِنْ يَفْقَدْ فَحَقٌّ لَهُ الْفَقْدُ

“If he gets well, I have not bewitched it [*i. e.* the arrow]; and if he dies, he dies justly.” Divining by arrows is forbidden in the Korán (V. 4), and interesting details on this practice may be seen in Sect. V. of Sale’s Preliminary Discourse. There were not only celebrated makers of arrows, but also trees from which, and localities where, good arrows could be got.

Naft is the bituminous oil called Naphta. The ancients used various inflammable substances which they projected from their engines of war; they likewise shot burning arrows and rockets.

نَافِثُ
نَافِثُ

Lucullus, Lucius, Licinius, the Roman general (born in 115 bef. Chr.) was, when he besieged Tigranocerte (Takryt afterwards called Martyropolis), the capital of Armenia, received by the besieged with a shower of burning Naphta, which they projected at him from their engines. In the first siege of Mekkah by A’bdullah Ben Zobeyr, the assailants threw vessels full of naphta on the mosk, and put it on fire. The Greek or Gregorian fire, invented by the Byzantines, was nothing but this Naphta oil mixed with pitch, vegetable oil and grease, to which compound were added various metals in a pulverised form. The Greek fire is for its reputation indebted to the Arabs, who used it against the Crusaders, and although they dreaded it much, the damage inflicted thereby was very trifling in comparison to the havoc produced by modern artillery. There is no doubt that Naphta was frequently employed in pyrotechnical displays, but its chief use was in war. The

Chinese who had, in their search for various combustible materials, been gradually led to the discovery of gunpowder, used Naphta not only before but also long after their invention of gunpowder ; for we find in Mirkhond vol. V. p. ۸۰ that when Hulagu, the grandson of Chenghiz, invaded Persia A. H. 650, " one thousand companies of Naphta-throwers and engine-makers had by [his] orders arrived from China in the camp ; and from this it may be guessed what the other preparations for the war amounted to." هزار خاندان نَفْط انداز و منجنیق ساز بموجب فرمان از ولایت خطا آمده ملازم اردوی او گشتند و باقی اسباب نبرد و آلات محاربه را قیاس بر آن باید کرد

Naffát is the Arabic name of an artificer alluded to in the last quoted passage, and called by the Persian authors a " Naphta-thrower." As these artificers always moved among inflammable

substances, they wore a fire-proof dress, which was probably made of boiled leather, like that used for coating the wooden towers employed in sieges, wherefore it was called leathery *mujallidah* مَجَلْدَة. In the narrative of the Khalif Harún-al-Rashid's expedition against the Byzantines it is recorded that when Nicephorus had heaped up enormous piles of wood and put them on fire, Muḥammad Ben Yazid, the inventor of the fire-proof dress *Lebús-al-naffátyn*, ventured into the midst of the burning masses (Quatremère foot-note to p. 134 of Rashid-al-din *Coll. Or.*) Ebn Khallikhan quotes the following curious imprecative distich against the grammarian Naftuayh :—

احرقه الله بنصف اسمه

و صبر الباقي صراخا عليه

"May God burn him with the first half of his name [Naphtha] and make the rest [Uayh] a shout against him."

Naffátah is the name of a machine for throwing Naphtha, and Quatremère (foot-note to p. 134 l. 1) makes the following two quotations, in which the word occurs. E'mád-al-din Isfahani says :—

