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V.

Indian Studies.

No. III.

On the Origin of the Indian Brāhma Alphabet.

By

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(With a Table.)

I.

Ever since Mr. J. Prinsep succeeded in deciphering the Edicts incised by order of the god-beloved king Piyadasi of Pāṭaliputra on the pillars and rocks of Eastern, Central and Western India, the attention of the European Orientalists has been directed to the question of the origin of their curious alphabet, which is the parent of all those now used from Cape Comorin to the Himalayas and of many others occurring beyond the confines of India proper. And, while there has been not much difference of opinion regarding the derivation of the second alphabet, in which Piyadasi's servants placarded their master's sermons in the Northwestern corner of his dominions, the views regarding the source of the more common characters have diverged very widely. There has been almost from the beginning a pretty general consensus that the alphabet of the Shābāzgarhī and Mansehra Edicts, called by the Europeans the Arian, Ariano-Pali, Bactro-Pali, Gandharian, Northwestern or Northern and by the Hindus *Kharoṣṭhī lipi*,[1] is, as the direction of its letters from the right to the left at once suggests, of Semitic origin, and that it has been derived from one of the later types of the Northeastern Semitic alphabet. But for the characters running from the left to the right, called by the Europeans Lāth, Southern, Indian Pali, Indian or Maurya and by the

[1] Regarding the Hindu names of the two alphabets see below p. 22.

Hindus *Brāhmī lipi*, not less than five different derivations have been proposed, of which a detailed demonstration has been attempted. The number of general, more or less vague, suggestions is even greater.[1] Leaving the latter aside, the five theories may be briefly stated as follows:—

(1) According to Sir A. Cunningham the Indian Pali or Brāhma alphabet, is an Indian invention and was based on a system of indigenous hieroglyphics;[2]

(2) According to Professor A. Weber it is derived directly from the oldest Phoenician alphabet; [3]

(3) According to Dr. Deecke it is descended from the Assyrian cuneiform characters through an ancient Southern Semitic alphabet, which was also the parent of the Himyaritic;[4]

(4) According to Dr. Isaac Taylor it comes from an alphabet of Southern Arabia, the parent of the Himyaritic;[5]

(5) According to M. J. Halevy it is of a composite character eight consonants having been taken directly from the Aramaic alphabet of the fourth century B. C., six consonants and two initial vowels as well as the medial vowels together with the Anusvāra from the Ariano-Pali or Kharoṣṭhī, and five consonants and three initial vowels either directly or indirectly from the Greek; and this mixture is alleged to have been concocted about 325 B. C.[6]

It must, however, be noted that the first among these theories seems to have been almost given up by its chief advocate some time before his death. For in his last discussion of the Indian alphabet[7] Sir A. Cunningham says, "The origin of the Indian alphabet is still unsettled. According to Lassen, Dowson, Thomas and myself, its origin was indigen-

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[1] See the exhaustive review of earlier opinions in Dr. R. N. Cust's Linguistic & Oriental Essays. Second series, pp. 27—52.

[2] Corpus Inscr. Indicarum, vol. I, p. 52 ff.

[3] Zeitschrift der Deutschen Morgenländischen Ges., Bd. X. 389 ff.; Indische Skizzen, p. 225—250.

[4] Zeitschrift der Deutschen Morg. Ges., Bd. XXXI, 598 ff.

[5] The Alphabet, vol. II, p. 314 ff.

[6] Journ. Asiatique, série VIII, tome VI, (1885) p. 268 ff.

[7] Coins of Ancient India, p. 38 f.

ous, that is, it was invented by the people of India. But continental scholars are generally in favour of its derivation from some unknown Western source", and in the sequel, after criticising the latest theory, which he takes to be that of Dr. Taylor, he adds,[1] "It seems not improbable that this old Indian alphabet, when it was first framed *or adopted*, did not possess any cerebral letters." These utterances indicate that in 1891 Sir A. Cunningham himself no longer felt as certain of the soundness of his views as in 1876, when he wrote the introduction to the Corpus Inscriptionum Indicarum. As far as has become known, they have not gained of late any new adherents, and with the death of the illustrious archaeologist they have probably become entirely a matter of the past. Sir A. Cunningham himself has furnished a very strong argument in favour of the opposite theory by publishing, op. cit., Plate XI. 18, a coin from Eraṇ, which shows an inscription in Brāhma characters running from the right to the left. This is really the link, which was wanted in order to complete the chain of arguments, proving the Semitic origin of the Brāhma alphabet.

The remaining theories coincide in the main point that the ancient Indian characters are derived from a Semitic source, and Sir A. Cunningham is no doubt right, when he says that this is the prevailing belief among Sanskritists, not only however among those of the European continent, but pretty nearly all over the Western world. This belief is probably founded not so much on special studies in Indian palaeography, which, as well as epigraphy, are mostly neglected owing to the force of unfavourable circumstances, as on the general impression that certain Indian characters strongly resemble Semitic forms and on the conviction, supported in several cases by the clearest evidence, that the Indo-Aryan civilisation includes many and various elements, borrowed from Western nations, Semites, Persians and Greeks. But I doubt that even half a dozen Sanskritists could be found, who would care to make a definite choice between the rival theories, except in so far that they might be inclined to reject M. Halevy's ingenious, but untenable combinations, which rest on improbable *a priori* as-

[1] Op. cit., p. 41. The italics are mine.

sumptions and partly on errors regarding facts, and which in their final results, *e. g.* the conclusion that the Vedas were composed in the time of the Mauryas, disagree with all the lessons taught by Indo-Aryan research.[1]

My own attitude with respect to this problem has been for a long time exactly the same. During the last fifteen years, whilst I have devoted a portion of my time to early Indian epigraphy, it has been with me an open question whether the Brāhma characters came from western or from southern Asia. I have always believed in their Semitic origin. But I have vacillated more than once between their derivation from a pre-Himyaritic alphabet of Arabia and that from the ancient northern Semitic characters, which show almost identical forms in Palestine, Phoenicia, Cyprus and Assyria. And I have hesitated to take up the enquiry in real earnest, because it seemed to me that one preliminary condition to a new attempt on the problem was the preparation of perfectly trustworthy impressions and facsimiles of the oldest Indian inscriptions, and a second, the careful study of all these documents from a palaeographic and from a philological point of view. The first condition has now been fulfilled thanks to the unwearied labours of Messrs Burgess, Fleet, Führer, Hultzsch, Rice and Senart. Really good facsimiles of all the versions of the Edicts of Aśoka have been prepared and mostly published, as well as faithful reproductions of the closely allied, quite or nearly contemporaneous inscriptions in Daśaratha's caves, on the Bharhut or Bharaut and Sānchi Stūpas, on the Ghasundi slab, in the Hathigumphā, Nānāghāt and Pabhosa caves. Moreover, the palaeographic store has been unexpectedly enriched by Mr. Rea's discoveries in the Bhaṭṭiprolu Stūpa, which have brought to light a new type of Brāhma characters, showing a certain independence, and, as it would seem to me on further consideration, at least some very archaic forms. The explanation of these

[1] With respect to the statement, that M. Halevy's theory has not found much favour with Sanskritists, I would point to Professor A. Ludwig's interesting paper on "Yavanānī", Sitz. Ber. der k. Böhm. Ges. der Wiss., 1893, No. IX, to Mr. S. Soerensen's Om Sanskrits Stilling i den almindelige Sprogudvikling i Indien, Copenhagen 1894, p. 288, note 1, and to Professor Kern's remarks in Dr. Cust's Essays, p. 39.

ancient documents, too, has so far advanced as is requisite for the palaeographic enquiry.

Under these circumstances I believe it possible to resume the discussion regarding the origin of the Brāhma alphabet with some hope of success, and I may state at once that the results, at which I have arrived in general confirm the views of Professor Weber, who has already given the correct identifications for the majority of the signs. In the case of most of the letters it is, of course, now possible to adduce forms which come closer to each other than those which his table contains. This is chiefly due to the numerous discoveries in Semitic epigraphy, which have been made during the last thirty nine years. Mesa's stone, the oldest Sindjirli inscription and the inscriptions on the Assyrian weights, which are datable more or less accurately, each furnish something valuable. And these discoveries make it also possible to adhere strictly to the general rule, to be observed in such inquiries, that only the signs of one period should be chosen for comparison.

Before I proceed to this comparison, it will be desirable to call attention to some passages in Indian literature, recently made accessible, and to some peculiarities in the oldest forms of the Brāhma alphabet, revealed by the new facsimiles and by a tabular arrangement of the signs, which I have lately undertaken for my forthcoming „Grundriss der indischen Palaeographie". Both the passages in the literary works and the characteristics of the oldest alphabet point to the conclusion that the Hindus extensively used the art of writing at least about three centuries before the time of Aśoka-Piyadasi.

II.

When thirty five years ago Professor Max Müller wrote his excursus on the Introduction of Writing in India,[1] the oldest Brahminical works which he could quote as witnesses for the use of letters were Pāṇini's Grammar, Manu's and Yājñavalkya's Institutes of the Sacred Law, the Mahābhārata and Kālidāsa's Dramas, and he had to declare that in the Vedas

[1] History of Ancient Sanskrit Literature, p. 497 ff.

and in the later literature of the Vedic schools no certain trace of the use of writing could he found, while they contained very strong evidence for the prevalence of oral teaching and for their having been preserved by a purely oral tradition. From the heterodox literature he was only able to adduce a passage of the Lalitavistara which describes the first visit of prince Siddhārtha, the future Buddha, to the writing school, and from non-Indian sources the conflicting utterances of Nearchos and of Megasthenes, one of the most careless reporters on Indian subjects. Professor Max Müller's final conclusion was, therefore, that the art of writing became known in India about 400 B. C. in the middle of his Sūtra-period and that, then and even later, it was not applied to literary purposes.

With the further exploration of Indian literature various additional pieces of evidence have come to light, which somewhat modify the above inferences and tend to show that writing was extensively used for the most various purposes at an earlier period. A closer scrutiny of the ancient Dharmasūtras has proved that there is at least one among them, the so-called Vāsiṣṭha Dharmaśāstra, which in general mentions written documents *(lekhya)* as a proof of ownership (XVI, 10) and enjoins in particular (XVI, 14—15) that in disputes about houses and fields the judicial decisions shall be given in accordance with the documents if the evidence of the neighbours disagrees, and that they shall be based on the statements of the old men and of the guilds, in case conflicting documents are produced.[1] Regarding the age of Vasiṣṭha's Institutes of the Sacred Law nothing definite is known. It is only possible to say that this work is a real Dharmasūtra, that it was originally composed for the use of the students of a northern school connected with the Ṛgveda and was considered to be of *general* authority before the eighth century of our era.[2] With respect to its relative position among the works on the sacred law, it is possible to assert that it is older than the famous Manusaṁhitā, where one of its rules is quoted and the name of its supposed author

[1] Sacred Books of the East, vol. XIV, p. XXVI and p. 80. The first-mentioned passage is a verse, quoted by the author either from the tradition of the learned or from an older work.

[2] Kumārila, Tantravārttika, p. 179, Benares edition.

is mentioned, while in its turn it quotes the ancient Dharmasūtra of the Mānavas, on which the homonymous metrical law-book is founded.[1] It is also later than Gautama's Dharmasūtra and probably belongs to the period, when special law-schools had come into existence and taught the sacred and civil law in rivalry with the teachers of the Vedic schools. These circumstances make it difficult to deduce from its mention of written documents more than the obvious general conclusion that the art of writing was commonly used in daily life and its importance for legal purposes was recognised during the period, when new Vedic schools were still founded, and that it is erroneous to consider the admission of written documents as legal evidence to be a distinctive mark of the metrical manuals of the special law-schools. On general grounds it is probable that the composition of the Vāsiṣṭha Dharmaśāstra falls some centuries before the beginning of our era. To such a conclusion points *inter alia* the fact that it is older than our Manusaṁhitā. But for the present it would be hazardous to say anything more definite regarding its age.

More instructive are the numerous passages in the canonical works of the Southern Buddhists which testify to an extensive use of writing in very early times. All those sections of the Tripiṭaka, which contain descriptions of, or allusions to, the national life of ancient India, furnish some contribution to the subject. In the Jātakas, where, of course, most may be expected, most is also found. Private and official correspondence by means of letters is referred to again and again as something quite common. In the Kaṭāhakajātaka we are told how Kaṭāhaka, a slave of the Sheth, or great banker and merchant of Benares, by means of a forged letter passed himself off as the son of his master and obtained the daughter of the Sheth of another town:—

"He (Kaṭāhaka) who performed in the Sheth's house the work of a store-keeper thought, 'These people sha'nt make me always do the work of a store-keeper and treat me as a slave, striking, imprisoning and branding me, if they find fault with me. In a neighbouring kingdom there is a Sheth, a friend of

[1] Sacred Books of the East, vol. XXV, p. XXIX f.

our Sheth. If I take to him a letter *(lekha)* written in our Sheth's name, and if I go to him and say that I am the Sheth's son, I may deceive him, obtain his daughter and live comfortably'. He himself took a leaf *(paṇṇa)*, wrote as follows, 'I have sent my son N. N. to thee; mutual connexion by marriage is suitable for us; give, therefore, thy daughter to this boy and let him live there; when I have time, I will also come', and he sealed the letter with the Sheth's seal. Then he took money for the journey, perfumes, clothes and so forth according to his pleasure, travelled to the neighbouring kingdom and stood before the Sheth there, respectfully saluting him. Then the Sheth asked him, 'Friend, whence hast thou come?' 'From Benares.' 'Whose son art thou?' 'The Benares Sheth's.' 'For what purpose hast thou come?' Thereupon Kaṭāhaka handed over the letter, saying, 'You will know it, when you have read this.' The Sheth read the letter, and exclaiming, 'Now I live indeed!', he gave him joyfully his daughter and established him there."[1]

Again the Mahāsutasoma Jātaka mentions a correspondence by means of letters *(paṇṇa)* between a teacher of Takkhasilā and his former pupils,[2] and the Kāma Jātaka[3] narrates, how a prince, who had renounced the throne and lived in a village, was asked to write and actually wrote a letter *(paṇṇa)* to his brother, the reigning king, requesting a remission of the royal taxes for the people who had hospitably received him.

An official letter is mentioned and its preparation is described in the Puṇṇanadī Jātaka,[4] which gives an account of the manner, in which the future Buddha was re-installed in his position as Purohita of the king of Benares, after having been banished in consequence of the intrigues of his enemies. "Afterwards the king remembered his *(the Bodhisattva's)* virtues, and reflected thus, 'It is not proper to send somebody in order to call my teacher; but I will compose a verse, write a letter *(paṇṇa)*, order crow's flesh to be cooked, tie up the

[1] Fausböll, Jātakas, vol. I, p. 451, l. 22 ff.
[2] Op. cit., vol. V, p. 458.
[3] Op. cit., vol. IV, p. 169.
[4] Op. cit., vol. II, p. 173 f.

letter *(paṇṇa)* and the flesh in white cloth, seal it with the royal seal *(rājamuddikā)* and send it to him. If he is clever, he will come after reading the letter and recognising the crow's flesh; if he is not clever, he wo'nt come'. He then wrote the verse, which begins with the words *puṇṇaṁ nadiṁ*, on a sheet." Of course the future Buddha was clever, and came back to Benares.

Further, two other passages mention official correspondence between kings. In the Cullakāliṅga Jātaka[1] we are told how powerful Kāliṅga, the king of Dantapura, eager for warfare, tried to pick a quarrel with the princes of India, whom he found disinclined to gratify his bellicose inclinations. In order to effect his purpose he sent his four beautiful daughters in a covered cart through the territories of his neighbours and ordered their guards to proclaim that any prince, who might take them into his harem, would have to fight their father. Assaka *(Aśmaka)*, the king of Potali, dared to arrest their progress, and made all the four maidens his queens. Thereupon the Kāliṅga marched out with his army. But Nandisena, the minister of the Assaka king, the Jātaka continues, "hearing of his approach sent a royal decree *(sāsana)* to the following effect, 'Let him stop within the boundaries of his territory, let him not cross our frontier, *(else)* a fight will take place between the two kings'. When he *(the Kāliṅga)* had heard this letter read *(lekhaṃ sutvā)*, he stopped within his own territory." Here the term *sāsana*, literally 'an order' is of considerable interest, as it is the representative of the Sanskrit *śāsana*, which occurs so frequently as the technical term for landgrants.

Another case occurs in the Asadisa Jātaka,[2] according to which seven kings besieged the town of Benares and sent to Brahmadatta, its ruler, a letter *(paṇṇa)*, asking him either to give up his kingdom or to fight. The future Buddha, who was then Prince Asadisa, king Brahmadatta's elder brother, came to the asistance of the latter. He cut *(achindi)* on an arrow the following letters *(akkharāni)*: "I, Prince Asadisa, have come, and shall destroy with one arrow the lives of all

[1] No. 301, op. cit., vol. III, p. 4 ff.
[2] No. 181, op. cit., vol. II, p. 89 ff.

of you; let those fly who wish to live," and, being unrivalled in the archer's craft, he shot his arrow on the knob of the golden dinner-vessel of the besiegers. The latter, who were just sitting at dinner, read the letters and, of course, speedily raised the siege.

The Jātakas contain also a passage, mentioning the use of writing for legal purposes. In the Ruru Jātaka[1] a debtor invites his creditors to come with the bonds *(iṇapaṇṇāni)*, which he had given to them, to the banks of the Ganges in order to receive payment. The same Jātaka, (p. 257) mentions further the custom of inscribing particular important records or compositions on gold-plates. Khemā, the queen of Benares, had dreamt of a gold-coloured deer and had notified to her husband that she must die, if the deer was not found. The uxorious king composed this verse:—

'To whom shall I give a rich village and women decked with ornaments? Who will tell me of that deer, the best deer among deer?"

which he caused to be engraved on a gold plate. The plate he made over to his prime minister and caused the inscription to be read to the townspeople. While in this case the text engraved is a kind of proclamation, we learn from the Kaṇha Jātaka[2] that in rich families statements regarding the acquisition of property were preserved in this peculiar manner. The future Buddha, the story says, who had been born as the son of a Brahmin possessing eighty millions, after the death of his parents "one day examined his treasury. Seated on a splendid couch, he caused a gold plate to be brought and looked at the letters *(akkharāni)*, incised on it by his ancestors, which stated, 'So much wealth has been gained by such a one and so much by such another one'."

Two other cases, mentioned respectively in the Kurudhamma Jātaka[3] and the Tesakuna Jātaka are again different.[4] Both stories narrate, how particularly valued moral maxims were engraved on gold-plates apparently in order that they might

[1] No. 482, op. cit., vol. IV, p. 256.
[2] No. 440, op. cit., vol. IV, p. 7.
[3] No. 276, op. cit., vol. II, pp. 371, 381.
[4] No. 522, op. cit., vol. V, p. 125.

not be forgotten. In the former the inscription records at the king's command the Kurudhamma, the law of the Kurus, which is identical with the five great precepts, imposed by all Indian religions on laymen, 'Not to slay, not to steal, not to commit adultery, not to lie, not to drink intoxicating drinks.' According to the second story the future Buddha caused the *vinicchayadhamma* "the maxims concerning righteous judgment and the behaviour of kings", which he had preached, to be perpetuated in the same way. In addition to these testimonies for the use of writing the Kaṭāhaka Jātaka, already quoted, gives a hint regarding the existence of writing-schools and the manner in which writing was taught in ancient India. But, this had be better reserved for a fuller discussion of that subject.

Equally valuable are a number of passages of the Vinayapiṭaka, which Professor Oldenberg's Index makes easily accessible. Writing *(lekhā)* and writers *(lekhaka)* are mentioned in the Bhikkhu Pācittiya II. 2 and in the Bhikhunī Pācittiya 49. 2. In the former passage writing is enumerated among "the excellent branches of learning, which are not blamed, nor despised, nor contemned, nor disregarded, *(but)* esteemed in the various countries." In the Pārājika section a curious practice is forbidden to the Buddhist monks, in which writing plays an important part. "*(If one)* cuts *(chindati)*, the text says, an inscription *(lekhaṃ)* to this effect, 'He who dies in this manner, will obtain wealth, or will obtain fame, or will go to heaven,' *(the cutter)* is guilty of a Dukkaṭa *(dushkṛita)* sin for each single letter *(akkharakkharāya)*. *(If anybody)* sees the inscription, and forms the painful resolution to die, *(the engraver will be guilty)* of a Thullaccaya *(sthūlātyaya)* sin; *(in case the reader actually)* dies, *(the engraver will be guilty)* of a Pārājika offence."

The passage indicates that it was the practice of religious teachers to incite their lay-hearers to commit suicide by the promise of rewards in the next birth, and that they distributed tablets of wood or bamboo with inscriptions specifying the manner of the death and the rewards to be gained. The statement is perfectly credible, as religious suicide, or suicide with the hope of rewards in the next birth, was very common in ancient India and even occurred not rarely within

the last thirty or forty years.[1] The Dharmasūtras and the metrical Smṛtis mention the voluntary death by starvation or by other more violent means and even recommend it to the hermits and to the other ascetics,[2] and there are passages in the Mahābhārata, where ascetics, kings and others are recommended to put an end to their existence by starvation, jumping down from precipices, voluntary cremation and so forth. The Jainas were and are universally in favour of the 'death of the sages', though it has gone out of fashion in our days. And Hiwen Tsiang, Siyuki I, p. 232 (Beal) testifies to the prevalence of the belief that a jump from the Akṣaya Vaṭa, the sacred fig-tree at Allahabad, secured re-birth among the gods, as well as to the fact that it was acted on in the seventh century. Like the majority of the Brahminical teachers who, though giving the old rules, strongly disapprove of suicide, the Buddhists naturally opposed such practices. Their statement that written exhortations to suicide used to be given, furnishes another valuable piece of evidence for the very general use of writing in ancient India.

Finally there are still two remarkable passages in the Mahāvagga I, 43 and 49, which are also of considerable importance for our question. The first tells us that a *likhitako coro*, a thief whose name had been placarded or proclaimed in writing in the king's palace had been received into the order of the Buddhist monks. The people murmured against this and Buddha, of course, forbade for the future the admission of proclaimed thieves. The story confirms the hints, to be gathered from the Jātakas, regarding written royal proclamations. The second passage, which is literally reproduced in Bhikkhu Pācittiya 65. 1, and hence must be very ancient, describes in detail the deliberations of the parents of a boy of Rājagṛha, called Upāli, about their son's education. They agree that it would be beneficial for his future, if he learnt *lekhā* 'writing', *gaṇanā* 'arithmetic' and *rūpa*, literally 'forms'. But

[1] In January 1869 there was still a guard on the Girnār, in order to prevent pilgrims from jumping from the rock, called the *Bhairav jhâmp* 'Bhairava's leap'.

[2] See Manu VI, 31 and the passages quoted in the Synopsis to my Translation, Sacred Books of the East, vol. XXV, pp. 204, 557.

they find that the first art might injure his hands, the second his chest and the third his eyes. Hence they finally resolve to permit him to enter the order of the Buddhist monks, who are of good moral conduct, dine well and sleep in well sheltered beds.

Even at first sight it seems probable that *rūpa*, *gaṇanā* and *lekhā* were the three "Rs", or subjects taught in the elementary schools of ancient India, when the Mahāvagga was composed. This conjecture is confirmed by a remark, which king Khāravela makes about his own education in the Hathigumphā inscription, dated in the year 164 of the Maurya era.[1] He says concerning himself:— **पंदरवसानि सिरिकुमारसरीरवता कीडिता कुमारकीडिका [।] ततो लेखरूपगणनाववहारविधिविसारदेन सवविजावदातेन नववसानि योवराजं पसासितं [॥]**

"Endowed with the body of a glorious prince, he played during fifteen years children's games. Then, being expert in writing, *rūpa*, arithmetic and legal rules and excelling in all sciences, he ruled during nine years as Caesar."

Dr. Bhagvânlâl renders the untranslated word *rūpa* by "painting", while Professors Oldenberg and Rhys Davids, Sacred Books of the East, vol. XIII, p. 201, take it to mean in the Mahāvagga "money-changing", because Buddhaghoṣa says in the commentary that "he who learns the *rūpa-sutta* must turn over and over many *kârṣâpaṇas* and look at them". The rendering "money-changing", though not far from the truth, is a little too specific. For it is not probable that a royal prince would qualify himself to become a banker. But, the curriculum of the so-called indigenous schools of the present day includes a branch of elementary learning, which may be called *rūpa* "forms" and to which Buddhaghoṣa's explanation may also refer.[2] After the children have mastered the art of writing and the most elementary arithmetical operations, addition, subtraction and particularly the *āṁk* or complicated multiplication tables, they are instructed in the practical application of arith-

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[1] Actes du VI. Congrès Int. Or. III, 2, p. 154.

[2] My statements regarding the indigenous schools are based on what I have seen in Western, Northern and Central India. The Rev. J. Long's edition of Adam's Reports on Vernacular Education, pp. 19 ff. and 98 ff. furnishes confirmatory statements.

metic to simple commercial and agricultural affairs. They learn, how many Ḍāms, Korīs, Pāisās, Pāulās and so forth go to the Rupee, the rules for calculating interest and wages as well as the simplest rules of mensuration.[1] This commercial and agricultural arithmetic is no doubt what is meant by *rūpa* and it may be that in ancient times, when coins were rare, specimens were placed before the pupils, which they had to handle and look at, in order to learn their form, weight and marks. As far as I am aware, this is not done in our days.

With respect to the instruction in writing, there is, as stated above, something more in the beginning of the Kaṭāhaka Jātaka. "When the son of the Sheth, the story says, learnt writing, the slave (Kaṭāhaka) too went with him carrying his board and *(thus)* learnt writing." The sentence indicates, that the Sheth's son did not receive instruction at home, but went to a master, who presumably kept a school. The mention of the "board" *(phalaka)* is very interesting. It agrees with the narrative of the Northern Buddhist Lalitavistara, according to which young Siddhārtha, the future Buddha, on going to the school of the Brahman Viśvāmitra, brought with him "a golden pencil and a tablet of red sandal wood".[2] And the actualities in the indigenous schools of Western, Northern, Central and Eastern India[3] furnish the necessary commentary on the two passages. Nearly everywhere the board or wooden tablet is still in use for the first instruction in writing, and it is either covered with sand in which the letters are drawn with a small stick, or it is varnished and the letters are drawn with a stick, smeared with a solution of white chalk instead of ink.[4] It is

[1] What is taught in this way in the indigenous schools of Gujarāt has been collected by Rao Saheb Bhogilāl Prāṇvallabh and published by the Bombay Educational Department under the title *Deśi Hisāb*, "Native Arithmetic", Pts. I and II.

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metic to simple commercial and agricultural affairs. They learn, how many Ḍāms, Korīs, Pāisās, Pāulās and so forth go to the Rupee, the rules for calculating interest and wages as well as the simplest rules of mensuration.[1] This commercial and agricultural arithmetic is no doubt what is meant by *rūpa* and it may be that in ancient times, when coins were rare, specimens were placed before the pupils, which they had to handle and look at, in order to learn their form, weight and marks. As far as I am aware, this is not done in our days.

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evident that the Lalitavistara and the Jātaka refer to the method of instruction, which is still followed, and the information, conveyed by the latter and Mahāvagga I. 49, makes it probable that elementary schools existed at the period, when the Buddhist canon was composed, and that their curriculum was about the same as that of the indigenous Pāṭhśālās, Lehsaḍs, Nīśāḷs (*i. e.* *Lihśâlās) and Tolls of modern India.

In the portions of the Nikāyas, which I have read, I have met with fewer references to writing. But they are not entirely wanting. Thus the Brahmajāla Sutta 14 and the Sāmaññaphala 49, mention a game, called *akkharikā*, which according to Buddhaghoṣa means "reading letters in the air or in the vault of the sky", see also Childers, Pali Dict. s. v. *piṭṭhī*.

As regards the question to which exact period the testimony of the Pali Canon may refer, the answer, I think, must be, "to the fifth and possibly to the sixth century B. C." In the introduction to the Vinayapiṭaka Professor Oldenberg has shown that there are good reasons for assuming the composition of the Mahāvagga, Pācittiya and Pārājika sections to precede the Council of Vesālī (ca. 380 B. C.) and even somewhat earlier than the year 400 B. C.[1] While it will be sufficient to refer to his discussion on the Vinaya and to Professor M. Müller's review of the question in the introduction to the Dhammapada, Sacred Books of the East, vol. X, p. XXIX ff., the case of the Jātakas requires a fuller consideration.

It is a well known fact that the sculptures on the Sānchi and Bharahut or Bharaut Stūpas contain representations of various Jātakas. On the Sānchi Stūpa the Sāma Jātaka has been identified[2] and others, like the Mahākapi Jātaka, may be recognised even on the Plates in Dr. Fergusson's Tree and Ser-

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the schoolboys. But I have likewise seen the sanded board, on which the grains are made to adhere slightly by gum arabic. Very poor boys simply scattered dust on their boards and wrote in that, or if they had no boards, they brought brass kettles or pans and wrote on these with chalk. This happened even in the Government schools, where more usually slates and chalk-solution were used by the beginners or Āṁkvālās, as the school-phrase is.

[1] Vinayapiṭaka, vol. I, p. XXXIV—XXXVIII.

[2] Jour. Roy. As. Soc. 1894, p. 211 ff.

pent Worship. On the Bharahut Stūpa twenty-one sculptured scenes, to which the titles are mostly added, have been found to correspond with Birth Stories in Professor Fausböll's printed edition, and Dr. E. Hultzsch has shown that even a Pāda of a verse, used as a title, agrees with the printed text.[1] Among them there are also two, the Rurumiga and the Asadisa, which have been quoted above as witnesses for the use of writing. Both the Stūpas date from the third century B. C., some additions only belonging to the second century. The age of the Sānchi Stūpa is proved by a fragment of an Aśoka Edict, which agrees in part with the so-called Kosambī Edict on the Allahabad Pillar, and by the fact that the characters of more than nine tenth of its nearly four hundred inscriptions fully agree with those of the Aśoka-Edicts, while about two score show slightly more advanced forms.[2] Similarly nearly all the hundred and fifty three published inscriptions of the Bharahut Stūpa are written in the alphabet of the Edicts, and it is chiefly Dhanabhūti's inscription on the gateway-pillar dated "in the reign of the Śuṅgas", which is incised in more modern letters. The pieces with the later characters are, of course, additions or repairs, made

[1] Indian Antiquary, vol. XXI, p. 225 f., where Dr. Hultzsch has reprinted his excellent edition of the inscriptions together with a synopsis of the stories hitherto identified and other very valuable remarks. The fact that the titles of the stories frequently differ, the Pali text naming the story after one chief actor or incident and the inscription after another, has been discussed by Professor Rhys Davids in the Introduction to his Buddhist Birthstories p. LX ff. And he has shown that it in no way goes against the assumption that the canonical collection existed at the time when the sculptures were made, because vacillations with respect to the titles occur likewise in the Pāli collection. I would add that variations in titles are also found in Brahminical literature. Thus Bāṇa calls the Bhagavadgītā, Anantagītā. Kumārila uses the title Āścarya Parvan for the Putradarśana Parvan of the Mss. of the Mahābhārata, and there are Vedic hymns with two or three names. Such a vacillation comes quite natural to a Hindu, who is accustomed to substitute endless synonyms for technical terms and names of plants and animals, and even changes portions of personal names, saying Vikramāditya, Vikramārka or Vikramāṅka, though he means the same individual.

[2] See my articles on the Sānchi Stūpa inscriptions in the Epigraphia Indica, vol. II, p. 87 ff. and p. 366 ff., which latter is accompanied by two plates, giving specimens of inscriptions in the old and the more advanced characters.

after the completion of the original structure.[1] Under these circumstances it is very probable that in the third century B. C. our collection of the Jātakas formed part of the Buddhist Canon, which, as the Bairat Edict, addressed to the Māgadha Sangha, and various inscriptions on the Stūpas indicate, was then fully settled. Both on the Sānchi and Bharahut Stūpas we read of monks who had the title *pacanekāyika (pāñcanaikāyika)*[2] *i. e.* 'teacher of the five Nikāyas', and in Bharahut appears also a *pēṭaki i. e.* 'a person who knew or taught the Piṭaka or Piṭakas', about whose designation more will be said below.

The evidence of the relievos on the Stūpas furnishes a lower date for the Jātakas, later than which their use for the edification of the Buddhist laymen cannot be put. But there are other circumstances connected with them, which make it very probable, that the picture of the national life of

[1] See the Plate in vol. XL of the Zeitschrift der Deutschen Morgenländischen Gesellschaft, and Indian Antiquary, vol. XIV, p. 139. The inscription of Dhanabhūti on the gateway-pillar belongs in my opinion to the middle of the second century B. C.

[2] By an oversight I have given in the Epigraphia Indica, vol. II, p. 93, *pañcanaikāyika* as the Sanskrit equivalent of *pacanekāyika*. Though such a form might be defended by analogous compounds like *tridraṇika*, it is equally possible and no doubt better to assume that the prototype of the Prakrit word was formed in accordance with the rule, exemplified by *cāturvaidyaka* 'one who knows or teaches the four Vedas'. For, in the ancient epigraphic Prakrits *pañca* and *pāñca* would both be represented by *paṃca* or *paca* i. e. *pacca*. These remarks may possibly meet the doubts, which M. A. Barth has expressed regarding the word in the Bulletin des Religions de l'Inde, 1894, Bouddhisme, p. 1, note 1. M. A. Barth's further doubts, whether the five Nikāyas, known in the third century B. C., may be identified with those of the Pali Canon, do not appear justified to me. Assuming the correctness of his statement that the 'five Nikāyas' are unknown to the Northern Buddhists, this fact would, in my opinion, not prove anything *against* the antiquity of these collections, because the Northern Buddhists have preserved only the *disjecta membra* of an old tradition. No doubt, when the Northerners and the Southerners agree with respect to a particular text or collection, its great age is clearly established. But it seems to me dangerous to invert the proposition and to allege that books or collections of the Southern Canon, not known to the Northerners, must be considered later additions for this reason alone.

India, furnished by them, refers to a much earlier period than the third century B. C. Though, as Professor Rhys Davids has shown op. cit., p. LV. ff., nothing definite is known regarding the date when the present collection was formed and incorporated in the Buddhist canon, it is already now evident that the stories which they contain are not, as was believed formerly, inventions of the Buddhist monks, but almost throughout loans from the ancient Brahminical literature or the old pre-Buddhistic national tradition of India. A very good statement of this view by Dr. S. von Oldenburg has been translated in the Journ. Roy. As. Soc. of 1893, July number, and I can only say that a closer study of the Jātakas had led me to the same conclusion before the publication of Dr. von Oldenburg's paper. Moreover, the detailed researches of Professor Leumann and of Dr. R. G. Bhāṇḍārkar have yielded exactly the same results, see the Wiener Zeitschrift für d. Kunde d. Morg. Vol. V, p. 111 ff., the Zeitschrift der Deutschen Morg. Gesellschaft Vol. XLVIII, p. 65 ff. and the Transactions of the IXth Int. Or. Congress, 1892, Vol. I, p. 422 ff.

This discovery makes the question regarding the exact date, at which the loan may have been effected, a matter of minor importance. The chief point for consideration is, if in effecting the loan the Buddhist monks altered much and especially, if the description of Indian life which the Jātakas contain, has been made to agree with that of the times when Buddhism had become a power in India. The answer can only be, that there are remarkably few traces of Buddhism in these stories and that they do not describe the condition of India in the third or fourth century B. C., but an older one. Peculiarly Buddhistic are only the introduction of the future Buddha into most tales, who invariably is identified with the wisest and best of the actors, occasional spiteful remarks against the Vedic animal sacrifices and against the deified national heroes, whom the orthodox sects worshipped, and intentional perversions of the legends told of them. The doctrine of the power of the Karman, the moral maxims and the few religious observances such as the sanctification of the Uposatha or Parvan days, which the stories inculcate are common to the Buddhists and to all other Indian religions, whether orthodox or heterodox.

With respect to these there was not much to change, except perhaps some of the technical expressions.

On the other hand the descriptions of the political, religious and social condition of the people clearly refer to the ancient time before the rise of the great Eastern dynasties of the Nandas and the Mauryas, when Pāṭaliputra had become the capital of India. The Jātakas mention neither the one nor the other, and they know nothing of great empires which comprised the whole or large parts of India. The number of the kingdoms, whose rulers play a part in the stories, is very considerable. The majority of the names as Madra, the two Pañcālas, Kosala, Videha, Kāśi, and Vidarbha agrees with those mentioned in the Vedic literature, while a few others, like Kaliṅga and Assaka *i. e.* Aśmaka or Aśvaka, occur in Brahminical literature first in the Epics and in Pāṇini's Sūtras. The characteristic names of the Andhras, the Pâṇḍyas and Keralas are not mentioned.

Though a political centre was wanting, frequent statements regarding the instruction of the young Brahmins and nobles show that there was an intellectual centre and that it lay in Takkhasilā, the capital of distant Gandhāra. Takkhasilā is according to the Jātakas the town, where the youth of the two highest classes received instruction in the three Vedas and the eighteen branches of learning *(sippa* or *vijjāṭhāna)*. This agrees with some statements in other parts of the Canon, where, as in the Vinayapiṭaka, the famous physician Jīvaka Komārabhacca is represented as having studied medicine in Takkhasilā. And it is very credible that Gandhāra, the native country of Pāṇini, was a stronghold of Brahmanical learning certainly in the fourth and fifth centuries B. C., and perhaps even earlier.

The statements regarding the religious condition of India point to an equally early period. Just as the three Vedas are the basis of the higher instruction, so the prevalent religion is that of the Path of Works with its ceremonies and sacrifices, among which several like the Vācapeyya *(vājapeya)* and the Rājasūya are specially and repeatedly mentioned. Side by side with these appear popular festivals, celebrated, when the Nakṣatra had been proclaimed, with general merry-makings and copious libations of Surā, as well as the worship of demons and trees,

all of which go back to the earliest times. Nor are the hermits in the woods and the wandering ascetics unknown. Most of the heroes take the *isipabbajjā, i. e.*, renounce the world according to the rule of the Ṛṣis, and live with their sacred fires in the hill-forests, whence they descend occasionally in order to procure salt and pungent condiments *(loṇambilasevanattha)*. The wandering ascetics *(tāpasa)* appear to belong to different orders, as various distinctive marks are mentioned. But only those of one division, the Ājīvikas, are actually named, among whom the future Buddha himself was once born in a former Kalpa. These are, as Professor Kern has first pointed out, the ancient Vaiṣṇava devotees of Nārāyaṇa and particularly the Paramahaṁsas, who according to the lately recovered Vaikhānasa Dharmasūtra actually went naked and swallowed cowdung, as the Buddhists allege of these dangerous rivals.

The state of civilisation, described in the Jātakas, is in various respects primitive, and particularly noteworthy is the prevalence of wood-architecture, which on the evidence of the oldest sculptures had almost disappeared in the third century B. C. The Jātakas even describe the palaces of kings as usually constructed of wood. Many other details might be added. But the facts given are sufficient for our purpose. They make it at least probable that the mention of writing as common in daily life is not an addition, made by the Buddhists in later times, but occurred in the old stories which they appropriated. And it ought to be remembered, that in the Puṇṇanadī and Asadisa Jātakas writing is not merely an ornamental accessory, but a most essential point, without which the stories would have no meaning, and that the Asadia Jātaka is found on the Stūpa of Bharahut.

An additional argument for the antiquity of the writing, mentioned in the books of the Pali Canon, is furnished by the technical terms which they employ. They exclusively use for writing, writers and letters words which mean "to cut", *chind*, "to scratch" *likh*, "the scratcher" *lekhaka*, "scratching" or "scratches" *lekha*, and "the indelible" *akkhara*. On the other hand the word *lipi*, which Pāṇini, circiter 350 B. C.,[1] has in the compounds

[1] I can only adhere to the traditional date of the great grammarian, which, as we know now, was contained in the ancient Bṛhatkathā, since both Kṣe-

lipikara and *libikara*, "writer", is not found in the Buddhist canonical works known to me, nor is there in Childer's Dictionary any quotation for it from the Canon. For *lipi* two explanations have been proposed. According to the older opinion it is derived from *lip* 'to smear', like *kṛṣi* 'agriculture' from *kṛṣ* 'to plough', and like a number of other substantives formed by the feminine affix *i*. According to others,[1] it is a corruption of the Old Persian *dipi* 'writing', which corruption was favoured by a fancied connexion with the verb *lip*. Though *lipi* might be a perfectly regular derivative from *lip*, and might appropriately have been used to denote 'letters' and 'the alphabet' on the introduction of writing with ink, the derivation becomes doubtful through the fact that the verb *limpati* is not used in the sense of 'he writes'. And the impressions of the Shāhbāzgarhī version of Aśoka's Edicts have furnished a strong argument for the adherents of the second view. For they show that in the Gandhāra dialect *lipi* is represented by *dipi* and that the verbs *dipati* 'he writes' and *dipapati* 'he causes to write' did also exist.[2] On linguistic grounds it is not probable that *lipi* and *limpati* should have been turned into *dipi* and *dipati*, the latter also changing its meaning. On the other hand, *dipi* corresponds exactly with the Persian word, and its introduction into India is easily explained by the Persian occupation of Northwestern India during the Achaemenian period from about 500 B. C. probably until the fall of the Persian empire.[3] These points appear to me so strong that I too must declare myself in favour of the loan theory, and assume that in Sanskrit *lipi* was substituted for *dipi* at a period, when writing with ink had come into use, in order to connect the term with the

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mendra's and Somadeva's Sanskrit translations contain the story of Pāṇini, the pupil of Upavarsha, who flourished during the reign of Yogananda, the predecessor of Candragupta, Indian Antiquary, vol. I, p. 305.

[1] See, Burnell, Elements of South Ind. Palaeography, p. 5 f. Note 2.

[2] The aorist *dipista* is found in Shāhbāzgarhi Ed. IV, 10; VI, l. 16 and the participle *dipapita ibidem*, Ed. XIV, l. 13.

[3] It may be noted, that even in later times the Hindus have borrowed a Persian word, connected with writing. This is the term *divira*, "a writer, clerk", found in the Valabhī land grants from 506—765 A. D. and in later Kaśmīrian works. It represents the Persian *debīr*, see the smaller Petersburg Dictionary sub. voce *divira*.

root *lip*. The statement of Nearchos, according to which the Hindus wrote letters ἐν σινδόσι λίαν κεκροτημέναις makes the use of ink certain for the latter half of the fourth century. The loan-theory agrees also well with the occurrence of the word in the Sūtras of Pāṇini, who was a native of Sālāturā, a village close to Takṣaśilā, the capital of Gandhāra, and with its absence from the ancient Buddhist canonical works, which were composed in Eastern India and before 400 B. C.

Some further valuable information regarding writing and especially regarding the ancient alphabets, is furnished by the works of the Northern Buddhists, by the Jaina scriptures and by some metrical Smṛtis. In the account of prince Siddhārtha's first visit to the writing-school, extracted by Professor Terrien de la Couperie from the Chinese translation of the Lalitavistara of 308 A. D. (see above p. 14, note 2), there occurs besides the mention of the sixty four alphabets, known also from the printed Sanskrit text, the utterance of the master Viśvāmitra, "that there are two kinds of writing, that of Fan or Brahman and that of Kuliu, both equally good and not differing". With the help of a Chinese Buddhist Encyclopedia, dated 668 A. D., Professor Terrien de la Couperie has shown that the alphabet of Brahman was written from the left to the right and that, invented by Kiüliü, Kuliu, Kialu or Kialusheta (all of which names are explained by "ass' lips", in Sanskrit *kharoṣṭha*) from the right to the left. He thereby has rendered us the great service of showing what the terms Brāhmī and Kharoṣṭhī really mean. The former is evidently the alphabet, which used to be called Pali, Lāth, Southern Indian, Aśoka or Maurya, and the latter the so-called Northwestern, Ariano-Pali, Bactro-Pali, or Gandhārian. With this explanation, the remark of the future Buddha's writing-master indicates, that at the time, when the Lalitavistara, translated into Chinese in 308 A. D., was composed, *i. e.*, at the latest in the third century A. D., both the ordinary Indian and the Gandhāra alphabets were equally common in the author's native country. If, as is not improbable on account of the position of the Lalitavistara in the Canon of the Northern Buddhists, this was the Panjab or one of the adjoining districts of Northwestern India, the statement agrees with the facts known through the inscriptions and coins, which

from the earliest times of the historical period of India unti the end of the second century A. D., show both the Brāhma and Kharoṣṭhī characters.

The enumeration of the sixty-four alphabets[1] has gained a greater interest by the discovery of a similar, apparently independent list in the Jaina Āgamas. Professor Weber's analysis of the latter shows,[2] that they too allege the early existence of a larger number of scripts and that some of the names agree literally, or at least in meaning, with those given by the Buddhists. Both the Jainas and the Buddhists agree in allotting the first place, to "Brahman's writing", the *Brāhmī lipi* or *Bambhī livī*, indicating thereby the pre-eminence of the characters, running from the left to the right, which are used in the majority of Aśoka's Edicts. Both name also the alphabet written from the right to the left, which in the Jaina Prakrit is called *Kharoṭṭhī* instead of *Kharoṣṭhī*. Its position in the two lists somewhat differs, as the Buddhists give it the second place and the Jainas only the fourth. Further, both lists include the *Puṣkarasārī* (No. 3) or *Pukkharasāriya* (No. 5) and the *Drāviḍa* (No. 12) or *Ḍāmila* (No. 17) characters. The mention of the last alphabet has become important since the discovery of an ancient partly independent variant of the Brāhmī lipi at Bhaṭṭiprolu in the Kistna districts of the Madras Presidency. And it is not improbable that this alphabet is meant by "the writing of the Dravidian country[3]". The mention of the *Puṣkarasārī* or *Pukkharasāriyā lipi*, too, possesses some interest, as its name is evidently derived from the patronymic *Pauṣkarasādi* or *Puṣkarasādi*, which appears in Brahminical works on grammar and law as the designation of one, or perhaps of a several famous teachers. It is certainly a Brahminical name and indicates that a scion of the race of *Puṣkarasad* invented some particular alphabet or introduced modifica-

[1] See Lalitavistara, p. 143 f. Calc. ed.