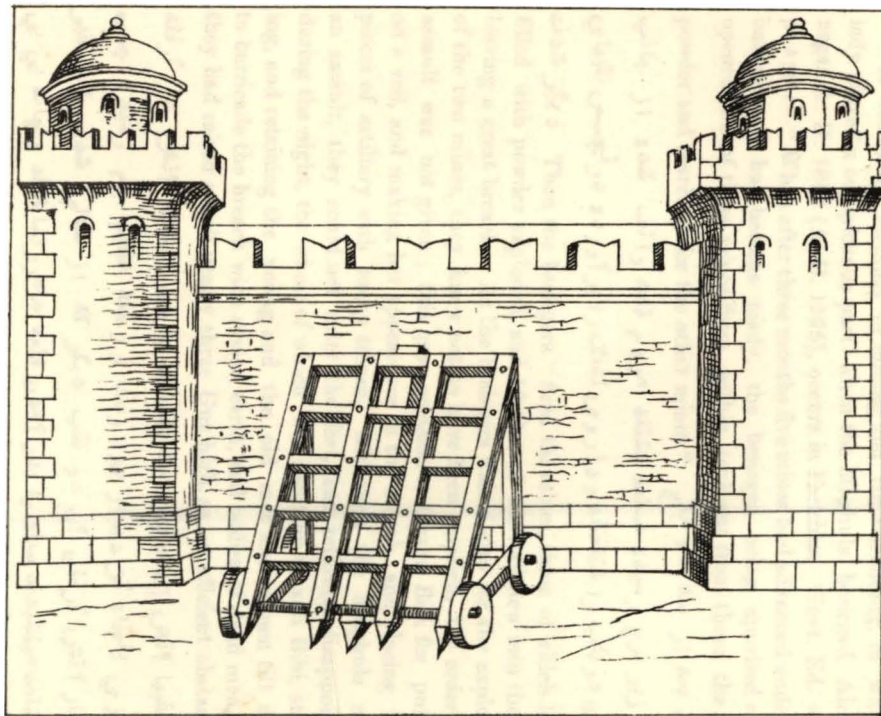
"The Knights Templars, those rebellious devils, were stoned by the shooting stars of the naphtha-throwing engines." رجعت بشهب النفاطات
 and in the history of the Seljukides by Bondarr the phrase occurs :—"The incendiary vases and the naphta-throwing engines." القوارير المحرقة و النفاطات

Nakh is a mine, and *Nakhkâb* a miner digging a passage underground during a siege. It has been seen in the last quotation from Mirkhond in the article *Manjanyk* that 360 miners were employed

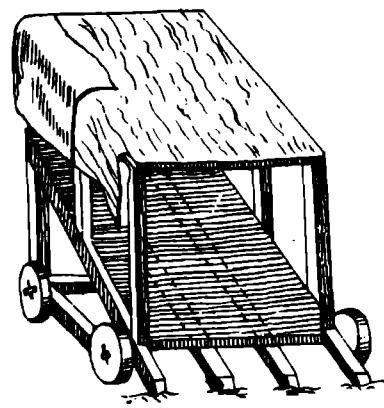
نقب

at the siege of Rohbah.

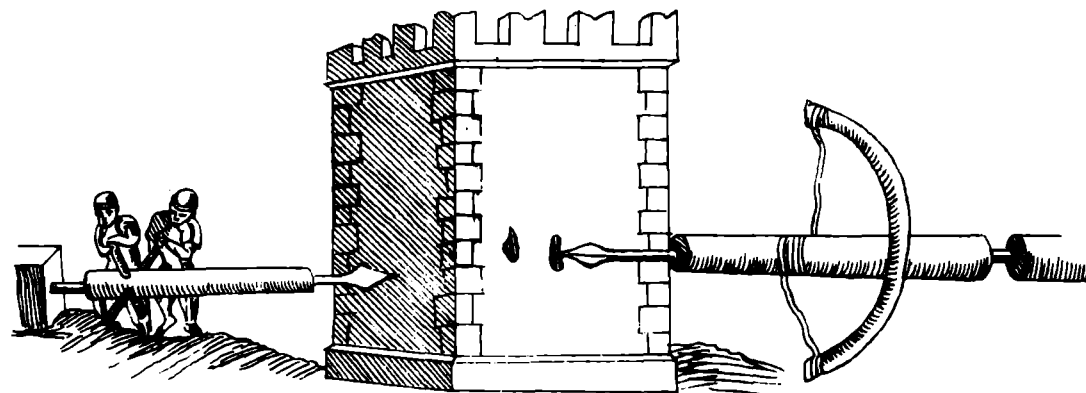
The following mention of mining and countermining, in which a lady played a conspicuous part when the Moghuls besieged Ahmadnagar A. H. 1004 (A. D. 1595), occurs in *Farishta*. Govt. Ed. vol I. p. ۵۱۲:—"When after three months five mines had advanced under the bastion and had become ready, the besieged being apprised of it, opened two of these mines from within, took out from them the gunpowder and searched for the other mines." چون بعد از سه ماه پنج نقب زیر برج رسیده مستعد کشتند مردم قلعه واقف شده از جانب درون دو نقب را شناختند و داروی تفنگ را برآورده در تجسس نقبهای دیگر شدند Then the besiegers "fired the mines, three of which being filled with powder exploded, and 50 Guz of the wall flew into the air, leaving a great breach. As the besiegers waited also for the explosion of the two mines, they knew not to have been emptied, the order for assault was not given; this gave occasion to Chand Bibi for putting on a veil, and making her appearance in the breach, and placing in it pieces of artillery with many stones. Although the Moghuls made an assault, they could not enter the fort, and returned disappointed during the night, the whole of which was spent by Chand Bibi, standing, and retaining the young and the old men and women till dawn to barricade the breach with stones, earth, and bodies of dead men, till they had raised a wall nearly three Guz high, as an efficient obstacle." در نقبها آتش زدند پس سه نقب که بارون داشت آتش در گرفته موازی پنجاه گز دیوار بهوا رفت و رحنه عظیم بهم رسیده چون انتظار آتش گرفتن آن دو نقب دیگر که از خالی شدن آنها خبر نداشتند میکشیدند سپاه را بدر آمدن قلعه مامور نساختند و چاند بی بی را چون فرصت شد برقع پوشیده نزد رحنه آمد و توپ و ضربزن و سنگ بسیار در رحنه نصب فرمود و هر چند سپاه مقل حمله بردند فرصت در آمدن بقلعه نیافته وقت شب بی نیل مقصود بجای خود رفتند و چاند بی بی تمام شب ایستاده کوچک و بزرگ و مرد و زن