[2] Indische Studien, vol. XVI, pp. 280, 399 ff. The list occurs twice, in the Samavāyāṅga and the Paṇṇāvanā Sūtras.

[3] I may state here that in my opinion Dr. Burnell's contention for the antiquity of the Vaṭṭeḷuṭu or Pāṇḍya-Cera alphabet is erroneous. To me it seems to be a cursive form of the Tamil and a derivative from the ordinary Brāhma alphabet.

tions in an existing one. The name, therefore, furnishes the proof that in early times Brahmans directed their attention to the art of writing, for which view other arguments will be adduced further on. The other names, which like the *Gandharva* or *Gandhavva* agree fully, or like the *nāgalipi* "the writing of the snake-deities" and the *Bhogāvaiyā*, "the writing of Bhogāvatī, the residence of the Nāgas", in their general meaning, are perhaps in part fanciful and, at least for the present, not particularly instructive.

The independence of the Jaina list from that of the Lalitavistara is proved by various discrepancies. First, it is much shorter and includes only eighteen varieties, and among them occurs the *Javaṇāliyā* or according to the printed edition of the Paṇṇāvanā Sūtra, the *Javaṇāniyā*, which corresponds to Pāṇini's term *Yavanānī*,[1] or, as Kātyāyana's Vārttika states, "the writing of the Yavanas". Secondly, the Jainas use the term Bambhī livī in a double sense, not only for a particular variety of writing, but also for every kind of writing. The texts are explicit on this point and say,[2] *Baṃbhīe naṃ livīe aṭṭhārasavihalikkhavihāṇe paṇṇatte | taṃ baṃbhī* etc. "An eighteenfold order of scripts is taught for the Brāhma writing, viz. the Brāhma" etc. This apparently senseless assertion finds its explanation through passages of the metrical Smṛtis of Nārada and Bṛhaspati, as well as through Brahminical sculptures and pictures of Brahman. The two lawbooks state that "the Creator (Brahman) created writing in order to keep the affairs of the world in their proper course" or "in order to remove doubts regarding legal transactions".[3] On the sculptures in the Ba-

[1] The identification, which is given by Malayagiri, is unobjectionable, even if *Javaṇāliyā* is the correct form. For instances of the substitution of *la* for Sanskrit *na* occur *e. g.* in Pali *anela* for *anenas*, *muḷāla* for *mṛṇāla*, *veḷu* for *veṇu* and in Mahārāṣtrī *velu* for *veṇu* and *limba* for *nimba*. It may be noted that the later Tibetan version of the Lalitavistara includes the *Yavanānī* in its list of seventy alphabets, see Foucaux, Rgya Cher Rol Pa, p. 112 f.

[2] See A. Weber, op. cit., p. 399.

[3] Sacred Books of the East, vol. XXXIII, pp. 58 f., p. 304. Nārada's lawbook is later than the Manusaṁhitā and older than Bāṇa (circiter 620 A. D.), who alludes to it in the Kādambarī, p. 91 (Peterson). The Bṛhaspati Smṛti is again later than Nārada's.

dāmī caves,[1] which date from the end of the sixth century A. D., the same idea is expressed by representing Brahman with strips of palmleaves in his right hand, for which modern pictures of the deity substitute an inscribed piece of paper.[2] It thus appears that there were two legends which the Jainas have combined, one which ascribed to Brahman the invention of all writing and another which restricted his activity to one particular alphabet, that which was the commonest and most generally used. Both myths no doubt were current side by side, and express with a slight variation the belief that writing is a national Indian invention.

These points, to which the differences in half a dozen names of alphabets must be added, show very clearly that the Jaina list has not been copied from that of the Buddhists, but gives expression to an independent tradition, which in all probability is considerably older than that of the Buddhists. The greater antiquity of the Jaina list is apparent from its more reasonable number of alphabets, which, however, is also a purely conventional one[3] and need not be taken to mean more than "a large number". It is also probable, because the Aṅga and the Upāṅga, in which it occurs, certainly are much older than the third century A. D., the time for which the existence of the Buddhist list is absolutely certain. In my opinion we have, since the discoveries in the Kankālī Tīla at Mathurā, very good reasons for believing the Śvetāmbara tradition which places the first collection of the Aṅgas in the reign of the Maurya Candragupta or about 300 B. C.[4] And, though the Aṅgas evidently have undergone changes between that time and their final redaction by Devarddhi in the fifth century A. D., it seems to me probable that the list of the alphabets belongs to the original contents of the Samavāyāṅga, because it has been embodied also in the Paṇṇāvaṇā Sūtra, the traditional date of which is 358 after Vīra or 168 B. C. Nor is the existence of such

[1] Indian Antiquary, vol. VI, plate facing p. 361.

[2] Moore, Hindu Pantheon, plate I, and the representation of Brahman in Sir W. Jones' article, Asiatic Researches, I, p. 222 ff.

[3] Compare the eighteen Purāṇas and Upapurāṇas, the eighteen Smṛtis and Upasmṛtis.

[4] See Sacred Books of the East, vol. XXII, p. XL ff.

a traditional list at the beginning of the Maurya period *a priori* incredible. Pāṇini's rule regarding the formation of *Yavanānī* "the writing of the Yavanas" very probably indicates, as has already been remarked by others, that in his time, *i. e.*, about 350 B. C., more alphabets than one were known,[1] and for the third century B. C. the contemporaneous use of three alphabets, the ordinary Brāhmī *lipi*, the Kharoṣṭhī and the Bhaṭṭiprolu variety of the Brāhma alphabet is certain. The bearing of the early existence of such a list of alphabets and of the myth, ascribing their invention to Brahman, on the question of the antiquity of writing in India, is obvious. The introduction of writing cannot have taken place about 400 B. C., but must be earlier at least by some centuries.

Another passage of the Jaina Samavāyāṅga Sūtra makes it possible to show how the popular Brāhma alphabet looked about 300 B. C. The Samavāyāṅga includes a detailed abstract of the lost *Dṛṣṭivāda*, the twelfth of the Jaina Aṅgas, and asserts that according to this work, the *Bambhī livī* or Brāhma

[1] As stated above, I adhere to the tradition, which asserts that Pāṇini was the pupil of Upavarṣa and lived during the reign of the last Nanda, the predecessor of the Maurya Candragupta. This tradition gives a reasonable date and probably goes back itself to the beginning of our era, since, according to the concurrent testimony of Kṣemendra and Somadeva, it occured in Guṇāḍhya's Bṛhatkathā. I agree with Dr. Burnell (S. Ind. Pal., p. 6) and Professor A. Ludwig, (see his paper on "Yavanānī" quoted above) that *yavanānī* means "the writing of the Greeks". But I believe with Prof. Ludwig that Pāṇini's acquaintance with the existence of the Greek alphabet is by no means irreconcilable with his traditional date. Irrespective of the general reasons, adduced by Professor Ludwig, it seems to me not wonderful that an author, whose native country had been explored in 509 B. C. by Skylax and whose countrymen, the Gandhāras, had furnished a contingent for Xerxes' invasion of Greece should mention the old Oriental name of the Greeks and should be acquainted with their writing (see also Professor Weber, Monatsberichte Berl. Akad. 1871, p. 616). And there is, as Mr. Rapson points out to me, even positive proof for such an acquaintance, as Athenian *drakhmes* with the inscription AΘE struck before the end of the reign of Alexander, possibly even before 350 B. C., have been found in India as well as *Indian imitations* of such coins, see B. V. Head, Cat. Greek. C.: Attica, p. XXXIf., pp. 25—27. To me it seems absolutely impossible to make the occurrence of the word Yavana in Sanskrit works a mark, which proves that they must have been written after the invasion of Alexander.

alphabet consisted of 46 *mâuyakkhara (mâtṛkâkṣara)* or radical signs.[1] The commentator Abhayadeva says that this number comes out by deducting from the (in his time, saec. XI) ordinary alphabet the vowels *ṛ*, *ṝ*, *ḷ*, *ḹ* and the lingual *ḷa*, but including *kṣa*. The reckoning is correct, as may be seen from a comparison of the oldest written alphabet, that on the Horiuzi palmleaf, which gives 51 signs, viz:—

a, ā, i, ī, u, ū, ṛ, ṝ, ḷ, ḹ (10), *e, ai, o, au, aṃ, aḥ, ka, kha, ga, gha* (20), *ṅa, ca, cha, ja, jha, ña, ṭa, ṭha, ḍa, ḍha* (30), *ṇa, ta, tha, da, dha, na, pa, pha, ba, bha* (40), *ma, ya, ra, la, va, śa, ṣa, sa, ha, ḷaṁ* (50), *kṣa*.[2]

If the four vowels and *ḷa* are deducted, only 46 radical signs remain. Nevertheless Abhayadeva's explanation undoubtedly contains a mistake. It is not the consonant *ḷa* but the group *kṣa*, which ought to be deducted. For *ḷa* is one of the ancient radical signs and occurs on the Sânchi Stûpa as well as in the Bhaṭṭiprolu alphabet. *Kṣa*, on the other hand, can have been reckoned as a radical sign only from the time, when *ka* was written with a loop or triangle on the left 𑀓. It was only then that the origin of *kṣa* 𑀓𑁆𑀱, in which *ka* retained its ancient dagger-shape, was obscured and that the still prevalent erroneous conception of the indigenous schoolmasters could arise, who persistently declare *kṣa* to be a *mâtṛkâ*. The period, when the *ka* with a loop came into general use probably falls not earlier than between 400 and 500 A. D. In the inscriptions of the nailheaded and flat-topped (Nâgarî) types, it is only traceable since the first half of the seventh century. But in the ordinary literary characters it appeared earlier, as the Horiuzi palmleaf shows.

With respect to the omission of the vowels *ṛ*, *ṝ*, *ḷ*, *ḹ* Abhayadeva is undoubtedly right, as they are missing in all the ancient and modern alphabets, used in the elementary Ind-

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[1] See Weber, Indische Studien, vol. XVI, p. 281 f. and Verzeichniss der Sanskrit und Prakrit Handschriften, vol. II, pt. II, p. 408, where better readings of the text are given.

[2] See Anecdota Oxoniensia, Aryan Series, vol. I, pt. 3, plates 1 and 2. The alphabet of the Cambridge MS. Add. No. 1049 has one letter less, as it omits *ḷa* which is unknown in Nepal and other parts of Northern India as in Kashmir.

ian schools and by the classes without a scientific Brahminical education. According to the printed Lalitavistara, p. 145 f., prince Siddhārtha explained on entering the writing-school to his master the hidden meaning of the radical signs of the alphabet which he was to learn.[1] The vowels, which he is said to have enumerated, are only twelve, viz:—*a, ā, i, ī, u, ū, e, ai, o, au, aṃ, aḥ.* These twelve vowels alone occur in the alphabet, taught in the indigenous Indian schools, where they are combined with the consonants and form the so-called *Bārākhaḍī* or *Bārasakhaḍī*,[2] which the children on beginning their school-course are made to copy incessantly, until by its means they have learned both elementary reading and writing. The *Bārākhaḍī*, in Sanskrit *dvādaśākṣarī*, "a collection or aggregate of twelve syllables (for each consonant)", is arranged as follows[3]:—

1	*a*	*ka*	*kha*	*ga*	*gha*	*ṅa*	
2	*ā*	*kā*	*khā*	*gā*	*ghā*	*ṅā*	
3	*i*	*ki*	*khi*	*gi*	*ghi*	*ṅi*	
4	*ī*	*kī*	*khī*	*gī*	*ghī*	*ṅī*	
5	*u*	*ku*	*khu*	*gu*	*ghu*	*ṅu*	
6	*ū*	*kū*	*khū*	*gū*	*ghū*	*ṅū*	and so on through all the consonants.
7	*e*	*ke*	*khe*	*ge*	*ghe*	*ṅe*	
8	*ai*	*kai*	*khai*	*gai*	*ghai*	*ṅai*	
9	*o*	*ko*	*kho*	*go*	*gho*	*ṅo*	
10	*au*	*kau*	*khau*	*gau*	*ghau*	*ṅau*	
11	*aṃ*	*kaṃ*	*khaṃ*	*gaṃ*	*ghaṃ*	*ṅaṃ*	
12	*aḥ*	*kaḥ*	*khaḥ*	*gaḥ*	*ghaḥ*	*ṅaḥ*	

[1] This alphabet, too included 46 mātṛkās. But the Calcutta edition omits, no doubt erroneously, among the consonants the dental *la.* The last letter is *kṣa.* According to what has been said above, this fact gives the fifth century A. D. as the *terminus a quo* for the composition of the printed version of the Lalitavistara.

[2] The word is usually pronounced Bárā-khádī instead of Bárākhaḍī, because its etymology is no longer remembered.

[3] The Bārākhaḍī has been printed in Bombay and used to be sold at the Government Central Book Depot. It is described by Molesworth, Marāṭhī Dictionary *sub voce* बारसकडी and by Narmadāshankar in his Gujarātī Dictionary *sub voce* बाराखडी. This latter work states that the syllables *ka, kā* and so forth down to *kaḥ* are the Bārākhaḍī of *ka.*

This *Bhārākhaḍī*, which is used in all the parts of India known to me, has of course always the same number of vowels, but the number of the consonants varies. In the Marāṭhā country and in Gujarāt, there are 36 instead of 34, the groups *kṣa* and *jña* being reckoned as simple radical signs and placed after *ḷa*. As usually a Maṅgala or invocation *oṃ namaḥ siddham* is prefixed to it, it is sometimes called by the Pandits the *Siddhamātṛkā* or *Siddhākṣarasamāmnāyaḥ* or "the alphabet, preceded by the word *Siddha* (success)", or jocularly *Mātṛkāpurāṇa* "the Purāṇa of the Mothers (radical signs)".

Its great antiquity is attested by a passage of Hiwen Tsiang's Siyuki, where, according to M. St. Julien's translation,[1] Mémoires I, 72, it is stated that in the seventh century A. D. the Indian school-course began with "un livre en douze sections", which was used "pour ouvrir l'esprit des jeunes gens et les initier à l'étude". The translator has shown in the note to the passage on the authority of a Chinese Buddhist Dictionary that this "book in twelve sections" was a syllabary, composed by Brahman, and was also called *Siddhavastu*, "the matter or subject preceded by the word Siddha". This would be sufficient to establish its identity with the Bārākhaḍī, though the translation "a book in twelve sections" does not agree well with the Indian term. But Professor J. Legge in reply to an enquiry, if the above translation must be considered to be the only admissible one or if the Chinese expression might be rendered by "a book in sections of twelve syllables" or "sections in twelve syllables", kindly informs me that the Chinese text has nothing about "a book", but merely "twelve *chang*". With respect to the latter word he says: "*chang* may be variously rendered. The idea which it contains, is that of a piece which is complete in itself. A section is "a division", "a cutting", the part of a larger whole; and I should not think of rendering *chang* by it. "Paragraph", "chapter" are often used in English for it. It is applied to *a piece of music* or *of composition*. I would render it in this text by "table". "A synopsis" would also be allowable". For the whole passage of the Siyuki, quoted above, Professor Legge proposes the follow-

[1] Mr. Beal has "a book in twelve chapters".

ing translation: 'And in commencing to instruct the young and lead them on, they first teach them to follow the twelve tables (of syllabaries).' With respect to my second query he adds: 'You ask if the "12 *chang*" may be rendered by "sections of twelve (syllables)", "a book in sections of twelve (syllables)". The "a book" is not in the Chinese, as I have said, and 'sections' is objectionable. Otherwise I do not doubt that your view of the meaning is correct.' It would, therefore, appear that the Chinese 'twelve-table' is really intended as a short translation of *dvādaśākṣarī* and stands for 'twelve-(syllable)-table', which would correspond exactly.

The last and most important piece of evidence for the omission of the four vowels has been discovered by Sir A. Cunningham at Mahābodhi Gayā. In the cloistered walk, which Aśoka erected over the supposed *Caṅkama* of Buddha, there is a double row of pillars, eleven on each side, which bear the following letters[1]:—

on the south side—*a, ā, i, ī, u, ū, e, ai, o, au, aṁ,*
on the north side—*ṭa, ña, jha, ja, cha, ca, ṅa, gha, ga, kha, ka.*

The characters, of which some specimens are given, op. cit. Plate X, No. 1, are of the same type as those of Aśoka's Edicts.[2] They are no doubt mason's marks and intended for numbering the pillars according to the simplest and most natural system of notation by means of the letters. As the Indian masons are neither great scholars nor quite illiterate,[3] it may be assumed that the alphabet, which they used, is the popular one of the elementary schools of the day. As far as it goes, it closely agrees in its character with that still taught

[1] Cunningham, Mahābodhi Gayā, p. 8; Plates V, No. 3, and X, No. 1.

[2] It will be shown below that the *ga* with the round top and the peculiar *cha*, which they contain, occur also in the Edicts.

[3] The Indian masons, the *sūtradhāras* or *vardhakins* of the older literature and the *sileṭās* of our days, occupy an intermediate position between the Aryan and the Śūdra classes. They wore and still wear the sacred thread, and they once possessed and still possess a small amount of Sanskrit learning. The rules of their craft, which they commit to memory, are written in Sanskrit, and are at present largely mixed with Prakrit and barbarous bastard forms.

in the modern indigenous schools and omits like it and like the alphabet of the Lalitavistara, the vowels *ṛ*, *ṝ*, *ḷ*, *ḹ*. If it omits also the eleventh vowel *aṃ*, giving *aḥ* in its place, that is no doubt due to a mistake of the engraver. For no alphabet could be without this *mātṛkā*, least of all that of Aśoka's times, when Anusvāras were used very extensively.

Sir A. Cunningham's discovery possesses, as he himself has pointed out, considerable importance for the history of Indian writing. The mason's alphabet with its diphthongs *ai* and *au*, the Visarga in the group *aḥ* and the guttural *ña* deals a heavy blow to the theory, according to which the writing of the third century B. C. and earlier times served merely the purposes of the Prakrit dialects. It is as plain as possible that this alphabet has been framed for the requirements of Sanskrit, and it is at least highly probable that its formation is due to the Brahmans, whose influence and peculiar theories are also recognisable, as will appear further on, in the manner of the derivation of the secondary signs from the original ones. In the third century B. C., it appears, the state of things in the elementary schools was the same as in our days. The children learnt an alphabet which was not intended for their vernacular dialects, and this was no doubt due to the circumstance that already then (as later when the legend regarding Buddha's Brahminical writing-master Viśvāmitra arose, and also in modern times) the elementary instruction was chiefly in the hands of the Brahmans, who did not think it worth the while to alter for the sake of their Prakrit speaking pupils the alphabet, invented and suited for the peculiar *bhāṣā* of their schools and class.

If we return to the passage of the Samavāyāṅga Sūtra, the various facts adduced make it plain that Abhayadeva's explanation of the extract from the *Dṛṣṭivāda* is substantially correct. The forty-six radical signs of the ancient *Brāhmī lipi* included twelve vowels *a*, *ā*, *i*, *ī*, *u*, *ū*, *e*, *ai*, *o*, *au*, *aṃ*, *aḥ* and thirty four consonants viz, the twenty five of the five *Vargas*, the four liquids, the three sibilants, the spirant *ha* and in all probability not *kṣa*, but *ḷa*. It appears further, that there is no reason to distrust the Jaina tradition, according to which the statement of the *Dṛṣṭivāda* goes back at least to the reign

of the Maurya Candragupta, as his grandson's masons certainly had learnt an alphabet, agreeing with that described in the Jaina Aṅga in the most important particular.

The result of this enquiry, which shows that the popular Indian alphabet of the third century B. C. had no signs for the vowels *ṛ*, *ṝ*, *ḷ* and *ḹ*, will not surprise those who have paid attention to Indian palaeography. The long *ḹ*, the existence of which (as a sound) is denied by the grammarians of Pāṇini's school, is an invention probably due to the Brahminical *Kabbala*, the so-called Mantraśāstra, which seems to have been studied and used for charms by Brahmans, Buddhists and Jainas at least since the beginning of our era. The sign for the intial *ḹ* occurs first on the Horiuzi palmleaf and in the ancient Cambridge MS. from Nepal, Add. No. 1049 where it consists of two cursive *la* interlaced. Medial *ḹ* is, as far as I know, not traceable in any old document. Among the remaining three sounds, only the short *ṛ* occurs as an initial in words of the ordinary language, while initial *ṝ* and *ḷ* are used only in the technical terms of the Vyākaraṇa and other Śāstras. The ancient signs for the initial *ḷ*, which again are found on the Horiuzi palmleaf and in the Cambridge MS. Add. No. 1049, are cursive forms of la. Medial *ḷ* is expressed in the inscriptions, where the word *kḷpta* occurs a few times, by *li*. Among the ancient MSS., accessible to me, the palmleaf copy of the Gaṇaratnamahodadhi, dated (Śaka)-Saṁvat 1151 in the reign of Siṅghaṇa of Devagiri, uses a combination of an ancient cursive *la* with *ṛ*, which also serves for the initial *ḷ*. The principles, on which the more common signs for initial and medial *ṛ*, *ṝ* have been framed, are (1) initial *ṛ* and *ṝ* are expressed by a *ra* with the signs for subscript *ṛ* and *ṝ*, (2) subscript *ṛ* is a modification of *ra*, produced either by a twist of the *ra*-stroke to the left with or without a curve to the right at the end or by the addition of a curl at the end of the *ra*-stroke, (3) medial *ṝ* is invariably expressed by the double medial *ṛ* of the period. Thus we find for *vṛ* in the Northern inscriptions of the first and second centuries A. D.  or and in the fourth century and later , while the inscriptions and even the modern alphabets of the Southern type offer . The northern initial *ṛ*, which appears first in the Bower MSS., is *i. e. ra* with the curve of the subscript *ṛ* attached, and

the southern forms of the letter, the oldest example of which  occurs in a Pallava grant of the fifth or sixth century, appear to be modifications of this northern sign. These facts indicate that the signs for subscript *ṛ* and *ṝ* were developed first and that those for the initials came into use somewhat later. As will be shown below, the process is exactly the reverse of that followed in the cases of the other vowels, where the medial signs are identical with, or modifications of, the initial ones. It is evident that the formation first of initial and next of medial vowels is the natural method, when an alphabet without vowel-signs is turned into one with vowels. Hence the palaeographic facts, too, show that the signs for *ṛ* and *ṝ* were not framed at the same time with those for *i*, *ī*, *u*, *ū*, *e*, *ai*, *o*, *au*, and that in all probability they are later inventions. How much later they may be, cannot be decided for the present. I would warn against the assumption that their non-occurrence in the mason's alphabet at Gayā and in the Brāhma alphabet of the Dṛṣṭivāda proves that they did not exist about 300 B. C. Such an inference is barred by the fact that the school-alphabet of much later times does not include them, though nevertheless they were and are used extensively by the Pandits and by all other Hindus, possessing a higher education. It is, therefore, quite possible that in the time of the Mauryas, when writing had had a long history, the men of the Brahminical schools did distinguish between *ra* and *ṛ* and even marked *ṝ* and *ḷ* in such works, where distinctions of the kind were of any real importance.