Base of miner's testudo applied to a wall



Miner's testudo.



Borers

قلعه را بسد رخنه باز داشت و تا طلوع صبح از سنگ و کل و اجساد
آدمیان مرده قریب سه گز دیوار بلند کرده همچنان در مقام مدافعه
گشت

The miners not only dug passages but also sapped walls and bastions, which they propped up until the time for allowing them to fall arrived; this operation was called *a'lah*, i. e. suspending. Thus the *Kitáb-al-salúk* contains the statement:—"The miners completely sapped the tower, supported it in the air, and then kindling a fire underneath,

made it fall," *تَمَكَّنَتِ النَّقَابَةَ مِنَ الْبُرْجِ وَ مَلَقَوْهُ ثُمَّ اضْرَمُوا النَّارَ*
The just mentioned proceeding is by the Latin Translator of Heron the Greek mechanician called *sustentatio*, which becomes necessary also when the miners dig into a wall above ground, and as soon as they have penetrated into it; because the stones from above would fall on them; before the miners can penetrate into the rampart they work outside under an inclined plane, which Barocius calls *Testudo fossoria*; it is covered by raw ox-hides and other substances, which will not burn, and stones thrown from above will also roll off; it is represented in the accompanying drawing, as well as the borer sometimes used, either to commence a breach, or for introducing inflammable substances into the hole made by it. The last figure shows the base of a miner's *testudo* applied to a wall.

ART. XVI.—*A list of some Plants undescribed in the "Bombay Flora" by Dr. Gibson and Mr. Dalzell, found by A. K. Nairne, Esq., C.S., and presented by J. C. LISBOA, G.G.M.C.*

[Read 3rd April 1879.]

In my last paper read on the 9th November last I remarked :—
 "Although Dr. Gibson and Mr. Dalzell have paid great attention to the study of plants growing in the Mofussil, which they visited in the course of their duties, yet there is still left a vast field for investigation. I have with me a list of several plants, which will shortly be laid before the Society, discovered by Mr. Nairne in various parts of this Presidency ; and I believe that Major Lee, R. E., Colonel Palin, and other botanists have brought to light many plants not described by the authors of the *Bombay Flora*."

The list of plants above referred to was handed to me by Mr. Nairne on the eve of his departure for Europe, and I have now much pleasure in placing it before the Society. Unfortunately Mr. Nairne was not able to illustrate his plants with specimens, as in the face of his duties, which called him from one place to another, he could not attend to the getting up and keeping in order of an herbarium. I may say, however, that I believe the list is a correct one, as Mr. Nairne was a very careful and accurate observer, and never put down what he did not feel quite certain about. Besides, the plants he names, although not in Dalzell and Gibson, are mentioned by other authors, and I think we may therefore safely assume that his list is a correct one ; in fact, some of these plants have already been described by me in the papers read before the Society. You will observe that I have made certain additions to the list in parenthesis. These are the names that by right of priority belong to the plants against which they have been placed.