III.

If we now turn to the consideration of the oldest Indian inscriptions, it is not difficult to show that the palaeographic facts fully confirm the results, which the preceding examination of the ancient literature has yielded. They likewise show that writing, and specially the Brāhmī lipi, had had a long history in India, before king Piyadasi-Aśoka caused his Edicts to be incised in the various provinces of his large empire. In addition they permit us to recognise that the Brāhmī lipi is the real old Indian alphabet, which was popularly used in the third century B. C. all over India, and that it was fully developed

before the introduction of the Kharoṣṭhī, whence we may infer that it is the writing which the Buddhist canonical works mention so frequently.

That the Brāhmī lipi was in the third century an ancient alphabet with a long history is proved by the very considerable variations in the forms of its signs found in the several versions of the Edicts, as well as by the recent discovery, on Sir A. Cunningham's Eraṇ coin, of a variety which runs from the right to the left, and of another one, on the Bhaṭṭiprolu relic caskets, which includes a number of more archaic forms and independent developments.

As regards Aśoka's Edicts, even a cursory inspection of good impressions or of trustworthy facsimiles, such as those of Drs. Burgess, Fleet and Hultzsch, reveals the existence of numerous differences in the formation of the several characters. A more careful study shows not only that almost every letter[1] has two, three, half a dozen or more sometimes widely divergent forms, but also that certain peculiarities are confined to particular districts, as well as that the great majority of the apparently or really more advanced forms, which appear more or less constantly in the inscriptions of the next three or four centuries, are found already in the Edicts. And it is significant that the local differences observable permit us to speak of a Northern and a Southern variety of the ordinary Brāhma alphabet, between which, as in later times, roughly reckoning, the river Narmadā marks, the boundary line.

In order to show, how considerable the divergences are, I give here the eight chief varieties of the initial *a*,[2] among which the first and the last show hardly any resemblance, though if all eight are placed side by side their connexion is easily recognised.

It is not difficult to see, that the first seven varieties have been caused by two conflicting tendencies, a liking for

[1] According to Plate II of my forthcoming Grundriss der indischen Palaeographie the only exceptions are the letters *jha, ña, ṭa, ṭha, ṇa, tha;* and *na.*

[2] The same varieties are of course found also in the initial *ā.*

angles and a liking for curves, which are observable also in the divergent forms of other Brāhma letters. Nos 1—3 are purely angular. The first and the second differ only thereby, that in the one the obtuse angle touches the vertical line, and that in the other it has been first made separate and then connected by a short crossbar.[1] In the third form the right hand stroke is slightly bent in the middle and the whole letter resembles a Greek Χ. Nos 6 and 7 show on the left, instead of the straight sides of the angle, two well developed curves, and in No 6 they are united in the middle while in No 7 they do not touch. Nos 4—5 appear to be mixed forms, as the former has on the left a curve below with a straight stroke slanting towards the left, while in the latter the curve stands above and the straight stroke below. This apparent mixture may be due to an incomplete change of the older, angular form. But the two varieties may also be explained as cursive developments from No 6, the writer not caring to make the more elaborate curve twice. No 8, finally, is a purely cursive development from No 6, a straight stroke being substituted for the notched live on the left.

Now the local distribution of these forms, which with the exception of Nos 2 and 3 are of very frequent occurrence, is as follows. The angular forms Nos 1—3, as well as the variety mentioned in note 1, are confined to the Southern versions of the Edicts. They appear only in Girnār and Siddāpur, Dhauli and Jaugada, and it may be noted that in Girnār and Siddāpur they are in the majority, Nos 4—7 appearing only occasionally, while in the two Southeastern versions (with the exception of the Jaugada Separate Edicts) the contrary is the case. On the other hand I know of no case where a purely angular form is found in the Kālsī, Delhi, Bairāt, Sānchi, Allahābād, Mathia, Radhia, Rampūrva Barābar, Sahasrām and Rūpnāth Edicts. In the majority of these documents Nos 4—7 alone are used. No 8 occurs very frequently in Kālsī (sometimes with small variations) and once or twice in Rāmpūrva. Hence it would appear that the angular forms are southern

[1] There are also instances in which this crossbar is omitted and the angle stands by itself, see *e. g. amisā*, Siddāpur I, l. 3.

peculiarities and that, as they are undoubtedly the more ancient ones, they furnish an instance of the conservatism, frequently observable in the southern alphabets of later times. This inference is confirmed by the fact that other ancient inscriptions of the same or nearly the same period, like those on the Kolhapur and Bhaṭṭiprolu relic caskets and from the Nānāghāt cave, likewise show the angular forms, (mostly side by side with the curved ones), while the documents, found north of the Narmadā, such as those on the Bharahut and Sānchi Stūpas and in the Nāgārjunī caves, as well as the coins of Agathocles offer almost exclusively the *a* with two curves, rarely the mixed form No 4. A solitary exception in Mahābodhi Gayā (Cunningham, op. cit., Plate V, No 2) may be explained by the consideration that Southerners no doubt came to visit that famous place of pilgrimage and that the person who wrote the copy for the inscription may have been a Southron.

In addition to the local differences in the form of the initial *a* and *ā*, there are also others observable in *kha*, *ja*, *ma*, *ra* and *sa*, which may be briefly noticed here, though the full details must be reserved for the discussion of the palaeography of the Edicts in my *Grundriss*. The *kha* with a circle[1] or loop at the foot, a very ancient form, alone is used in Kālsī and besides occurs only in Jaugada together with the simplified forms showing a dot instead of the circle or no appendage at all. The *ja* with a loop in the middle[2] is used only in Kālsī. It seems to be a form peculiar to the extreme North and the Northwest, as it is found also on the coins of Agathocles and of the Taxila merchants (see below p. 46f.). The other northern versions have mostly, a secondary development from it, the *ja* with a dot in the middle (C. Table, No 7, Col. V, 3) more rarely the independent form (given under No 7, Col. V, 4), which is used exclusively in Girnār together with its derivative, the later angular *ja* with three horizontal bars (see below p. 33). The *ma* with the angle at the top, an ancient form, (C.Table, No 13, Col. V) occurs in the southern versions (with the exception of Siddāpur), where an open square appears instead of the angle)

[1] See the Comparative Table at the end of this paper, No. 19, Col. V, 1.
[2] See the Comp. Table, No. 7, Col. V, 2.

and is used exclusively in Girnār. All the northern versions of the Edicts have a semicircle instead of the angle. The angular and wavy forms of *ra* and their insertion in the verticals of consonants are also peculiar to the southern versions (Girnār and Siddāpur); the solitary *ra* in Rūpnāth consists of a perfectly straight stroke. Finally, the ancient *sa* with a straight limb on the left (C. Table, No 15, Col. VI, 2) is likewise confined to the South (Girnār and Siddāpur).

These facts, to which some more might be added, are sufficient to show, that the very common idea[1] of the homogeneousness of the characters of the Edicts and of the absence of local varieties, is erroneous. The differences between the writing of the northern and the southern versions are quite as considerable as those, found four hundred forty years later, between the letters of the northern and southern inscriptions of the first and second centuries A. D.[2] And it must be kept in mind that the circumstances, under which the Edicts were engraved, were not favourable to a full expression of the local varieties of the letters. Copies were sent out from Pāṭaliputra into the provinces, which were recopied and, as the dialectic differences in the language and occasional peculiarities in the wording prove, also recast by the clerks of the district-governors, before they were made over for engraving to the masons. It seems only natural to assume that the characters of the copies prepared at Pāṭaliputra influenced the writing of the provincial clerks, and caused the introduction of forms, otherwise not usual in the several

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[1] See *e. g.* Burnell, South Indian Palaeography, p. 7, note 4, with whose remarks Dr. Taylor, M. Halevy and others agree.

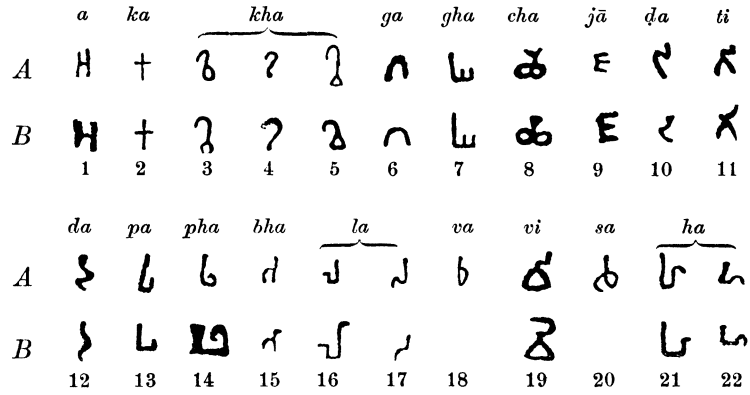
[2] I state this in accordance with the facts, shown by Plate III of my Grundriss, which includes *inter alia* the signs from the inscriptions of the Śakas and Kuṣanas of Mathurā Kāman and Sānchi, the Western Kṣatrapas, the Andhras and Ābhīras. Dr. Burnell's statement (loc. cit.) that "in the course of a few hundred years [after Aśoka] the alphabets used in Gujarat and Bengal had already become so different as to be very little alike in appearance", I fear, cannot be substantiated. Between 200 B. C. and 200 A. D. there are no inscriptions from Bengal proper. The inscriptions from Mahābodhi Gayā in Behar (given by Sir A. Cunningham) which may be assigned to this period, look very much like those of the Śakas and the Western Kṣatrapas.

provinces.[1] Such a suspicion is the more natural, as the provincial clerks have in no case completely changed the language, but have always allowed some Māgadhisms to stand. But, however that may be, local differences are traceable in the writing of the several versions and they prove that the Brāhma alphabet had had a long history before the third century B. C. If the slowness of the change of the forms, and the comparative insignificance of the local variations which the inscriptions of the next four or five centuries show, are taken as the standard, it will be necessary to assume that the letters of the Edicts had been used at least during four or five hundred years.

As regards the second important point, to which attention has been called above, viz., the occurrence of numerous apparently or really advanced forms, identical or closely agreeing with those of the later times, its significance will become best apparent, if all such signs, found in the Edicts, are placed together. The subjoined little table, for the preparation of which

[1] As I have stated already in Dr. Burgess' Arch. Sur. Rep. W. I., Vol. IV, p. 79 f., the clerks who prepared the fair copies of the inscriptions, not the masons or coppersmiths who engraved them, are the men who influenced the formation of the letters. How the masons worked, may be seen from two passages of the Kālsī version. In the twelfth Edict, l. 31 six letters have been scored out and the corrections have been written above. The letters in the upper row are as large as those in the lower and the distance between lines 30 and 31 becomes from the beginning of the corrected passage twice as great as it was before. It is evident that the mistake and its correction occurred in the MS. given to the mason. If they were due to the latter, the line would run on straighter and the letters of the correction would be smaller. Again in the fourteenth Edict l. 20 the syllables *ṭite* of the word *ghaṭite* are corrections, one standing above the line and the other below it. But the distance between *gha* and the first letter of the following word, *ma*, is twice as great as those intervening between the other letters of the line. Here it is again certain that the MS. had the mistake and the correction. If the mason had skipped the two signs and added them afterwards, the *gha* would not stand further off from *ma* than from its predecessor. I think that these two instances are sufficient to prove that Aśoka's masons copied quite mechanically. It seems, therefore, impossible to attribute to them any other influence on the shape of the letters than such as may be caused by a slip of the chisel or by their accidentally overlooking a stroke in the MS. before them.

I have to acknowledge the help of Dr. W. Cartellieri, gives in the lines, marked *A*, the advanced Aśoka letters according to the facsimiles, and in those, marked *B*, the corresponding characters from the later inscriptions of Hathigumphā, Nānāghāt, Mathurā and the Western caves. The dates of the latter vary between the middle of the second century B. C. and of the second century A. D., and in every case the oldest available counterpart has been chosen.



The table shows that the later signs for sixteen letters occur already in the third century B. C. Four of these forms, the dagger-shaped *ka* (common in Kālsī and occurring in most other versions except in Girnār), the angular *gha* (Kālsī) and *ha* (No 21, in various versions) as well as the curved *ḍa* (Kālsī) are in reality archaic,[1] while the corresponding common signs of the Edicts are advanced developments, which like the peculiar *va* (No 18, Girnār), and *sa* (No 20, Kālsī, Jaugada) have left no trace in the later writing. The remaining ones are really cursive or derived from cursive forms. No 1, the initial *a*, has been discussed above, its counterpart in line *B* occurs in the Kuṣana inscriptions from Mathurā. No 3, the *kha* with a loop to the left (Kālsī) is a cursive form for the *kha* with the circle at the foot,[2] and itself the parent of No 4

[1] See below pp. 58f., 61, 73. The counterparts in line *B* are from the Hathigumphā inscription.

[2] See the Comparative Table at the end, No 19, Col. V, I.

(Delhi-Sivalik) which preserves the twist in the down stroke caused by the loop, but substitutes a dot for the latter.[1] No 5, the *kha* with the triangle (once in Mathia) is a fanciful variant for the oldest form, its counterpart has been taken from the archaic Mathurā inscriptions. No 6, the *ga* with the round top[2] is a cursive form of the pointed letter, the corresponding form is from Hathigumphā, but found in all inscriptions of the second century B. C. No 8, the *cha* with two loops[3] is a tertiary development, immediately derived from the form with the bisected circle, which again is merely cursive.[4] The same remark applies to No 9, the *ja* with three bars. It is derived from the notched Girnār form, which itself is a cursive development from the Bhaṭṭiprolu form.[5] Nos 11 and 19, the stunted *ti* and *vi*[6], give examples of the triangulation of the lower portion of *va* and of the reduction of the vertical strokes so characteristic of the alphabets of the next centuries, which appears already with great regularity in the Nāgārjunī cave inscriptions of Aśoka's grandson. No 12, the *da* with a shallow curve and the tail twisted towards the right (Jaugada, Girnār, etc.) is a transitional form, corresponding to those in the Nāgārjunī cave, the archaic Mathurā and the Pabhosa inscriptions *(B)*, and leading up to the *da* of the first

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[1] The corresponding forms in line *B* have been taken from Hathigumphā. Better ones for No 3 are found in the inscriptions from the Western caves.

[2] Once in Delhi Sivalik Ed. VII and in the mason's alphabet at Mahābodhi Gayā.

[3] Kālsī once and mason's alphabet from Mahābodhi Gayā. The form in line *B* is from Hathigumphā.

[4] See below p. 73.

[5] See the Comparative Table, No 7, Col. V, 1 and the discussion on No 7, p. 59. The sign, given above occurs once in Girnār. The great length of the central bar is caused by the ā-stroke which it includes. Similar forms occur in Kālsī, where they represent the looped *ja*. The corresponding form in line *B* occurs already in Daśaratha's Nāgārjunī inscription.

[6] The stunted *ta* is very frequent in Kālsī and occurs occasionally also in other versions. The triangular *va* with the very short vertical is found once in a correction in Kālsī, Edict XIII, 2, l. 13. The forms in line *B* have been taken from the Kuṣana inscriptions. Some instances of *pa*, *pha* and *sa* with very short verticals occur likewise already in the Edicts.

and second centuries A. D. Nos 13, 14 and 16 give examples of the introduction of angles in the lower limb of *pa, pha* and *la*,[1] which originally consisted of curves, but are changed with perfect regularity already in the Hathigumphā, the archaic Mathurā and the Pabhosa inscriptions.[2] No 15, the *bha* with the round side-limb (Jaugada, Kālsī, etc.) is of course cursive and found in all the later inscriptions except in Hathigumphā. Nos 17 and 22, the *la* and *ha* with the side-limbs turned downwards (Jaugada Separate Edicts) are again highly cursive. Counterparts of No 17 are found in the Nānāghāt inscription, those of No 22 only in the Ābhīra inscription from the Nāsik caves. These facts, to which others, such as later forms of the medial vowels, the position of the Anusvāra at the top of the consonants and the occasional use of *serifs* or short bars at the top of verticals, might be added, do not agree with the assumption that writing was a recent practice in Aśoka's times. To me it seems that they are most easily explained, on the supposition that several, both archaic and more advanced, alphabets existed in the third century B. C., that an archaic alphabet was chosen for the perpetuation of the Edicts, but that the clerks mixed the forms. And in support of this view I would adduce the Jaina tradition, discussed above p. 23 ff., according to which many alphabets were used about 300 B. C. But, even if we leave aside all conjectural explanations of the facts, it remains undeniable that the writing of the Edicts is in a state of transition, and this alone is sufficient to warrant the assertion, that their alphabet certainly had had a long history.[3]

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[1] Nos 13 and 14 occur a few times in Kālsī and other versions, No 16 is from Delhi-Sivalik and occurs also in Kālsī, etc.

[2] Among the inscriptions of the second century B. C., that from the Nānāghāt cave preserves the round forms.

[3] As so distinguished an epigraphist as Dr. Burnell has come to exactly the contrary conclusion and as his view is still quoted by other writers on the subject, it will be not superfluous, if I briefly review his arguments. His chief argument for the late introduction of writing is that very few allusions to the use of letters are contained in the literary works which date from the fourth century B. C. The answer to this statement is contained in the second part of this paper, and it need only be pointed out that Dr. Burnell could not know of the passages mentioning private and official documents, as the works, in which they

To an earlier stage than the writing of the Edicts belongs the inscription on Sir A. Cunningham's Eraṇ coin, which runs

occur, had not been published in 1878. His second and accessory argument is drawn from internal evidence furnished by the Edicts. He says, South Indian Palaeography, p. 2, "The inscriptions of Aśoka are also in themselves proofs that writing was about 250 B. C. a recent practice; for they present irregularities of every kind," and in the note to the passage, he quotes as instances, conflicting spellings like *añapitaṃ* (correctly *āñapitaṃ*) and *āññāpitaṃ*, *dasana* and *dasaṇa* (from the Girnār version), the irregular insertion of nasals before consonants (which, as he admits, may be due to the negligence of the masons) and the constant neglect of the reduplication of consonants *e. g.* in *piyasa* for *piyassa*, *ārabhisante* (read *ārabhisare*) for *ārabbhissare* and so forth. These facts are indisputable, and other similar ones like the irregular employment of the signs for sibilants in Kālsī and Siddāpur and the constant or nearly constant use of short *i* and *u* for long *ī* and *ū* in Kālsī, Bairāt and Rūpnāth may be added. But they do not prove the proposition, in support of which Dr. Burnell adduces them. The numerous double and even treble forms of the same words, which occur in one and the same version are not graphic. Some are, as the analogies in the ancient literary Prakrits show, real variants which occurred in one and the same dialect, and some are due to slips in the translation of the Māgadhī originals of the Edicts into the Western and Northwestern dialects. The irregular use of the Anusvāra before consonants may also be ascribed partly to the same cause, since the Pali too occasionally omits a nasal and then doubles the following consonant. In other cases it may be due to the carelessness of Aśoka's clerks, who treated their Vernaculars exactly as a modern Karkun treats his. Everybody who has had any experience of Indian office work, must know that the *Sheras* or official papers, prepared by the clerks of the older generation, who had received their elementary instruction in the indigenous schools and had afterwards been trained in the offices, show an extreme irregularity in the use of the Anusvāras, of the short and long *i* and *u*, of the three signs for sibilants and of the reduplication of consonants. During my service as Educational Inspector I have seen a great many, sometimes important, documents from British Government offices and from those of native princes, which in their spelling were quite as bad as, and even worse than, Aśoka's Edicts, and I do not recollect that any papers, except those sent by carefully trained school-masters, were quite exact. One cause of this state of things was the wretched instruction in the indigenous schools, where writing is taught according to the Bārākhaḍī, described above, which contains no ligatures and more sibilants than the Vernaculars possess, and where composition received little or no attention, being at the best confined to the copying of a few forms for letters. Another cause was the want of a settled system for the minutiae of vernacular

from the right to the left.[1] The letters agree exactly with Aśoka's and the *dha* has the position required for the writing from the left to the right. It dates, therefore, from a period during which the Brāhma characters were written in both directions. This period is probably not very far distant from the middle of the third century B. C., as the Edicts still show single letters, which belong to the writing from the right to the left, viz., the *dha*, given in the Comparative Table No 4, Col. V, 1, the *o*, ibidem, No 6, Col. VI, 6, and the *ta*, ibidem, No 22, Col. V, 1. The coin may, therefore, be somewhat younger than Sir A. Cunningham thinks, who assigns it to 400 B. C. The great antiquity of its find-spot, the town of Eraṇ, is attested by an inscription on the Sānchi Stūpa, where it occurs as *Erakina*.

A still more important palaeographic witness for the antiquity of the Brāhma alphabet is the variety, found in the inscriptions on the Bhaṭṭiprolu relic caskets, the value of which, I am sorry to say, I have somewhat underestimated in the introductory remarks to my edition in the Epigraphia Indica, Vol. II, p. 323 ff. Though the article has been published only recently, it was written more than two years ago, before I had begun to study the question of the derivation of the Brāhma

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grammar, both in writing and in speech (compare my remarks, Ep. Ind., Vol. III, p. 136) all efforts in this direction being of quite recent date. A third cause is, I fear, the deeply rooted tendency of all Hindus to inaccuracy in small matters. Now the Aśoka Edicts are official papers, written by his *lipikaras* or clerks. As there is no reason for assuming that they had received a better education than the men in the modern offices of British and native India, and that the Vernaculars of the third century B. C. had been polished and perfected by grammarians, it seems difficult to ascribe the defects in their spelling to other causes than those which produce the same imperfections in the office work of the modern Karkuns. The probability that the causes are the same increases, if it is remembered, that even the Sanskrit landgrants, issued from the secretariats of later kings, show the same mistakes, sometimes in a very high degree. Thus the Valabhī grant, published in the Indian Antiquary, Vol. VII, p. 68 f., has no long *ī*, very few long *ū*, no *ddha* and almost regularly *śa* for *ṣa*.

[1] Coins of Ancient India, p. 101 and Plate XI, 18. According to a plaster cast, which I owe to the kindness of Mr. Rapson, the inscription is *Dhamapālasa.o*, the last consonant being illegible.

alphabet. Then, I saw only that the inscriptions probably belong to nearly the same period as the Edicts and that their alphabet, which offers the six independent Mātṛkās *gh*, *j*, *m*, *l*, *ṣ* and *ḷ* and the curious notation of *a* and *ā*, as well as some minor differences in the radical signs for *c*, *d* and *bh*, must be considered as coeval with Aśoka's Brāhma letters. Hence I drew the inference that in the third century the Brāhma characters showed in certain districts even greater local varieties than appears from the Edicts alone, and I pointed out that this discovery greatly bettered the position of those who, like myself, hold the art of writing to have been practised for many centuries before the times of the great Maurya reformer. So far I have nothing to change or to add.

But the comparison of the Indian characters with Semitic signs, which I have instituted since, has greatly altered my opinion regarding the palaeographic value of the independent signs. I no longer believe in the possibility to regard the *gha* of the Edicts as a derivative from *ga*, and admit now that the Bhaṭṭiprolu *gh* (Comp. Table, No 3, Col. VI) is an independent form, the framer or framers of the alphabet having discarded one of the old Semitic radicals, which the common Brāhma alphabet retains. I further must admit that the Bhaṭṭiprolu *j* (Comp. Table, No 7, Col. V, 1) and *ṣ* (Comp. Table, No 15, Col. V) are older forms than the corresponding ones of the Edicts, the former being a tolerably faithful representation of the oldest form of *Zain* and the latter being a simplification of the Semitic *Samech*, turned-topsy-turry. The *l* and *ḷ* (Comp. Table, No 12, Col. V, 2, Col. VI), regarding which I did not say anything definite, I must now declare to be independent evolutions from the ancient Semitic *Lamed*, and even in the tailed *c* (Comp. Table, No 18, Col. V, 3) I now recognise an archaic form. On the other hand, for *m*  , which I took to be a possibly older form of the ordinary Brāhma sign, I can no longer claim this distinction. It is merely the *ma* of the Edicts, placed top downwards. This change of opinion regarding the details, the necessity for which will become more fully apparent in the next part of this paper, naturally forces me to modify the general proposition that the Bhaṭṭiprolu alphabet does not teach us much regarding the history of the Brāhma

writing and regarding the conversion of the Semitic letters into Indian characters. It certainly furnishes us with valuable intermediate forms for four radical signs, *c*, *j*, *l* and *ṣ*, which latter appears to be the parent of the ordinary Brāhma *ṣa* and *sa* and with one entirely independent derivative sign *gha*. Its separation from the ordinary Brāhma alphabet must fall not only before the third century B. C., but also before the time, when the Eraṇ coin was struck, and cannot have happened at a later period than the fifth century B. C., though it may fall much earlier.

This estimate carries us back to the period, for which the passages of the Jātakas, the Pācittiya and the Mahāvagga, quoted above, assert the common use of writing, though they do not give the name of the characters employed nor any details regarding them, by which they might be identified. The coincidence makes it of course tempting to assume that the writing, referred to in the Buddhist Canon, is the Brāhmī lipi. And the correctness, or at least the great probability of this assumption, I think, is made apparent by the recent discoveries regarding the relative position of the Brāhmī and the Kharoṣṭhī—the only other script which could come into question—as well as by the facts bearing on the origin of the Kharoṣṭhī.

The late finds of very ancient inscribed coins in Northwestern India leave no doubt that according to the epigraphic evidence the Brāhmī lipi was since the beginning of the historical period the paramount Indian alphabet, used from the Himalayas to Cape Komorin and from the Khyber Pass to the Bay of Bengal, while the Kharoṣṭhī held always a secondary place only in a very confined territory. Again, the clear evidence of the forms of the Kharoṣṭhī letters, the original stock of which is doubtlessly derived from the Aramaic alphabet, shows that this alphabet cannot have been developed, much less have penetrated into Eastern India at the early period to which the Buddhist works refer.

The first point, which is of considerable general importance for Indian palaeography, will best become intelligible by a brief review of the epigraphy of those districts where Kharoṣṭhī inscriptions occur. From the third century we have the two Kharoṣṭhī versions of the Aśoka Edicts, incised in the

northwestern corner of the Panjab, at Shahbazgarhi and Mansehra. To the same or possibly a somewhat earlier period belong Sir A. Cunningham's coins from the site of the Taxila or Takṣāśilā, which prove also the contemporaneous popular use of the Brāhma characters in Gandhāra.

These coins have been figured by Sir A. Cunningham in his Coins of Ancient India, Plates II and III. He has pointed out, op. cit. p. 61, that they are partly punch-marked silver pieces and partly single or double die copper pieces, all of the standard peculiar to India, and he takes them for this reason and on account of the very archaic forms of the letters of the legends, "to be anterior to the Greek conquest of Alexander". It will perhaps be safer to say "anterior to the Greek conquest of Demetrius". From their inscriptions, which are partly in Brāhma characters of the Kālsī type[1] and partly both in Brāhma and in Karoṣṭhī letters, Sir A. Cunningham has already drawn the obvious inference, that both alphabets were used in Northern India during the third century B. C. Something more, it seems to me, may be elicited from an analysis of the legends.

On the coin, Plate II, 17, the Brāhma legend *Vaṭasvaka* corresponds to Sanskrit *Vaṭāśvakāḥ* and probably means "the Vaṭa-Aśvakas" or "the Aśvakas of the Vaṭa or 'fig-tree' division". It is well known that there was an Aśvaka tribe in Northwestern India, whom the Greeks call Assakenoi and state (Arrian, Indica, I. 1) to have inhabited the country west of the Indus as far as the Kophen. It may further be mentioned that some old Indian tribes, like the Yaudheyas[2] were actually divided into sections or *gaṇas*, as well as that, as the case of the Audumbaras shows, tribes were occasionally named after trees. With this explanation the coin appears to have been issued by one of the subdivisions of a tribe, which occupied just those districts, from which so many Kharoṣṭhī inscriptions come, and a Brāhma inscription on a tribal coin would certainly indicate that the alphabet was in popular use.

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[1] The Kālsī type is visible in the looped *ja*.

[2] See, Sir A. Cunningham, Arch. Surv. Reports, Vol. XIV, p. 141 and Plate XXXI, where coins of the second and third *gaṇas* are described.

The latter point comes out still more strongly through some other coins, figured on Plate III,[1] viz.

	Obverse	Reverse
No 9	*Dujaka* (Kharoṣṭhī)	*Negamā* (Brāhmī)
No 10	*Dojaka* (Brāhmī)	*Negamā* (Brāhmī)
No 8	*[T]ālima[ta]* (Brāhmī)	*[N]ega[m.]* (Brāhmī)
No 11	*A[taka?]takā* (Brāhmī)	*Negam[ā]* (Brāhmī)

The word *negamā* is common enough in Pali and in the epigraphic Prakrits, and means always 'the traders'. It shows here that the coins are mercantile money-tokens, issued by traders, and the words on the obverse may be either names of towns or of guilds.[2] The latter explanation is perhaps the more probable one. But however that may be, the use of both alphabets by traders proves indeed that both were in popular use in the heart of Gandhāra.

The other coins of the same period, struck outside the Panjab, show legends in Brāhmī, even that from Mathurā, op. cit. Plate VIII, 1, in which town also a votive inscription in Brāhma characters of the third century (Reports Arch. Survey, Vol. XX, Plate VI) has been found. Only in one case Kharoṣṭhī letters have turned up further south, but under circumstances, which do not allow the inference that the alphabet was generally used or known. This case occurs in the Siddāpur Edicts where the writer Paḍa has added at the end his qualification *lipikareṇa* 'the scribe' in Kharoṣṭhī characters. This looks like a joke or a boast, as if Paḍa, proud of his accomplishments, had been anxious to make it apparent that he knew more than the ordinary characters. And, as he was

[1] Though the letters are perfectly distinct, Sir A. Cunningham gives erroneously *Nekama* as the reading of the Kharoṣṭhī legend of No 9. On the obverse of No 8 he reads *Rālimata*, and he takes *negamā* as the equivalent of the Greek Νόμισμα, for which explanation there is no authority. He correctly points out that, on Plate II, Nos 21 & 22 have the inscription *Kāḍasa* in Brāhma letters of the type of the Edicts, and asserts that No 13 on Plate III bears the Kharoṣṭhī legend *Paṃca Nekaṃma*. According to the autotype the third sign is not *ne* but *a* and the fourth looks like *kra*.

[2] I am unable to explain *Dujaka-Dojaka*. *Tālimata* seems to be connected with the Sanskrit *Tāli* "Corypha Taliera" or "Flacourtia cataphracta".

in the royal service, it is not unlikely that he may have acquired a knowledge of the Kharoṣṭhī during a stay in a northern office.[1]

From the second and first centuries B. C. we have chiefly legends on coins, which were struck in the Panjab or in non-Indian countries further west. The Indo-Grecian kings generally use Kharoṣṭhī letters, but Agathokles and Pantaleon employ also Brāhma characters, showing thereby that this alphabet likewise continued to be used in the Northwest, side by side with the Kharoṣṭhī. The same fact is proved by the double legends in Kharoṣṭhī and Brāhma letters on Sir A. Cunningham's Audumbara and Kuninda coins, op. cit. Plates IV[2] and V, 1—6, which come from the same districts and probably belong to the same time. Further east in Kosambī, Ayodhyā (op. cit., Plates V, 7—18 and IX) and Pancāla (Plate VII) as well as further south in Ujjain (Plate X) none but Brāhma letters occur. And it is curious that even the Yaudheyas (Plate VI), who were settled on the lower Satledge, use only the latter characters. A few single letters on the gateway of the Bharahut Stūpa, among which there is a *sa* of the second century, (Cunningham, Plate VIII), are probably marks of northern masons, who erected this additional portion of the monument for Dhanabhūti.

During the period of the Śakas and Kuṣana kings, which probably begins in the first century B. C. and extends to the end of the second century A. D., the numerous inscriptions, incised in the Western Panjab, are in Kharoṣṭhī and those on Dr. Bhagvānlāl's Lion Capital prove that the Kharoṣṭhī penetrated during the reign of the Śaka Satrap and king Śuḍasa or Śoḍāsa as far as Mathurā, where however, as the enormous quantity of Jaina and Bauddha votive inscriptions shows, the Brāhma alphabet was at that time and later the usual one.

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[1] See my remarks in the Wiener Zeitschrift f. d. Kunde d. Morgenlandes, Vol. VII, p. 30 f.

[2] The *Vṛṣṇi*-coin No 15 is according to the evidence of the characters later and probably belongs to the period when the Śakas had carried the Kharoṣṭhī as far as Mathurā. A few votive inscriptions of the second and first centuries B. C. from the same town are in Brāhma characters, Epigraphia Indica, Vol. II, pp. 195.

The coins of the earlier Śaka kings from the North like those of Mauos and Azes and of their Satraps, as well as those of Gondopherres and his brothers, have Greek and Kharoṣṭhī legends, while the later Kuṣana kings, Kaniṣka, Huviṣka and Bazodeo or Vāsudeva discard the latter, and their successors finally adopt the Brāhma alphabet. Further east and south the king and Satrap Rājubula and his son Śuḍasa, who ruled over Mathurā and perhaps over portions of the eastern Panjab, either follow the same practice as Mauos or use Brāhma letters (Cunningham, op. cit., Plate VIII, 2—5), which occur also on the coins of the Satraps Hagamāsha(?) and Hagamāna(?) (ibidem, Nos 6—7). Further two foreign (Śaka?) Satraps and kings of Ujjain, Nahapāna and Caṣṭana employ on their coins both the Indian Alphabets simultaneously, while the inscriptions of Ayama, the minister of Nahapāna, of his daughter Dakṣamitrā and his son-in-law, the Śaka Uṣavadāta or Usabhadata, as well as of the immediate descendants of Caṣṭana show exclusively Brāhma characters.

The epigraphic evidence shows therefore that in the beginning of the historical period, in the third century, and perhaps earlier, the popular use of the Kharoṣṭhī was strictly confined to the Panjāb and that it was nothing more than a secondary script, running along by the side of the Brāhmī, which prevailed all over India. This state of things continued during the next two centuries. During the period of the Śaka rule the Kharoṣṭhī spread further south, without however losing its character as an accessory alphabet. It would of course be unreasonable to assume that its position was different in earlier times for which no epigraphic documents are available. For this reason and because the general prevalence of the Brāhma alphabet has now become more clearly apparent, it seems very probable that the Buddhist Canon can only refer to the latter.

The second point, the improbability that the Kharoṣṭhī was already developed or in general use even in its home as early as say 500 B. C. requires only a few remarks. Its derivation from the Aramaic alphabet has been generally accepted, ever since Mr. E. Thomas pointed it out, and the shape of its *ba*, *da*, *na*, *ra* and *va* makes a doubt impossible. According to Dr. I. Taylor's suggestion, The Alphabet, Vol. II, p. 261, which

is most probable on historical and palaeographical grounds, and has been accepted also by Sir A. Cunningham (Coins of Ancient India, p. 33), its immediate source is the Aramaic alphabet of the Achaemenian period, and the introduction of the Aramaic letters into India dates from the time, when the Achaemenian kings of Persia had conquered the Panjab, just those districts where the Kharoṣṭhī has its real home.[1] As the Persian con-

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[1] M. Halevy, op. cit., p. 250 ff. and particularly p. 267, tries to establish a still later date for the elaboration of the Kharoṣṭhī. He seeks the prototypes of its characters in the Aramaic alphabet of the fourth century B. C. He believes that they were developed in Ariana not earlier than 330 B. C. after the appointment of Macedonian Satraps by Alexander, who, as he thinks, may have fostered the use of the already prevalent Aramaic writing and thereby may have induced their subjects to adapt it to their special wants. The obvious weakness of Mr. Halevy's arguments prevents my accepting his theory, which would be more favourable for my point.

It is a matter of course that I am likewise unable to agree with Mr. Halevy's theory (op. cit., p. 280—286 and Plate II, A), according to which the Brāhmī lipi has borrowed from the Kharoṣṭhī six radical signs, *śa, jha, ḍa, ña, u* and *ra,* the Anunāsika, the system of vowel-notation, and the numeral signs 4—9. The reasons, why I do not consider the six Mātṛkās and the vowel-notation of the Brāhma alphabet as loans from the Kharoṣṭhī, will become apparent in the next section of this Essay. With respect to the Anunāsika, I must point out that the sign , which Mr. Halevy derives from the Kharoṣṭhī *ma* of the Indo-Grecian coins, appears in no Indian document written before 1200 A. D., while the Kharoṣṭhī went out of use about 200 A. D. As regards the assertion that the Brāhma numeral signs for 4—9 are the initial Kharoṣṭhī letters for the words *catur, pañcan, ṣaṭ* (old Prakrit, *sa, chha* or *ṣa*), *saptan* (Prakrit *satta*), *aṣṭan* (old Prakrit *asta, aṭṭha*) and *navan* (old Prakrit *ṇava*), which is also put forward by Dr. Taylor (The Alphabet, II, p. 266), it is unfortunate that in four cases the facts are absolutely against it. The Kharoṣṭhī *cha* no doubt looks like the Kṣatrapa sign for four. But the Indian words for four, all begin with the unaspirated *ca,* and the Aśoka sign for four is + *(ka),* not X as Sir A. Cunningham has drawn it in the C. I. I. Again, the Aśoka sign for six or has no resemblance to the Kharoṣṭhī *sa* . Further the Kṣatrapa sign for seven or Gupta cannot be the Kharoṣṭhī palatal *ṣa* , because the word for seven begins in all Indian dialects with a dental *sa.* Finally, the Kṣatrapa and Andhra cannot be, as Mr. Halevy asserts, the Kharoṣṭhī *kha,* because the word for eight begins in all Indian dialects with *a.* Nor can it represent the Kharoṣṭhī *aś,* as Dr. Taylor believes, because no such ligature is ever formed in any Indian

quest happened shortly before 500 B. C., it is impossible that the Kharoṣṭhī can have been developed before 450 B. C., and it is not to be thought of that it could have penetrated into Eastern India, where the Buddhist Canon was composed, during the fifth century, much less could it have been there in so general use, as the alphabet mentioned by the ancient Buddhists certainly was. Under the circumstances just discussed, the assumption that the alphabet, referred to in the Jātakas, the Mahāvagga and so forth is the Brāhmī—which, I repeat, the palaeographic facts contained in Aśoka's Edicts, the legend of the Eraṇ coin and the Bhaṭṭiprolu inscriptions strongly suggest—undeniably gains a very high degree of probability.

IV.

As the literary evidence points to the common use of writing in India during the fifth and perhaps in the sixth century B. C., and as the palaeographic evidence proves the Brāhmī lipi to be the oldest Indian alphabet and tobe probably identical with the script referred to in the Buddhist Canon, it is a matter of course that its source must be found in the more ancient Semitic characters. A short time ago such a result would have precluded the possibility of all attemps to make Southern Arabia the country from which the parents of the Brāhma letters came. But at present, pretensions to a high antiquity are put forward on behalf of various epigraphic documents from the latter country. The theories, it is true, are still conflicting. Some ascribe certain Sabaean inscriptions to the tenth century B. C. or an earlier period, while others declare those of the Minaeans to belong to very ancient times and deny the antiquity of the Sabaean documents. More light on these questions is required, but even as matters stand at present, it seems to me hazardous to make use of the old argument, that the derivation of the Brāhma letters from a South-Arabian source is *a priori* impossible, because the inscriptions, found there, are of too modern dates.

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writing. Besides, if it had been formed, it would be wrong. The second part ought to be the lingual *ṣa* , because the word is *aṣṭan* not *aśṭan*.

Nevertheless the theory of a South-Semitic origin of the Brāhma alphabet appears to me untenable. What has been brought forward in its favour by the two chief advocates, is to a great extent far from convincing. The ocular evidence, it seems to me, speaks against many of their identifications.[1] Further, in some cases late or at least secondary forms of Indian letters have been used for comparison.[2] Again in other cases the most extraordinary and absolutely unnecessary changes in the phonetic value of the signs are assumed to be quite natural and hardly worthy of an explanatory remark. When one is told that the Hindus utilised the Semitic *Qoph* to express the sound *cha* (Deecke) or *cha* and *ka* (Taylor), that they employed the Semitic *Shin* for *ja*, *śa*, *ṣa* and *sa* (Deecke) or at least for *ja* and *ṣa* (Taylor), that the Semitic *Wāw* furnished both the signs for *ya* and *va*, or that *Lamed* became *ra* and *Resh* was turned into *la*, one can only say that such assertions are hard to believe. As the Hindus are always very particular, even pedantic, in matters connected with phonetics, and as the framers of the Brāhmī lipi evidently have been careful with respect to the formation of many derivative signs, duly deriving *ḍha* from *ḍa*, *pha* from *pa*, *bha* from *ba* and so forth, it seems incredible that they should have had no regard for phonetic affinities in utilising the signs, which they borrowed. And the assumed vagaries appear absolutely inexplicable if one considers that the Semitic alphabet has the *Tsade*, the phonetic value of which comes close to *ca* and *cha*, and that it possesses separate signs for *Wāw* and *Yod*, which might be used to express *va* and *ya*.

As long as the theories regarding the derivation of the Brāhma alphabet contain equations like those just mentioned, and as long as these theories do not take into account all the oldest forms of the Indian letters, the problem, it seems to me, has not been solved and the task has to be redone. Really trustworthy results can only be attained under the following conditions:—

[1] That is also Sir A. Cunningham's statement, Coins of Ancient India, pp. 39—40.

[2] To the former class belong Dr. Deecke's initial *a* and Dr. Taylor's broad-backed *śa*, to the latter Dr. Taylor's initial *a*, *kha* and *ra*.

(1) The comparison must be based on the oldest forms of the Indian alphabet and actually occurring Semitic signs of one and the same period.

(2) The comparison may include only such irregular equations, as can be supported by analogies from other cases, where nations have borrowed foreign alphabets.

(3) The comparison must show that there are fixed principles of derivation.

In resuming the inquiry on these principles I soon found that the Southern Semitic characters would not serve my purpose. Though the Himyaritic or Sabaean alphabet on account of its stiff, monumental appearance bears a general resemblance to the *Brāhmī lipi*, and though two or three of its letters come close to the corresponding Indian signs, it includes so many dissimilar characters, which evidently are more strongly modified than the Brāhma Mātṛkās, that the real resemblances can only be considered as accidental or as due to an analogous development. But on trying the oldest characters, which are almost identical throughout all the countries, occupied by the Northern Semites, it became possible to identify in the Brāhma alphabet all the twenty two Semitic letters, and to explain the formation of the numerous derivative signs, which the Indians were compelled to add. As stated already, the identifications agree for the greater part with Professor Weber's, whose important essay in the Zeitschrift der Deutschen Morgenländischen Gesellschaft of 1855 very nearly solved the problem of the origin of the Brāhma alphabet. If Professor Weber had had at his disposal the materials which are accessible at present, his acumen would no doubt have removed every difficulty.

The identifications are shown in the accompanying Table, kindly drawn for me by Mr. S. Pepper of Vienna. The signs of the first three columns have been taken from M. Ph. Berger's Histoire de l'Ecriture dans l'Antiquité, pp. 185, 202 and 300.[1] Among the forms of column IV without asterisks, those opposite the twelfth and the seventeenth Semitic characters

[1] I regret that I did not know of the existence of the second edition of Professor Euting's Tabula Scripturae Aramaicae (1890) at the time, when mine was prepared. If I had known of it, it certainly would have been used.

have been taken from a plaster cast of Sir A. Cunningham's Eraṇ coin (see also Coins of Ancient India, Plate XI, 18) that opposite the sixth character from the word *eṣā* in the Kālsī version, Ed. XIII, 1, l. 37, and the last in the sign for *Taw* from the Sindjirli inscription. Among the signs in column V a few are from Sānchi, viz. the fifth of Col. VI opposite the fourth Semitic character, the lingual *ḷa*, and the first of Col. V opposite the sixteenth Semitic character, while in Col. VI the fourth sign opposite the sixth Semitic character, *Ū*, comes from Bharahut, and two signs of the two rows in the same Col. opposite the sixteenth character, viz. the second in the first row, *Ai*, and the last int he second row, *I*, belong to the Hathigumphā and Nānāghāt inscriptions, and the last sign of Col. VI, *ña*, opposite the fourteenth Semitic letter, has been drawn according to my recollection of the sign in the mason's alphabet at Mahābodhi Gayā. Some years ago Sir A. Cunningham showed me photographs of all the letters, among which there was also the otherwise unknown *ña* of the Maurya period. As I understood that all the twenty-two signs were to be published, I did not take a copy at the time. All the remaining letters have been drawn according to Dr. Burgess' facsimiles of the Rock and Pillar-Edicts,[1] and of the Bhaṭṭiprolu inscriptions.

A. The Borrowed Signs.

Before proceeding to the details, it will be desirable to state the principles, on which the twenty-two signs of the Semitic alphabet seem to have been turned into Brāhma letters. Even a superficial examination of the Brāhma alphabet shows the following chief characteristics:—

(1) The letters are set up as straight as possible, and they are with few exceptions made equal in height.

(2) The majority consists of vertical lines with appendages attached mostly at the foot, occasionally at the foot and at the top, or rarely in the middle; but there is no case where an appendage has been added to the top alone.

[1] The facsimiles of the Girnār and Kālsī versions, on which I have chiefly drawn, will be published, Epigr. Ind. vol. II, No 16. The Pillar Edicts have appeared *op. cit.*, p. 245 ff. and the Bhaṭṭiprolu inscriptions *op. cit.* p. 323 ff.

(3) At the top of the characters appear mostly the ends of vertical lines, less frequently straight horizontal lines, still more rarely curves or the points of angles opening downwards, and quite exceptionally in *ma* (No 13, Col. V) two lines rising upwards. In no case does the top show several angles, placed side by side, with a vertical or slanting line hanging down from it, or a triangle or circle with a pendant line.

The principles or tendencies, which produced these characteristics, seem to be a certain pedantic formalism, a desire to have signs well suited for the formation of regular lines, and a strong aversion against all top-heavy characters.[1] The natural result was that a number of the Semitic signs had to be turned topsy-turry or to be laid on their sides, while the triangles or double angles, occurring at the tops of others had to be got rid of by some contrivance or other. A further change in the position of the signs had to be made, when the Hindus began to write from the left to the right. They had, of course, to be turned from the right to the left, as in Greek.