Flacourtia inermis—tree—Roxburgh and Graham *Támbat*—quite different from Dalzell's *F. Sepiaria*, which he calls *Támbat*, but which I have found called *átúran* as Graham gives it.

Abutilon graveolens—shrub.—Roxburgh *Sida graveolens*, a very distinct species, hairy, glutinous, and strong-scented. Found on the Southern Ghauts and in the Panch Mahals.

Triumfetta (*Tr. chamboidea* Jacq. *D. Prod.* 1807) *trilocularis*—Roxburgh—plant—differs from *T. angustifolia* and *rotundifolia* in having prickles in the fruit, and in the flowers being smaller and fruit larger. S. Konkan.

Grewia hirsuta—shrub—Roxburgh—not agreeing with any of Dalzell's, but differing from his *villosa*, chiefly in the shape of the leaves. Deccan and Ghauts.

Balanites Ægyptica (B. Roxburghei. *Planch* in *An. Sc. Nat. ser.* 4, 11, 258)—common Deccan tree called *Hingan*.

Cissus elongata—Roxburgh—a large smooth climber common at Mahableshwur.

Desmodium diffusum—Drury—*Hedysaum articulatum*—Roxburgh—a tall straggling plant. S. Konkan.

Desmodium recurvatum.—Graham.—*D. laxiflorum* *Hedy sarum recurvatum*.—Roxburgh. S. Konkan.

Cassia Kleinii—Drury (Wright and Arnott)—small hairy species at Bandora in the rains.

Cassia absus—*Senna absus*—Roxburgh—also at Bandora in the rains.

Memecy lon amplexicaule—Roxburgh.—Tall handsome shrub, of which it is probable that Dalzell's *M. terminale* is only a variety. Near Vingorla.

Ammania pentandra.—Roxburgh.—A distinct species at Malwan.

Spermacoce articulatis (*Sp. hispdari* Linn. *D. C. Prod. W.* 555)—Roxburgh and Graham—like Dalzell's *Hedyotis fetida*, but no smell, and flowers in nearly sessile heads. Poona and Nasik.

Hedyotis auricularia—Roxburgh and Graham.—Creeping or spreading with small white sessile flowers. Common at Dapoolee.

Khugia Notoniana—Drury.—Differs from Dalzell's *K. Scabra*, which I have also found, in being smooth and succulent, leaves sometimes slightly hairy, lower lip narrower. These two may be mere varieties. S. Konkan.

Utricularia biflora—Roxburgh.—2 inches high, with bright yellow flowers. Tanks. S. Konkan.

Nerium Odorum—Common oleander, grows wild in river beds in Khandeish and Nasik.

Canscora or *Pladera perfoliata*—Roxburgh.—As this has a long and winged calyx Dalzell's *C. alata* may be only a variety.

Ipomœa muricata—Roxburgh.—*Calonyction muricatum*—Graham.—Quite distinct from the *Moon creeper* with which Dalzell identifies it. Konkan.

Convolvulus gangeticus—Roxburgh.—Grows abundantly at Kelvi Mahim, Belapore and other places in N. Konkan.

Lettsomia argentea—Roxburgh.—Probably the same as Dalzell's *Argyreia sericea* though he distinguishes them. S. Konkan.

Batatas (Ipomea) edulis. Sweet potato. Not in Dalzell in either part.

Physalis minima—Roxburgh and Graham. Deccan and Konkan, common.

Sutera glandulosa—Drury. Very small plant growing in rice fields in Panch Mahals.

Barleria longiflora—Drury and Graham.—Like Dalzell's *B. grandiflora*, but stem, leaves, calyx segments and outside of corolla hairy.

Coleus spicatus—Drury and Don.—Handsome hairy plant growing abundantly on Lena Hill near Nasik.

Caladium ovatum—Graham.—No. 1622, growing everywhere in S. Konkan at the beginning of the rains. *Áloo*.

Valisneria spiralis—Roxburgh.—Grows in masses in rivers both in the Deccan and Konkan, figured in many English botanical works.