[1] The appearance of a pedantic formalism in the alphabet is no more than what might be expected. For it is a characteristic of most Indian creations in literature, science and art. The aversion, shown by the Hindus against letters with heavy tops, has also a good and sufficient reason, and, I think, it is due to their making the letters hang down from a top-line instead of placing them on a base-line. The modern Karkun or clerk of Western, and, as Dr. Grierson informes me, also of Eastern India, as a rule, actually draws this line across the whole breadth of the paper, and the modern Lekhak or copyist places a small board with thin threads fastened at equal distances below his sheet of paper, or squeezes the paper between the strings and the board. The general appearance of the most ancient MSS., like the Bower birch bark volume and the Horiuzi palmleaves, makes it highly probable that their writers used the same or a similar contrivance. Even the look of the Aśoka inscriptions, especially of the Pillar Edicts and of the Girnār and Jaugada Rock Edicts, indicates that their engravers, or the writers of the original copies, were accustomed to the use of top lines. Though they are rarely quite exact, it is clearly visible that they at least tried to equalise the height of the tops. If the custom, as is not improbable, dates from still earlier times, the aversion against heavy tops is easily explained. For signs beginning with vertical lines or with short horizontal strokes are most suitable for such writing, and the later modifications of the Brāhma letters are to a great extent the results of a variety of attempts to obtain such forms.

Instances, where the old position has been preserved, are however met with both in borrowed and derivative signs.

With respect to the single borrowed letters I have to add the following remarks.

No 1. That the Hindus, like the Greeks used the Semitic *Aleph* in order to express the vowel *a* has been suspected by Professor Weber. But he thought it also possible that the initial *A* of the Brāhma alphabet might be derived from *He*. His successors have asserted the identity of the first letters of the two alphabets as a fact, though the Indian forms of the initial *A* with two curves, which have been mostly used for comparison,[1] do not agree very well. The doubtlessly oldest form with the angle to the left of the vertical (Col. V) which, as stated above, is peculiar to the Southern versions of the Edicts, agrees almost exactly with the oldest Semitic signs. Only the vertical has been placed at the point of the angle in order to make the appearance of the letter more regular, and the whole sign has, of course, been turned from the right to the left.

No 2. I can only agree to the identification of the Brāhma *ba* with the Semitic *Beth*, which has been asserted on the strength of the Sabaean and Ethiopian forms[2] by Professor Weber and his successors, with the exception of Mr. Halevy, who derives it from the dissimilar Greek *Beta*. But I think that it is a development, derived by the Hindus immediately from the old Phoenician and Mesa signs. As the Hindus did not tolerate heavy tops, they opened the triangle and made the central stroke hang down from the end of the angle in the manner shown in the hypothetical form in Col. III. The next result was a rhomboid form, a few examples of which are found occasionally in various versions of the Edicts, where we have *e. g.*  *bo* in *apalibodhāye*, Kālsī Edict V, l. 15. The liking of the

[1] Mr. Halevy, however, correctly compares the angular form. His attempt to derive it from the Greek Alpha is not intelligible to me. The two signs possess a minimum of resemblance to each other.

[2] The Sabaean form is no doubt very similar to the Brāhma sign but, I think, due to a different modification of the ancient North Semitic letter. It would seem that the triangle at the head of the letter has been turned into a square and the stroke on the right has been made straight. Hence arose first the and by a simplification .

Hindus for straight top-lines produced further the square and the oblong *ba*, which latter is the commonest form in Kālsī and the regular one in the Bhaṭṭiprolu inscriptions. It may be noted, that this letter is frequently, though not regularly made smaller than those with verticals. Regarding the want of the lower line in the derivative *bha* (Col. VI) see below.

No 3. The identity of the Indian *ga* with the Semitic signs is so evident that it has been always recognised. I will only add that there are numerous instances in the Edicts where one of the sides of the angle is shorter than the other. The formal looking very pointed angles with perfectly straight equal sides are characteristic of the Western and Southern versions.

No 4. The identity of the Brāhma *dha* with the Semitic *Daleth* has also been generally admitted, Dr. Taylor, who derives it from *tha* (No 9, Col. V) alone dissenting. To me it seems that the first form, given in Col. V, with the vertical on the right, is the immediate offspring of the oldest Semitic forms, the letter having been made higher and the right hand stroke straightened in accordance with the general principles of formation, stated above. The round back is probably due to a cursive development. In the Edicts this form is rare, and the second, given in Col. V, which is younger and due to the change in the position required by the change in the direction of the writing, is found in the great majority of cases. The older one (Col. V, 1) is used exclusively in the Bhaṭṭiprolu inscriptions and usually in the Western cave inscriptions of the Nānāghāt, Nāsik, Karle, Junnar and so forth, which range from about 150 B. C. to 200 A. D. It is also the parent of all the later northern forms of the letter, including the present Devanāgarī *dha*. In the caves mentioned we find also in the Andhra and other inscriptions of the first and second centuries A. D. numerous triangular forms[1] like  or  . They may be possibly ancient survivals, especially as the Edicts too occasionally offer forms with half angular backs like .

The difficulty with respect to the phonetic value of the Brāhma sign, which does not exactly correspond to that of

[1] See Burgess, Arch. Surv. Reports West-Ind., Vol. IV, Plates XLIV, 17; XLVIII, 16, 17; XLIX, 4; LII, 18, l. 4 and so forth.

the *Daleth*, may perhaps be explained by the suggestion that the letter was used for a long time both for the unaspirated and the aspirated dental, and that the *da* was separated at a time, when the real value of the borrowed sign had been forgotten.

No 5. Professor Weber denies the connexion of the Brāhma *ha* with the Semitic *He*, while Drs Deecke and Taylor derive it from the Sabaean form 𐩢.[1] As long as only the round form, given as the third sign in Col. V, and similar ones were known to exist in the Edicts, the case was a difficult one. Dr. Burgess' new impressions and facsimiles show, however, that the angular *ha*, Col. V, 2, which is constant in the cave inscriptions of the next centuries, occurs here and there in Aśoka's inscriptions.[2] The new Siddāpur version shows throughout the little horizontal bar (on the right) attached very close to the foot of the letter and offers in the word *mahātpane* (No. I, l. 4) the sign, placed first in Col. V. This is almost exactly a turned *He* of the Assyrian weights (Col. III) which according to M. de Vogüé[3] appears from about 700 B. C. Professor Euting kindly points out to me that the very similar 𐤄 is found on a *Mina* (C. I. S., P. II, No 6[b]), which according to the accompanying cuneiform inscription dates from the reign of Salmanassar, and therefore, as also M. de Vogüé has stated in his remarks on the inscription, is older than the year 725 B. C. As this sign belongs to the eighth century B. C., when the very archaic forms of the *Aleph*, *Daleth*, *Cheth*, *Theth*, *Wav* and *Qoph*, represented by the corresponding Brāhma letters, still existed,[4] it may be considered the prototype of the Indian *ha*. The aversion of the Hindus against heavy tops, of course, caused the sign to be turned round, and their liking for regularity caused the bar to be attached to the stroke which then became the base-line, and the whole letter to be set up straight. All things considered, this explanation seems

[1] This sign is due a very much stronger modification of the ancient North-Semitic *He* than the Brāhma letter.

[2] See also above p. 39f.

[3] Corpus Inscr. Semit., P. II, Vol. I, p. III. Mr. Berger enters this sign (Table, op. cit., p. 300) in the column for the Persian period.

[4] See M. de Vogüé, op. cit., p. II.

more probable than attempts to connect *ha* with the later more exactly agreeing sign in Col. III, or with the still older form with three parallel bars.

No 6. The Indian *va*, regarding which Professor Weber felt uncertain, evidently corresponds with the Mesa form of *Wāw*. Owing to the aversion against heavy tops the Semitic letter has been turned topsy-turvy. At the same time the semicircle has been closed. Among the two forms, given in Col. V, the second is the regular one in the Edicts, the first, as well as an angular variety not given,[1] occurs only rarely.

No 7. Professor Weber has already pronounced himself for the identity of the Brāhma *ja* with the *Zain*. The discovery of the Bhaṭṭiprolu *j*,[2] Col. V, 1, considerably facilitates the identification, as it closely agrees with the archaic Phoenician sign, differing only slightly in the position of the bars at the top and the foot. The signs of the Edicts, given in Col. V, 2, 3, 4, are all cursive, and represent attempts to make the letter with a single stroke or at least with two. The third form with a dot at the junction of the two curves, is of course a development from the second with the loop. And the substitution of a dot for a loop indicates that the persons who invented it wrote with pen and ink. A man working with a stylus would not think of such a substitution, nay could hardly effect it.[3]

No 8. The discovery of the angular *gha* (Col. V, 1) which occurs a few times in the Kālsī version[4] and is constant in the cave inscriptions, makes its identification with the three-barred

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[1] Compare also above p. 39, where a fourth cursive form has been figured.

[2] Dr. Burgess' facsimiles in the Epigraphia Indica show occasionally an incipient central bar in *ju* and *jū*, where it ought not to occur. The impressions show clearly that in all these cases there is not a real third line, but that the stone has a flaw.

[3] Regarding the use of ink in India, see above p. 22. The ancient Indian term for ink is *maṣi*, often spelt *masi*, and now pronounced *makhi*, which is derived from the obsolete verb *maṣ*, *hiṃsāyām*, compare *maṣa* and *maṣmaṣā*. Etymologically and originally it means 'powder' (of charcoal and the like), used for the preparation of ink, see the larger Petersburg Dictionary under *masi*.

[4] The sign given in the Table has been taken from *upaghāte*, Ed. XIII, 1, l. 37.

Cheth of the archaic Phoenician, of the Sindjirli and other ancient inscriptions, very probable. The Semitic sign, which often slants towards the left, has been laid on its side (see the hypothetical form in Col. IV) and the long upper bar, covering the letter, has been raised upwards and converted into the long vertical on the left.[1] The usual form of the Aśoka Edicts with the curve is of course cursive. In the Bhaṭṭiprolu alphabet this letter has been discarded and a derivative from *ga* (No 3, Col. VI) supplies its place. The Sabaean *Cheth* 𐩢, from which Dr. Taylor derives the Indian *gha*, is no doubt an analogous development from the old North-Semitic sign.

No 9. The identity of the Brāhma *tha* with the Semitic *Theth* has always been recognised and is evident enough. I may mention as a curiosity that a small cross appears inside the circle instead of a dot in the Pallava landgrant, Epigraphia Indica, Vol. I, p. 1 ff. In this document all dots are replaced by minute crosses. On the other hand, a *Theth* with a dot occurs on an Assyrian weight, see Professor Euting's Tabula Script. Aram. Col. 6.

No 10. The derivation of the Brāhma *ya* from the ancient Semitic *Yod* has been asserted by Professor Weber, who however could only compare the later round Phoenician form, which opens downwards.[2] The oldest Indian form is probably the notched one (Col. V, 1),[3] which appears exclusively in the Delhi Pillar Edicts and occasionally in other versions and is the parent of all the later developments. It is probably derived from the oldest Semitic *Yod*, formed of a downstroke with two bars, attached to the left, and one to the right. Its formation seems to have been effected by placing the top-heavy sign on its side, in the manner shown in the hypothetical form of

[1] It may be mentioned as a curiosity, that from the thirteenth century A. D. the Nāgarī *gha* is again placed upright and has become almost identical with its Semitic prototype. This is, however, not due to a survival, but merely to the desire of equalising the breadth of the Nāgarī letters.

[2] It has also been admitted by Mr. Halevy, who compares a late form of the Semitic letter.

[3] That with the single curved stroke at the foot of the vertical is apparently cursive.

Col. III, by lengthening the stroke which now stood in the middle of the line and equalising the direction of that on the right.

No 11. The derivation of the Brāhma *ka* was a difficult problem, as long as the cross with four perfectly equal bars (Col. V, 2) was considered to be its most ancient form, and consequently the earlier attempts to account for its existence are not very satisfactory. Professor Weber, following Kopp, and Dr. Taylor have tried to derive it from the Semitic *Qoph* very much against the ocular evidence, and Mr. Halevy has identified it with the Aramaic *Kaph*, which likewise, as far as I can see, does not resemble the Indian letter. But now, when the more accurate reproductions of the Edicts have proved the frequent early occurrence of the dagger-shaped form (Col. V, 1) which is constant in Bhaṭṭiprolu and in *all* the various inscriptions, incised between 200 B. C. and 400 A. D., the case of the sign is by no means desparate nor even difficult. If, as now may be done with perfect propriety, the dagger-shaped *ka* is taken as the older form and the cross with equal bars as a regularised or formalised derivative, it is easily recognisable that the dagger-form probably has been derived from a *Kaph*, like that of Mesa's inscription (Col. II), in which the down-stroke slants sharply to the left and the angle on the left is attached very close to the top or from a letter like that on the Assyrian weights (Col. III), compare also the signs of the Siloah inscription, in Prof. Euting's Tabula Script. Aram. Col. 3. In setting the sign up straight, the Hindus took the upper stroke of the angle for the top of the down-stroke, and a cross-like figure was the natural result, which, on being made more regular, yielded the dagger-shape.

No 12. For the identity of the Brāhma *la* (Col. V, 1) with the Semitic *Lamed* (Cols. I and II), which has been recognised by Professor Weber and accepted by Dr. Deecke and Mr. Halevy, the *la* of the Eraṇ coin (Col. IV), the Bhaṭṭiprolu *la* (Col. V, 2) and the Bhaṭṭiprolu *ḷa* (Col. VI) furnish new illustrations. The most ancient survival is found in the last mentioned character, which, if the little bar denoting the lingualisation is removed, almost exactly represents the Semitic sign. Next comes the letter of the Eraṇ coin, which has pre-

served the original direction of the *Lamed*, but shows on the right the little bar, no doubt intended to mark the end of the line. This bar is wanting in the Bhaṭṭiprolu *la*, which however has been turned from the right to the left and has developed a curious long tail, hanging down from the top of the main line. Originally this appendage no doubt was a flourish, marking the end of the vertical.

No 13. The identification of the Brāhma *ma* with the Semitic *Mem* is also due to Professor Weber. He, as well as Mr. Halevy, derive it from the Aramaic sign of the seventh century[1] B. C., 𐡌. Though this derivation is no doubt possible, it seems to me that it is equally possible to connect the Brāhma *ma* with the sign of the Mesa inscription, which likewise shows a curve at the end of the down-stroke. A little stronger development of this curve would necessarily lead to a sign, like the hypothetical one, entered in Col. III, which is almost the same as the first Pehlevī *Mem* of Col. 58 in Professor Euting's Tabula Script. Aram. And in support of this view I may appeal to the development of the looped *ka*, Northern 𑀓 and Southern 𑀏 from the dagger-shaped *ka* with a curve at he foot 𑀐, as well as of the round Southern *ra* 𑀭 from 𑀚, which show analogous changes on purely Indian ground. The superposition of the angle, which originally remained at the side, over the round or elliptical figure[2] is of course due to the striving after regularity, which the Hindus show throughout. The Brāhma *ma* with the angle at the top (Col. V) which is (see also above p. 36) particularly common in the Girnār version and not found in the Northern versions, thus appears to be the older form, and that with a curve 𑀫 the cursive one. In the Bhaṭṭiprolu alphabet the ancient Brāhma *ma* with the angle appears turned topsy-turvy (see p. 44). The Sabaean, *Beta*-like *Mem*, from which Dr. Deecke and Dr. Taylor derive the Brāhma *ma*, shows little resemblance and is probably the product of a different process.

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[1] See M. de Vogüé, loc. cit.

[2] The third Pehlevī *Mem* of Col. 59 of the same Table, which exactly resembles the Brāhma *ma*, may be pointed out as an interesting analogous development.

No 14. Professor Weber,[1] who is followed by Dr. Deecke, considers the Semitic *Nun* to be represented by the Brāhma *ṇa*, Col. VI, 2, and it is Dr. Taylor alone who connects the dental *na*, Col. V, directly with the Sabaean form of *Nun*. I do not think it probable that a Hindu would make such a mistake as to take the phonetic value of *Nun* to be equivalent to his lingual nasal, which sounds very differently, and I fail to see, except on the impossible theory of Greek mediation, how the double horizontal line of *ṇa* can be explained by means of a real Semitic form. It seems to me that the Hindus, owing to their aversion to heavy tops, first turned the *Nun* topsy-turvy and used for some time a figure like that drawn in Col. IV.[2] As a proof for this assertion I would cite the palatal *ña* (Col. VI, 1), which consists of the hypothetical form, turned from right to left, and of a small bar at the top, indicating that it belongs to a different class or Varga.

Later only, I think, the Hindus substituted as a cursive development for the hook at the side, the single bar which protrudes on either side of the foot of the vertical.

No 15. Professor Weber doubtingly proposes to connect the Brāhma *sa* (Col. VI, 3) with the Semitic *Samech*, and his idea has been taken up by Dr. Taylor who derives it from the very dissimilar Sabaean form. The new Bhaṭṭiprolu *ṣ*, Col. V (the origin of which has been wrongly explained in my introductory remarks to the edition of the inscriptions) and the *sa* of the Eraṇ coin (Col. VI, 1) as well as the *ṣa* of the Ghasundi slab (see below), I think, permit me to say that Professor Weber's conjecture is well founded. I take the Bhaṭṭiprolu *ṣ* to be derived from a *Samech* like that in Col. I, 2, the two

[1] I must add that Professor Weber admits the possibility of deriving the dental *na* from *Nun*, but thinks that the *ṇa* comes nearer. Mr. Halevy connects *ṇa* immediately with the Greek νυ, which, as he believes, was laid on its side.

[2] A *Nun* with a small open square at the top, instead of an angle, occurs in the Siloah inscription and again much later, see Prof. Euting's Tabula Scr. Aram. Cois. 3a-b, 8b, and 13a. As the change from an angle to an open square is in keeping with the stiff formalism of the Indian alphabet, it is not necessary to assume that the Semitic prototype showed the latter. The Indian form is probably nothing but an analogous development.

upper bars of which were replaced by a curve (as in the hypothetical sign in Col. IV) and which was then turned topsy-turvy in accordance with the Indian principle, appealed to so often. This sign probably served in the beginning to express both *sa* and *ṣa*. Later two separate signs were developed out of this original representative for *Samech*, (1) The sign for *sa* with the original cross bar placed at the outside of the curve, which appears in its original position on the Eraṇ coin (Col. VI, 1) and turned from the right to the left (Col. VI, 2) in the Southern versions of the Edicts (Girnār and Siddāpur) and in Bhaṭṭiprolu; (2) The sign for *ṣa*  , with the original cross bar shortened and placed inside the curve, which hitherto is traceable only on the Ghasundi slab[1], but must have been used extensively, as it is evidently the parent of the square *ṣa* of the later Sanskrit inscriptions.[2] It occurs neither in the Bhaṭṭiprolu alphabet, which retained the old sign, in order to denote *ṣ*, nor in the ordinary Brāhmī lipi of the Edicts. The northern variety of the latter developed a new *sa* (Col. VI, 3) with a curve instead of the straight limb at the side, and out of this the sign with two curves, one below the other (Col. VI, 4), which occurs in the Kālsī version, in Daśaratha's Nāgārjunī cave inscriptions and so forth, and which probably is also intended for *ṣa*.

It would, of course, be possible to connect the Bhaṭṭiprolu *ṣ* with the cursive Aramaic *Samech*  of the sixth century B. C. But then the cross bar of the Bhaṭṭiprolu sign would remain unexplained. Moreover, there would be the insuperable difficulty that the Aramaic *Beth*, *Daleth*, *Waw*, *Cheth*, *Ain*, *Qoph* and *Resh* of the sixth century are so strongly modified that they cannot be considered the prototypes of the corresponding Brāhma *ba*, *dha*, *va*, *gha*, *E*, *kha* and *ra*. It seems, therefore, advisable to assume, as must be done also in another case, that the Hindus independently changed the form of the ancient sign, but in a manner analogous to that adopted by the Aramaeans.

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[1] See Journ. As. Soc. Beng., Vol. LVI, Plate at p. 79, where it occurs in the name *Saṁkarṣaṇa*.

[2] The square form occurs first in the Mora Well inscription from the times of Rājuvūla's son (Śoḍāsa), Arch. Surv. Rep., Vol. XX, Plate V, 4, which possibly belongs to the first century A. D.

The derivation of the signs for *sa* and *ṣa* from the same original letter points to the influence of the Sanskrit grammarians or phoneticists, who are well aware of the intimate connection of the two sounds and duly teach that Sanskrit *sa* becomes *ṣa* through the influence of a preceding *i*, *u*, *ṛ*, *e*, *ai*, *o*, *au*, *k*, *r* or *l*.

No 16. Professor Weber's ingenious identification of the ancient *Ain* (Col. I and II) with the Brāhma *E*,—which is supported by the analogous proceeding of the Greeks, who also used it to express a vowel,—receives a strong confirmation through the round and half-round signs for *E* in Col. IV and Col. V, 1. The first occurs once in the word *eṣa*, Kālsī, Edict XIII, 1, l. 37. The same version offers also several times a very similar form  , for which there was no room in the table.[1] The first sign in Col. VI, which looks exactly like a *dha* is found in the word *etina* of the Hathigumphā inscription of Khāravela, l. 8, and in the Sānchi inscription No 173 (Epigraphia Indica Vol. II, p. 375) where, not thinking of the Hathigumphā letter, I unfortunately have read *Dharakinā* for *Erakinā*. Professor Weber's conjecture has been accepted by Dr. Taylor alone, Dr. Deecke and Mr. Halevy, trying to connect the triangular *E* with *Aleph*. There was however a very good reason for giving up the round *E*. For it could not have been distinguished from the lingual *ṭha*, which the Hindus developed out of the corresponding dental. In my opinion the triangular *E* is a development, formed by the Hindus independently, and the angular forms for *Ain* in the later Semitic alphabets are merely analogous, showing how easily a circular letter may be converted into a triangle or a rhombus.

No 17. The fact that the Brāhma *pa* is the old Semitic *Phe* turned topsy-turvy, has been acknowledged by everybody. The new form of the Eraṇ coin, Col. IV, shows it in its original position.

No 18. Regarding the Brāhma equivalent of the Semitic *Tsade* I differ from all my predecessors. I believe that it was

[1] It seems probable, that this or a similar half round form is the parent of the southern *E*, which in the Pallava and Vengī inscriptions looks like *ca*,  and later becomes  , closely resembling the ancient *la*.

used, as one would expect from its phonetic value, for the formation of the letter *ca*, the sound of which is and always has been not English *tsha*, but *tśa* almost like *tya*. The Semitic sign, of course, had to be turned topsy-turvy on account of its heavy top, and the small bar running to the right was turned towards the vertical. This process gave first a tailed  and later with the direction to the left,  . The angular shape of the letter has been well preserved in the *ca* of the Edicts, Col. V, 1, which is not uncommon, and the tail appears in the Bhaṭṭiprolu form, Col. V, 3.[1] The round *ca* (Col. V, 2) is purely cursive, and not the parent of the later Indian letters, which mostly go back to angular or pointed forms.

No 19. With respect to the Semitic *Qoph* I must likewise differ from all my predecessors, who have compared it to the Brāhma *cha*, which is clearly an Indian derivative from *ca* and has a very different phonetic value. In my opinion the Semitic *Qoph* has its counterpart in the Brāhma *kha*, the oldest form of which (Col. V, 1) consists of a circle with a superimposed vertical line ending in a curve. This is the oldest Semitic sign (Cols. I and II),[2] turned topsy-turvy on account of its heavy top. The curve at the end of the vertical has no doubt been added in order to distinguish the letter from *va*. The *kha* with the circle at the base occurs sometimes in Jaugada and is used frequently in the Kālsī version[3] of the Edicts, where not rarely the circle is replaced by a somewhat irregular loop, sometimes attached to the right of the vertical line (see the *kha* figured above p. 39). It is the parent of most of the later Indian signs for *kha*, including the modern Devanāgarī form, which all show a loop or a triangle at the base of the vertical. In several versions of the Pillar

[1] The later Semitic alphabets furnish various analogous developments, see Prof. Euting's Table, Col. 9 (third sign), Col. 15 (first sign), Col. 42 (second sign), differing from the Brāhma letter only by the position of the angular or round appendage, which of course remains at the top of the character and to the right of the vertical stroke.

[2] Still more closely agreeing Phoenician and Mesa forms, in which the vertical is not drawn across the round head, are given in Prof. Euting's Table, Col. 1 *d*, Col. 2 *a*.

[3] The form given in the plate has been taken from the word *likhite*, Kālsī, Edict IV, l. 12 (end).

Edicts and elsewhere a well developed dot takes the place of the circle. This change is analogous to that pointed out above in connexion with the second and third forms of the Brāhma *ja*, and likewise indicates the use of pen and ink for the time when it was made. There is also a third form of the *kha* which consists merely of a vertical with a hook at the top. It is chiefly used in the Southern versions of the Edicts, particularly in Girnār, as well as in Bhaṭṭiprolu and later in the cave inscriptions, and is evidently a cursive development.

No 20. I can only agree with Professor Weber's identification of *Resh* with the Brāhma *ra* or *repha*. But the original *ra* has not the form, consisting of a straight stroke, which is given in his table and in that of Dr. Taylor. The straight *ra*, evidently a late cursive development, is very rare in the Edicts. I know only of one perfectly certain instance, which occurs in the Rūpnāth Edict. In the Girnār version, where *ra* is very common, it has at the top invariably one or two little angles, open to the right, or instead of the angle an irregular bulge towards the left, see Col. V, 1 and 2. I take the form with the single angle to be the oldest and consider it to be derived from a Semitic form like that of the Mesa inscription, the triangle of which the Hindus opened, in order to avoid the heavy top, by attaching the vertical to the lower side of the base *i. e.* by putting  for  . The signs with two or more angles, Col. V, 3, 4, are no doubt artificial, ornamental developments. In the new Siddāpur Edicts this development has been carried to an extreme, and the whole letter has been converted into a wavy line, consisting of four or five little angles.

No 21. Professor Weber's identification of *Shin* with the palatal sibilant *śa*, which has been accepted by Dr. Deecke, seems also to me self-evident. It is only necessary to substitute for the late Indian form (given in Professor Weber's Col. II) the formerly not accessible, real old Brāhma signs, Col. V, 1—3, which are found in the Kālsī, Rūpnāth and Siddāpur versions of the Edicts, on the Bhaṭṭiprolu prism, on the Ghasundi slab and in the Pabhosa cave inscriptions.[1] I con-

[1] I enumerate the occurrences so fully, because, when the sign first turned up in Kālsī, it was considered to have been borrowed from the Kharoṣ-

sider as their prototype the oldest Semitic form with two angles (Cols. I and II), not the very similar Aramaic *Shin* ⱳ of the sixth century. For in accordance with the principles of the Brāhmī lipi, the Semitic letter had to be turned topsy-turvy, and the double angle at the top had to be got rid of, which latter change could be most easily effected by placing the one angle inside the other. The Hindus may be well credited with the independent invention of this modification, as the later Phoenicians and the Ethiopians have likewise introduced it independently. Moreover, the same considerations, which make it impossible to accept the Aramaic *Samech* as the immediate source of the Bhaṭṭiprolu *ṣa* (see above p. 64), speak in this case against the assumption that the Semitic alphabet, adopted by the Hindus, contained the Aramaic *Shin*.

No 22. With respect to the Brāhma *ta*, which Professor Weber has recognised already as a modification of the Semitic *Taw*, it must be noted, that the oldest form seems to be that (Col. V, 1) consisting of a long slightly inclined downstroke with a short straight bar slanting off to the right. Next comes the sign, given in Col. V, 2, with the bar slanting off to the left, and this is due to the change in the direction of the writing, in consequence of which the letter was turned from the right to the left. The *ta* consisting of a vertical stroke with an angle at the foot, Col. V, 3, which is frequent in the southern and western versions of the Edicts, is probably

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ṭhī, which has the remotely similar lingual *ṣa* 𑀱. I will add that in Bhaṭṭiprolu, where we have *śamaṇudeśānaṃ i. e. śramaṇoddeśyānām* in the Ghasundi inscription, where we have *Parāśariputa* and *śilā*, and in Pabhosa, which offers *Śonakāyana i. e. Śāunakāyana*, this sign appears only in words which have *śa* in Sanskrit, while in the Edicts it occurs mostly and very irregularly in words, where the Sanskrit has *sa* or *ṣa*. The confusion is owing to the negligent pronunciation and writing of the clerk, who made the copy. His dialect probably contained two sibilants, the dental and the palatal, and his alphabet had three, the dental, the palatal and the lingual. His negligence in pronunciation made him pronounce *sa* for *śa* and vice versa, and his negligence in writing made him use *sa* and *śa* indiscriminately. As stated above, papers written in our times by half-educated people show exactly the same confusion and for the same reasons. They pronounce *e. g.* both *sac* and *śac (satyam)* and they write indiscriminately सच, शच and षच.

due to the formalism of the Hindus, their desire to set the letter up straight and to make it perfectly regular in appearance. The forms with a round limb to the right or left of the vertical (see above p. 39) of course are cursive. The oldest among these five forms for *ta* closely resembles the *Taw* from the earliest Sindjirli inscription (Col. IV), which belongs to the beginning of the eighth century B. C., and still more that in Professor Euting's *Tabula Script. Aramaicae*, Col. 6,  , which occurs on an Assyrian weight of the reign of Salmanassar[1] and has therefore been engraved before 725 B. C. As it thus appears that Semitic forms, consisting of a long inclined downstroke with a crossbar very slightly protruding on the left or with a simple bar on the right, have been developed in very early times, it is not improbable, that one of them occurred in the alphabet which the Hindus borrowed. But the possibility that the Indian sign is an independent development from the straight Phoenician cross (Col. I), is not altogether excluded. For the cross could not remain in the Brāhma alphabet, because it would have been undistinguishable from *ka*.

B. The Derivative Consonants and Initial Vowels.

The contrivances, by which the derivative signs, both primary and secondary, for consonants and initial vowels have been formed, are:—

(1) the transposition of one of the elements of a phonetically cognate borrowed sign,

(2) the mutilation of a borrowed letter or of another derivative sign of similar phonetic value,

(3) the addition of straight lines, curves or hooks to borrowed or derivative signs. If a hook is added the original sign suffers a slight mutilation.

Two cases of transposition have already been mentioned above under No 15, where it has been pointed out that the *sa* and the (Ghasundi) *ṣa* come from the Bhaṭṭiprolu *ṣ*. A second case occurs, as Professor Weber has been the first to recognise, in the dental *da* (No 4, Col. VI, 1, 2, 6 and 7). The

[1] As Professor Euting kindly points out to me, the inscription is found Corp. Inscr. Sem., P. II, No 2c.

two first forms, occurring respectively in Bhaṭṭiprolu and in the majority of the Edicts, are derived from the two *dha* in Col. V, by dividing the straight line and pushing the halves back to the ends of the semicircle, which remained. In the third actual form (Col. VI, 6) and the hypothetical one, Col. VI, 7, (required on account of the next following sign) the semicircle has been converted into a small square, left open on one side, and this change is due to the liking for angular forms, mentioned above p. 35.

The cases, where a borrowed or derivative sign has been mutilated, are those of the lingual *tenuis*, *tenuis aspirata* and *media*, all of which Professor Weber has already explained correctly. The lingual *ḍa* under No 4, Col. VI, 3, which occurs once in Kālsī and commonly in the later inscriptions of the Nānāghāt and the other Western caves etc., is derived, by the removal of the lower end, from the Bhaṭṭiprolu *da* (Col. VI, 1), which had not yet been turned from the right to the left. The angular *ḍa* (Col. VI, 8) comes in like manner from an angular *da* (not yet turned to the left), of which the known inscriptions do not offer any example. The *ṭha* (No 9, Col. VI, 1) is of course the dental *tha* minus the central dot, and the *ṭa* (No 9, Col. VI, 2) has probably been obtained by halving the *ṭha*, as Professor Weber conjectures. To a Hindu this process probably appeared very natural. For he formed several aspirates by adding curves. Hence he may be supposed to have considered a round sign, denoting an aspirate, as equivalent to an unaspirated letter *plus* a curve of aspiration. Thus the division of the sign would be quite legitimate. In the Edicts both *ṭha* and *ṭa* are frequently made smaller than the other letters.

Two other cases of the mutilation of borrowed letters occur in the signs for initial *I* and *U*. It has been recognised already by Mr. Prinsep that the three dots of *I* (No 16, Col. VI, 1—3, lower row) indicate the three corners of the triangular *E*, and this view, which has been generally accepted, is confirmed by the fact, that in the Edicts the position of the dots of *I* generally agrees with the position of the angles of *E*. To a Hindu phoneticist or grammarian the derivation of *I* from *E* would appear a matter of course, because *E* is very commonly

the representative of an *I* in strong forms or its *Guṇa*. Hence he expressed the latter by a lighter form of the former, just marking the corners of the triangle.

The case of *U* (No 6, Col. VI, 1) is somewhat different. It has been customary to derive the sign directly from one of the later forms of the Semitic *Waw*. Considering the facts, connected with the linguals and with initial *I*, I would propose to derive it either directly from the old Semitic *Waw*, turned topsy-turvy, or from the Brāhma *va* by a bisection of the circle at the foot of the sign and the substitution of a straight line for the irregular pendant, which remained. The several steps were, therefore,  or  ,  ,  , and with the turn towards the left[1]  . It is probable that phonetic considerations, the observation of the frequent substitution of *u* for *va* in weak verbal and nominal forms, may have led to the adoption of this proceeding. The framers of the Brāhma alphabet were, as pointed out already, Brāhmans, acquainted with phonetics and with grammatical theories.

The last case of mutilation, I believe, occurs in the Anusvāra (No 13, Col. 6, 2) which is represented by a simple dot. This is no doubt a substitute for the small circle (Col. VI, 1), which reappears very commonly in certain later epigraphic and literary alphabets. I consider the circle to be a mutilated minute *ma*, the upper angle of which was omitted,[2] and I believe that this conjecture is supported by the following facts. In the Edicts and all other ancient inscriptions the Anusvāra is placed rarely at the top of the letter after which it is pronounced. Usually and regularly it stands opposite the middle, but in a number of cases it is found also to the right of the foot. Now vowelless consonants always stand at the foot of the preceding sign in the oldest Sanskrit or Mixed inscriptions from the times of the

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[1] The former actual existence of the third form is proved by the Jaugada *O* (No 6, Col. VI, 7). In the second century A. D. and later, the *U* frequently shows a curve at the foot instead of the straight line,  and it is possible that this may be an ancient survival, not, as is usually assumed, a modern development.

[2] I must acknowledge that Mr. Halevy's ingenious, but erroneous, conjecture, according to which the Brāhma Anusvāra is derived from the Kharoṣṭhī *ma*, induced me to frame my theory.

Kuṣana kings down to the fifth century A. D., when the *Virāma* makes first its appearance. Moreover all such vowelless consonants are made exceedingly small, even after the invention of the *Virāma*, and they are very commonly mutilated at the top.[1] These facts would fully explain the use of a small circle for a vowelless *ma* of the Aśoka type, which then became the general sign of nasalisation in the Brāhma alphabet, just as the Kharoṣṭhī *ma* was turned into the Kharoṣṭhī Anusvāra. My theory, of course, rests on the assumption that the Brāhma alphabet was used from the beginning, not for Prakrit, but for Sanskrit, and this is made more than probably by the occurrence of the initial *Ai*, *Au* and *Aḥ* in the Mahābodhi Gayā alphabet of the masons, as well as by the arrangement of its letters on phonetic principles, see above p. 31. likewise by the numerous indications that the alphabet was elaborated by phoneticists or grammarians or by Brahman schoolmen.

Short straight strokes marking the additional *mātrā*, are added (originally on the left[2]) to the vowel-signs for *A* and *U* in order to produce the long vowels *Ā* (No 1, Col. VI) and *Ū* (No 6, Col. VI, 4). In long *Ī* an additional dot appears instead of the stroke which would not have agreed with the character of the sign.[3]

Added to vowel-signs (originally on the right), short strokes indicate a change of the quality of the sound. This is the way in which *O*,[4] No 6, Col. VI, 6—7, has been formed out of *U*, and in the second sign (Col. VI, 7), the stroke stands in its

[1] See *e. g.* Epigr. Ind. II, p. 208, Mathurā Inscr., New Ser., No 27, Dr. Fleet's Gupta Inscr., Nos 3, 6, 11, etc., Dr. Hoernle's Bower MS. *passim*. In the first mentioned inscription the *m* of *siddham* is not much more than a triangle, in the Gupta inscriptions and the Bower MS. *m* is regularly  .

[2] In the actually existing signs they appear on the right, because the signs were turned on the change in the direction of the writing.

[3] Dots appear for short horizontal bars also in other cases, *e. g.* in the hyphens at the end of verses, which often look like, and have been misread, as Visargas. *Vice versa* small horizontal strokes are substituted for dots *e. g.* in the letter *i*, which in the inscriptions of the Nasik and Karle caves sometimes of three short horizontal bars.

[4] The sign  , which is sometimes given for *O* in palaeographic works, does not exist.

original position, because the letter (Jaugada form) has not been turned round. The *AI* (No 16, Col. VI, 2, upper row) appears to have been derived from *E* in the same manner, but the letter has been turned from the right to the left. The sounds *u* and *o*, as well as *e* and *ai*, appear to a Hindu and to a Sanskritist closely connected, because in numberless cases *o* is the *Guṇa* or representative of *u* in strong forms, and because *e* and *ai* both appear in the strong forms of roots with *i* and in derivatives from nouns with *i* and *e*. These phonetic or grammatical affinities no doubt influenced the formation of the signs.

Added to signs for consonants, either on the right or across the top, a straight stroke likewise denotes a change of quality viz. that the sign expresses the corresponding sound of a different class or *Varga*. The stroke has its original position in the Bhaṭṭiprolu *ḷa* (No 12, Col. VI), which has not been turned round. It appears on the left in the palatal *ña*,[1] because this has been turned. Its position is again the original one in the guttural *ṅa* (No 14, Col. VI, 2), where the foot of the *na* has also been modified. Finally in *ṇa* (No 14, Col. VI, 3) the bar goes across the vertical. The peculiarities of the last two letters are probably due to a desire to avoid collisions with *nā*.

Aspiration is expressed by the addition of a curve in the Bhaṭṭiprolu *gha* (No 3, Col. VI), and the ordinary Brāhma signs for *ḍha* (No 4, Col. VI, 4), *pha* (No 17, Col. VI) and *cha* (No 18, Col. VI, 1—2) are derived in the same manner from *ḍa*, *pa* and *ca*. In the sign for *cha* both ends of the curve have been connected with the vertical line of *ca*. There are numerous instances, like that given in Col. VI, 1, in which a difference between the two halves of this letter is clearly discernible, and the one half is angular, the other round. These, I think, are the older forms. The second sign for *cha* (Col. VI, 2) which consists of a circle bisected by a vertical line is in my opinion cursive.

In the two signs for *bha* (No 2, Col. VI) and for *jha* (No 7, Col. VI) an angle or hook serves the same purpose as the curve of the other four aspirates, and in both cases the original sign is mutilated in order to make the new form less cumbersome. The *ba* has lost its base line and the *ja* its two

[1] See above the remarks under No 14, p. 63.

bars. It seems not improbable, as has already been suggested by others, that the angle or hook of aspiration may be a cursive development from the letter *ha*.

In the lingual *ḷa*, derived from the round *ḍa* (No 4, Col. VI, 5) a small semicircle[1] has been added to the foot of the original sign in order to indicate the change of the phonetic value. Here also, I believe, we may recognise the influence of the grammarians or phoneticists. For the sounds *ḍa* and *ḷa* are frequently interchanged in the same word. Thus we find already in the Vedas regularly a *ḷa* for a *ḍa* between two vowels, as in *īḷe* for *īḍe*. In the later Sanskrit and in the Prakrits there are numerous variants like *nāḍī* and *nāḷī*, *nāḍikera* and *nāḷikera* and so forth, where it is often difficult to decide, which is the original form. As the principle, on which the ordinary *ḷa* has been formed, differs from the more general one, applied in the case of the Bhaṭṭiprolu letter, I consider it to be of later origin.

C. The Medial Vowels.

Hitherto two systems for the notation of the medial vowels have become known, that of the Edicts and all the later Sanskrit and Prakrit inscriptions and that of Bhaṭṭiprolu. The first, which is by far the older one, shows clearly the influence of the grammarians and their ingenuity. As the vowel, expressed in the beginning of words by the representative of the Semitic *Aleph*, occurs in Sanskrit nearly as frequently as all the other vowels taken together,[2] it was not expressed by any sign, but considered to be inherent in all signs for consonants. This device fully agrees with the system of nearly all the phonetic and grammatical treatises, which, as Professor Max Müller has shown so clearly, do not refer to written letters but only to sounds.[3] They almost invariably speak of the *kakāra*, *gakāra*

[1] Possibly a sign which occurs in Jaugada and in the Pillar Edicts  *i. e. ḍa* with a dot at the foot, may have the same value, as it is used in words which have double forms with *ḍa* and *ḷa* or *la e. g. duḍī* or *dulī*, *eḍaka* or *elaka*, *Coḍā* and *Coḷā*.

[2] See Professor Whitney's calculations in his Sanskrit Grammar, p. 73 (second edition).

[3] History Anc. Sansk. Lit., p. 507 ff. This assertion has been hotly contested by Professor Goldstücker in his Introduction to the Mānava Kalpa

and so forth. The commentators no doubt are right, when they assert, that the vowel has been added in order to make the pronunciation of the consonants possible, and the vowel *a* was selected for this purpose on account of the frequency of its occurrence. It seems impossible to assume that there is no connexion between the two facts, and, as the grammarians base their theories on spoken words not on written texts, I think that they are the men who also in this case influenced the formation of the Brāhma alphabet.

As regards the other vowels, medial *ā* is expressed by placing to the right of the consonant the same short horizontal stroke,[1] used for the differentiation of the initial *Ā* from *A*, apparently because the other portion, the short *a*, is already contained in the consonant. The remaining ones are expressed by the signs for the initial vowels or by modifications thereof, placed above or below the consonants; a very clear case is that of the medial *o* in the syllable *ko*,[2] given in two forms under No 4, Col. VI, 8—9. If the *k*, *i. e.* the portion of the sign below the second bar, is removed, there remains in the eighth sign a minute initial *o* of the type in Col. VI, 6, and in the ninth one of the type in Col, VI, 7. Now in the Jaugada version of the Rock Edicts, where the initial *O* has the top bar to the right, the same is invariably the case with the medial *o*. It, therefore, would seem that the writer was perfectly aware of the connection of the two signs. But, in Aśoka's time this

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Sūtra, p. 13 ff. But Professor Kielhorn, who has studied the Vyākaraṇa during so many years, informs me that he does not know of a single passage even in the Bhāṣya, which indicates with certainty, that a written text of Pāṇini's grammar is referred to, or where the technical terms of the grammarians and their theoretical speculations refer to written signs. It seems, therefore, to be a fact that the grammatical and phonetic researches were begun either before the introduction of writing or independently of writing, and that even those ancient authors, who like Pāṇini, mention alphabets and clerks, continued to work on in the old manner.

[1] Originally the stroke, of course, stood on the left, and it is found in this position on the Eraṇ coin, where the letters run from the right to the left.

[2] Compare also the *go* in *mago*. Girnār, Ed. I. l. 11, where a well formed *O* stands above *ga*.

feeling was dying out. For in Girnār, where the initial *O* with the top-bar to the left alone is used, the medial *o* is made in both ways, and in the second part of the Delhi Pillar Edict VII, 2, l. 2 we have once the cursive medial *o* in *nigohāni*, where both strokes are placed on the same level above the consonant.

Equally clear is the case of the medial *u*, which is the initial *U*, put below the consonant. This is distinctly recognisable in the sign *dhu* (No 6, Col. VI, 2) which occurs repeatedly in the Kālsī version. Cursively it assumes the form, given in Col. VI, 3) or of 𑀥, with the omission either of the vertical stroke[1] or of the horizontal bar at the end. On the same cursive principle *ū* is expressed by two strokes, placed either horizontally at the side of the consonant (No 6, Col. VI, 5) or below the consonant, where they frequently form an acute angle but are also placed parallel side by side. These facts seem to indicate that Aśoka's clerks had lost the remembrance of the origin of the signs for medial *u* and *ū*, and that they considered the old forms, which they occasionally used, merely as permissible variants without any special significance. In later inscriptions, however, reminiscences of the origin of the subscript *ū* are found. Thus in the ancient Śāradā characters of the Baijnāth Praśasti and elsewhere *pū* is expressed by 𑆥.

As regards the medial *i*, the small angle to the left of the top of the consonant by which it is marked, seems to be the result of a connexion of the three dots of the initial wovel by means of two lines, see the *ki* No 16, Col. VI, 4—5, lower row. As long as the Brāhma alphabet was written from the right to the left, the *i*-strokes, as well as all other vowel signs of course stood to the left of the consonant. In the Kālsī version, Ed. XIII, 2, l. 10, there are two signs, at the end of the words *anuvidhiyaṃti* and *anuvidhiyisaṃti*, where the vowel has this position. They look like *A*, because the vowel strokes have been added to the middle of the consonant. A better formed *ti* with the vowel on the left occurs in Allahābād, Ed. I (end). The medial *ī* does not seem to be connected with the initial *Ī*, but to have been formed by the addition of the

[1] It may be noted that subscript consonants are frequently mutilated in the same manner. Thus the subscript *va* regularly loses in Girnār its vertical. The full forms of *dhu* occur *e. g.* in Kālsī, Edict III, l. 8 (twice).

straight stroke, denoting also in other cases the lengthening of vowels, which for convenience's sake in this case was made vertical. Cursively the angle of medial *i* is converted in Girnar into a shallow curve and medial *ī* is expressed by a curve bisected by a vertical stroke.

The sign for medial *e*, a straight or slanting line to the left of the consonant, I take to be the remnant of a triangular initial *E*, the outlines of which have been indicated by dots in the *ke*, figured under No 16, Col. VI, 1, upper row. I may add that in the Edicts forms like  are occasionally used for *ge*, where the vowel sign seems to consist not of a line, but of a hook put on the top of the letter. Such forms are perhaps ancient survivals, dating from a time when the vowel was represented by an angle, to which the triangle probably was reduced in the first instance. The position of the *e*-stroke is abnormal, as it stands to the left of, or before, the letter, after which it is pronounced. The cause is no doubt, that, if it had been placed to the right, it would have been undistinguishable from medial long *ā*.

In accordance with the form of the initial *Ai*, consisting of *e* and a horizontal bar to the left of the top, the medial *ai* is expressed by two bars to the left of the consonant, see the syllable *thai* from the Girnār version, given under No 16, Col. VI, 3, upper row.

The absence of a medial vowel between two consonants is expressed by the formation of a ligature, in which ordinarily the second consonant or its most essential portion is attached to the foot of the first. In the Girnār and Siddāpur versions however, the ligatures *sṭa*, *tpa*, *vya*[1] as well as those containing a *ra*, like *tra*, *pra* and *vra* show the inverse order and are spelt *ṭsa*, *pta*, *yva*, *rta* and so forth, while all the others like *sta*, *mha* etc. are formed regularly. Moreover in the words *brāhmaṇa* (Girnār) and *drahyitavyaṃ* (Siddāpur, I, l. 9) the first vertical of *ba* and the two vertical strokes of *da* have been converted into wavy *ra*-lines. These irregularities are no

[1] At least in *vyaṁjanato*, Ed. III, l. 6. The cases of the passive future participles in *tayva* are doubtful, as they may have been pronounced as they are written, compare Pali *mayham* and so forth. The Siddāpur version has *tavya* in *drahyitavyaṃ*.

doubt due to an artistic feeling and the desire of the clerks to produce regular, shapely signs. The formation of the consonants with medial vowels furnish analogies. Properly all the vowels ought to stand to the right of the foot of the consonants. If the majority is nevertheless placed at the top, that has been done merely for the sake of convenience. Later inscriptions also furnish a few isolated cases of an inversion of the order of the elements of ligatures. Thus the name of Caṣṭana's father is spelt on the coins *Ysamotika* instead of *Syamotika*.

The cause of the formation of ligatures in order to express the absence of vowels must again be sought for in the influence of the Sanskrit phoneticists on the development of the Brāhma alphabet. The Prātiśākhyas and the later works on phonetics and grammar all use the expression *saṁyuktākṣara* "a conjunct syllable" for groups like *kta*, *kra* and so forth. The combination of the signs in writing looks very much like a practical illustration of the meaning of the term.

The manner in which the absence of a vowel after a final consonant was probably expressed, has been stated in the remarks on the Anusvāra, above p. 71 f.

The Bhaṭṭiprolu system of vowel-notation differs from the ordinary one merely by marking the short *a* by the bar, which denotes *ā* in the Edicts, and the long *ā* by the same bar *plus* a vertical or slanting stroke, hanging down from it, *e. g.*  *na* and  *nā*. This system, according to which the consonants have no inherent *a*, seems to have been invented in order to avoid the necessity of forming the ligatures, which make the ordinary Brāhma alphabet cumbersome and difficult to read in its later developments, and in order to express final consonants more conveniently. I believe it, therefore, to be of later origin, especially as the other Bhaṭṭiprolu vowel-signs do not differ from the ordinary ones. The invention must, of course, have been made for writing Sanskrit, as the Prakrits have few groups of dissimilar medial consonants and no final ones.

To sum up—the forthy six letters[1] of the ordinary Brāhma alphabet, as well as the variants of the Bhaṭṭiprolu inscrip-

[1] Though my Table contains only forty four letters, the existence of the missing *au* and *(a)ḥ* in Aśoka's times is vouched for by Sir A. Cunning-

tions, contain representatives of, and derivatives from, all the twenty two Semitic characters, viz:—

Semitic letters	Brāhma letters	Derivatives
Aleph	*a* (initial)	*ā* (initial and medial)
Beth	*ba*	*bha*
Gimel	*ga*	*gh* (Bhaṭṭiprolu)
Daleth	*dha*	*da*, *ḍa* { *ḍha* / *ḷa*
He	*ha*	
Waw	*va*	*u* { *ū* / *o* } (initial and medial)
Zain	*ja*	*jha*
Cheth	*gha*	
Theth	*tha*	*ṭha*, *ṭa*
Yod	*ya*	
Kaph	*ka*	
Lamed	*la*	*ḷ* (Bhaṭṭiprolu)
Mem	*ma*	*ṃ* (Anusvāra)
Nun	*na*	*ña* { *ṅa* / *ṇa*
Samech	*ṣ* (Bhaṭṭiprolu)	{ *sa* / *ṣa*
Ain	*e* (initial)	{ *e* (medial) *ai* (init. & med.) / *i*, *ī* (initial & medial)
Phe	*pa*	*pha*
Tsade	*ca*	*cha*
Qoph	*kha*	
Resh	*ra*	
Shin	*śa*	
Taw	*ta*	

With the exception of the signs for the sibilants *śa* and *ṣa-sa*, which in consequence of modifications, introduced, it

ham's statements regarding the letters on the pillars at Mahābodhi Gayā, see above p. 30. With respect to *au*, it may be noted, that the forms of the signs in the Gupta and Pallava inscriptions, as well as those in the Bower MS., leave no doubt that it was derived from *o* by the addition of a bar to the left of the vertical. Regarding the origin of the Visarga I am not able to suggest anything.

would seem, independently by the Hindus,[1] resemble later Aramaic characters, the Brāhma letters closely agree with or are most easily derivable from the old types of the North-Semitic alphabet. And the Brāhma initial vowels *A* and *E* as well as the consonants *kha, ga, gha, tha, dha, ba* and *va* point to particularly archaic prototypes, while *ha* and *ta* appear to be connected with somewhat modified forms. It would, therefore, seem that the Semitic alphabet became known to the Hindus at a period when the angle of its *Aleph* opened wide and the vertical crossbar protruded about equally on the two sides, when the top of *Beth* was still closed, when *ga* consisted of an angle open below, when *Daleth* had not yet developed a tail, when *Waw* consisted of a semicircular head with a vertical depending from the middle, when *Cheth* had three bars, when *Theth* and *Ain* were quite or nearly circular and *Qoph* had a round head with a vertical hanging down from it, but when the simplified *He* consisting only of three strokes had been developed and the left half of the original crossbar of *Taw* had nearly or quite disappeared.

According to the dates of the Semitic inscriptions, which can come into question, those of Mesa's stone and the Assyrian weights, this period must fall somewhere between *circiter* 890 and 750 B. C., probably more towards the lower than the remoter of the two limits. Hence the *terminus a quo* for the introduction of the prototypes of the Brāhma letters lies between the beginning of the ninth century and the middle of the eighth, or about 800 B. C. And it seems to me that some further considerations make it probable that their actual importation took place at this early time.

As the Brāhma *ha* goes back to a form of *He,* which is not found in any Phoenician alphabet, but occurs on the Assyrian weights, where also a *Taw* very similar to the Brāhma *ta* is found, the conjecture seems not altogether improbable that the Semitic alphabet may have come to India through Mesopotamia. And it would agree with such an assumption that passages in ancient Indian works prove the early existence of a navigation of the Indian Ocean and the somewhat

[1] See the remarks made above p. 64 under No 15 and p. 68 under No 21.

later occurrence of trading voyages, undertaken by Hindu merchants to the shores of the Persian Gulf and its rivers.

The now well known Bāveru Jātaka,[1] to which Professor Minayeff first drew attention, narrates that Hindu merchants exported peacocks to Bāveru. The identification of Bāveru with Babiru or Babylon is not doubtful, and according to what has been said, above p. 15 ff., regarding the age of the materials of the Jātakas, the story indicates that the Vāṇiās of Western India undertook trading voyages to the shores of the Persian Gulf and of its rivers in the fifth, perhaps even in the sixth century B. C., just as in our days. This trade very probably existed already in much earlier times. For the Jātakas contain several other stories, describing voyages to distant lands and perilous adventures by sea, in which the names of the very ancient Western ports of Śūrpāraka-Supārā and Bharukacha-Broach are occasionally mentioned. References to sea-voyages are also found in two of the most ancient Dharmasūtras. Baudhāyana,[2] Dh. S. II, 2, 2, forbids them to the orthodox Brahmans and prescribes a severe penance for a transgression of the prohibition. But he admits, Dh. S. I, 2, 4, that such transgressions were common among the "Northerners", or strictly speaking the Aryans, living north of the author's home, the Dravidian districts. The other forbidden practices, mentioned in the same Sūtra as customary among the Northerners, such as the traffic in wool and in animals with two rows of teeth, (horses, mules, etc.), leave no doubt that the inhabitants of Western and Northwestern India are meant. It follows as a matter of course that their trade was carried on with Western Asia. The same author, Dh. Ś. I. 18. 14 and Gautama, X. 33 fix also the duties, payable by shipowners to the king. Even from still earlier times there is the story of a shipwreck, the scene of which must have been the Indian

[1] No 339, see Fausböll, Jātakas, Vol. III, p. 126 ff. It has been translated by Professor Rhys Davids in the Babylonian and Oriental Record, Vol. III, p. 7 ff.

[2] Sacred Books of the East, Vol. XIV, pp. 146, 200, 217. Later Smṛtis *e. g.* Manu VIII, 157, give rules regarding marine insurance and other matters referring to sea-borne trade. Moreover, Manu III, 156 declares a Brahman, who has gone to sea, to be unworthy of entertainment at a Śrāddha.

Ocean. Numerous hymns of the Ṛgveda mention the mighty deed of the twin brethren, the Aśvins, who saved Bhujyu, the son of Tugra, from the sea, "where, as one account says,[1] there is no support, no rest for the foot or the hand, after he had ascended the hundred-oared galley," of the two deities.

The later Vedic literature contains also a few evidently Semitic legends, among which that of the Deluge and Manu's preservation in a ship, built by the advice of a miraculous fish, is the most noteworthy,[2] and it is possible, that they may have been brought over from Mesopotamia by the early Indian navigators and traders. But this is of course a mere possibility, and other explanations of their occurrence in the Brahmanical literature may be and have been, suggested. The passages, adduced above, are however sufficient to prove that the Indo-Aryans began to navigate the Indian Ocean in very remote times, and it is, therefore, quite imaginable that they themselves imported the Semitic letters from Mesopotamia.

Between this importation and the complete elaboration of the Brāhma alphabet there lay, however, in all probability a prolonged period. This, I think, appears from the following considerations. One of the undeniable results of the preceeding enquiry is that the Brāhma alphabet must be considered the work of Brahmans, acquainted with phonetic and grammatical theories. The Pandit's hand is clearly visible in the arrangement of the letters, used by Aśoka's masons at Mahābodhi Gayā, according to their organic value as vowels, diphthongs, nasalised vowel, vowel with the spirant, gutturals, palatals and linguals.[3] And it is also visible at a much earlier stage, in the very formation of the alphabet. Nobody but a

[1] Ṛ. V. I, 116. 5, see also the larger St. Petersburg Dictionary *sub voce* Bhujyu, and Prof. Oldenberg, Vedische Religion, p. 214. I quite agree with Professor Oldenberg regarding the interpretation of the myth, but I would not venture to infer from the deeds of the Aśvins and of their Greek representatives, the Dioskouroi, that the Indo-European race originally dwelt near the sea.

[2] I am glad to see that Professor Oldenberg, Vedische Religion, p. 276, also declares this myth to be borrowed from a Semitic source, in spite of Prof. M. Müller's and Prof. Lindner's attempts to make it an Indo-Aryan invention.

[3] See above p. 30.

grammarian or phoneticist would have thought of deriving five nasals, one for each class of the Indian consonants, from the two Semitic prototypes and of inventing in addition a sign to denote the nasalisation of vowels, the Anusvāra, or of forming two spirants, *ha* and the Visarga. Nobody but a Sanskrit grammarian would express the initial *U* by half the sign for *va*,[1] and the phonetically very different, but etymologically allied *ṣa* and *sa* by modifications of one sign, or derive the initial *O* from *U*, *I* from *E*[2] and *ḷa* from *ḍa*.[3] And only a grammarian would invent the peculiar system of notation for medial vowels, which omits the short *a*, and express long *ā* by adding to the consonants the mark, used for differentiating $\bar{A}$ from *A*, and the remaining medial vowels by combinations of the initial vowel-signs, or of modifications thereof, with the consonants. This is so complicated and so highly artificial that only a Brahman's or Pandit's ingenuity can have worked it out.

There are also very good reasons for alleging that an Indian alphabet, elaborated by traders or other men of business, clerks and accountants, would never have possessed a single medial vowel. For until a very recent period, within the last fifty years, the Indian traders never used any medial vowels in their books or in their correspondence. Almost every child in Gujarāt knows the story of the letter,[4] sent by a Vāṇio to his relatives, which caused great grief and lamentation owing to the want of the vowel signs. The letter, it is said, contained the following passage: **कक अजमर् गय अन कक कट छ ॥** On seeing it, the recipients at once began to lament loudly. They interpreted it to mean:—**काको आज मरी गयो अने काकी कूटे छे** "Uncle died today and aunt beats her breast." A sympathising neighbour inquired for the cause of the wailing. On being shown the letter, he remarked that the outside did not bear the usual superscription of announcements of deaths, viz. "Strip and

[1] See above p. 71.

[2] See above p. 72 f.

[3] See above p. 74.

[4] The story is a regular Indian "Joe Miller", and is commonly told by the masters to the schoolboys. Dr. G. A. Grierson informs me that a similar story is current in the Bengal Precidency.

read",[1] and he suggested that the missive might be read:— काको अजमीर गयो अने काकी कोट छे "Uncle has gone to Ajmīr and aunt is at Koṭ." On further enquiry this proved to be correct.

The progress of vernacular education and the action of the English lawcourts and of the native princes has of late changed these habits of the mercantile classes. As the lawcourts refuse to take ledgers written without vowel-signs as legal evidence, as the native princes follow suit,[2] and as the schools now teach composition, the Vāṇiās and accountants write at present more frequently in the same manner as the Brahmans do and have done always and almost without exception.[3]

With such propensities prevailing among the business people of modern times, it is difficult to believe that those belonging to a very remote antiquity would have acted differently and would have framed for their writing a vowel-system which their descendants discarded. Nevertheless—though the Brahman schoolmen undoubtedly have framed the Brāhma alphabet,—the introduction of its elements, the Semitic signs, into India is presumably due to the merchant class. For the Vāṇiās naturally came most into contact with foreign nations. Moreover, they were the men who most urgently wanted a means for perpetuating the record of their daily transactions, while the Brahmans possessed since very early times the system of oral instruction for preserving their literary composi-

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[1] A Hindu becomes impure on hearing of the death of a relative and is obliged to throw away the clothes, which he wears when the news of such an event comes. In order to obviate unnecessary loss, the announcements of deaths bear on the outside the words, given above.

[2] In 1875 Mahārāja Raṇbīrsingh of Kaśmīr told me that he had weaned his clerks from the bad habit of writing their Takkarī or Dogrā characters without vowels by refusing to pass accounts written in this manner.

[3] I have seen one Gujarātī inscription without vowels, which *may* be due to a Brahman. It is incised on the right hand gate post of the temple of Dharaṇīdhar at Dehemā in Northwestern Gujarat and omitting the date, runs thus: तरख न फज अव न वव न रव हर ॥ Its meaning was interpreted to me, as follows: तुरखनी फोज आवी ने वावनो राओ हार्यो "The Musalman army came and the Rāo of Vāv was defeated."

tions and for teaching them to their pupils, to which they have always adhered. Traces of the existence of this system are found, as Professor Max Müller has already pointed out, even in the Ṛgveda, in the famous Frog-hymn, Ṛ. V., VII, 103, 5, where it is said of the bull-frogs, that the one imitates the cry of the other, "just as a pupil repeats the words of his teacher". Its full development, which is found in the later Vedic works, both the Brāhmaṇas and the Vedāṅgas and has been described repeatedly,[1] must certainly be as early as the period when the Semitic letters can have been imported, or even more ancient. With this system the Brahmans cannot have felt the necessity for writing so strongly as the men of business, and it is also for this reason improbable that they should have been the first Hindus who practised writing. Nay, it may be even doubted whether they cared to undertake the adaptation of the foreign invention very soon after it had become known to the mercantile class.

Further, when they undertook it, the evolution of the 46 signs of the Brāhmī lipi from the 22 Semitic characters cannot have been accomplished very quickly. The evidence of the Bhaṭṭiprolu alphabet shows that in the case of several letters more attempts than one were made, and the alphabet of the Edicts, the ordinary Brāhmī lipi, likewise bears witness that the signs were invented gradually. As has been pointed out above, the dental *dha* yielded, by a slight transposition of one of its lines, the dental *da*, from this the lingual *ḍa* was derived by the omission of the lower vertical stroke, and from the lingual *ḍa* came, by the addition of a curve, the lingual *ḍha*, as well as, by the addition of the semicircle, the lingual *ḷa*. The series of the derivatives from *va*, from the dental *tha*, the dental *na*, the Bhaṭṭiprolu *ṣ* and from the initial *E* are similarly complicated. It is incredible that in these cases the whole series of derivatives should have been invented at one time or even in quick succession, though no doubt the Brahmans had their system of phonetics, based on spoken works, to guide them and to help them on.

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[1] M. Müller, History of Ancient Sanskrit Literature, p. 503 ff., compare also A. Weber, Indische Studien, X, p. 128 ff.

It would thus seem that a not inconsiderable interval must lie between the first importation of the Semitic letters and the complete elaboration of the Brāhma alphabet. First the imported characters remained in the hands of the traders and the men of business, during which period, as perhaps may be inferred from the treatment of the Arabic letters during the Mahommedan period, none or very slight modifications were introduced. Next came the transference of the foreign invention to the Brahmans and finally its adaptation to the wants of the Sanskrit language.

These considerations certainly show that the introduction of the Semitic letters must fall centuries before the period when the Brāhma alphabet was in general use, *i. e.* 500 B. C. or thereabouts. And they thus confirm the approximate date, deduced above from the age of the Semitic signs, which appear to have been the prototypes of the Indian modifications.

Finally, the fact that the Brāhma alphabet is the work of the Brahmans has also, it seems to me, a certain bearing on the vexed question whether in ancient times writing was used for literary purposes. I believe that it enables us to answer this question in the affirmative, of course with certain reservations. For the Brahmans, though often considered mere dreamers, are in reality very practical people, who, as far as my observation goes, do not take trouble with anything that does not serve their purposes. As they adapted the Semitic letters to the wants of their sacred language in a very thorough manner, I consider it certain that they also utilised their invention at once for their special aims, the cultivation of learning, and that they committed at least their scientific compositions to writing. It is not necessary, nor even probable, that in early times the MSS. were used otherwise than *esoterically*, as auxiliaries for composition and for the preservation of the texts, much in the manner suggested by Geheimrath von Böhtlingk, Professor Whitney and Dr. Burnell.[1]

Their Mantras and other sacred compositions may have remained unwritten somewhat longer. That is no more than might be expected, as the Brahmans had a great interest in

[1] See South-Indian Palaeography, p. 10.

keeping their "great medicine" secret. And there are also several indications to this effect, such as the imprecations against copyists of the Veda and the general feeling, even among the heterodox sectarians, that sacred books ought to be preserved only orally.

The Bauddhas and Jainas give expression to this feeling by asserting that their sacred books were written only many centuries after their composition. But it may be doubted, whether their dates are always quite correct. The occurrence of a *peṭaki* (literally "a Piṭaka-possessor") a monk who knows one or more Piṭakas (see above p. 17), certainly proves that the Buddhist scriptures were written, when the Bharahut Stūpa was built. *Piṭaka* is only 'a box' and corresponds to the modern *ḍābaḍo* of cardboard or wood in which the Jainas usually keep the MSS. of their parish libraries. As soon as the Buddhists divided their scriptures into Piṭakas, they must of course have been written. If, as I believe, the inscription of the *peṭaki*, which shows the same characters as the Edicts, belongs approximately to the same time as the latter, the traditional date of the Buddhists, who say that their Canon was first committed to writing about 80 B. C., must be considerably wrong. The oldest MSS., actually found, are probably the birch bark leaves, inscribed with Kharoṣṭhī letters, from the topes of the Panjab.[1] Next comes the Bower MSS. with the characters of the oldest Gupta inscriptions, then follow the Horiuzi palmleaf, the Bakhshali MS., the Cambridge Collection from Nepal and the Bombay Collections of Jaina MSS. Older documents than are accessible at present, both on birchbark or palmleaves and on stone or metal, will no doubt be found, as soon as the old historical sites of India are excavated in a thorough and rational manner.

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[1] One small fragment with the letters *mi, dha* and *ya* (?) is figured in H. H. Wilson's Ariana Antiqua, Plate III, No 11.

Additional Note.

While this Essay is going through the press, the fifth number of Journal Asiatique of 1894 has appeared, which contains M. Senart's reproductions of, and remarks on, Col. Deane's new inscriptions from the northwestern corner of the Panjab. In the course of his discussion of these important, but hitherto unintelligible documents M. Senart offers (p. 346 ff. note) the suggestion that the Bhaṭṭiprolu alphabet may be connected with that of the new inscriptions and that the caskets may have been manufactured in the North and later transported to Southern India. He finds that Col. Deane's inscriptions offer in addition to signs, seemingly identical with letters of the Brāhmī lipi of the Edicts, a sign similar to the *m* of the caskets and another, resembling the Bhaṭṭiprolu letter which I read *ṣ* (Table No 15, Col. V). Further, he proposes to restore in Bh. VI the words, preceding *rājā Khubirako* and rendered in my transcript by *ṣa-i[ṣa] puto* either to *sahisa puto* or *sapisa puto*, and he decides in favour of the second restoration, because the first gives no sense. *Sahi*, he thinks, might be the same as the Kuṣana *ṣāhi* and show that *Khubirako* was of foreign descent. Moreover, *Khubirako*, spelt in No IX *Kubirako*, which I have explained by the Sanskrit *Kubera*, seems to him of foreign origin on account of the vacillation in the spelling, and he suggests a possible connexion with a Turkish name like *Khubilai*.

M. Senart puts forward his conjectures with all due reserve and expressly says that he wishes them to be taken for nothing more than suggestions of possibilities. Nevertheless, I believe it to be advisable, both on account of the importance of the points discussed for my views and on account of the great respect, in which M. Senart's utterances are most deservedly held by all Indian epigraphists, that I should state at once the reasons which prevent my admitting even the possibility of the new theory, and which induce me to believe that the Bhaṭṭiprolu alphabet is indeed a Southern script.

First, it seems to me extremely hazardous to attach any importance to the resemblance of signs of unknown value to

those of known alphabets, if the number of the similar signs is small and the comparison does not lead to any definite result for the interpretation of the documents in which the unknown signs occur. If such a method were admissible, one might with even greater plausibility declare the new finds to be intimately connected with the Turkish inscriptions of Siberia. The Orkhon and Jenissei alphabets, given by Professor Thomsen (Les Inscriptions d'Orkhon déchiffrées, I, p. 9) contain both the signs, referred to by M. Senart, (the one denoting b^2 and the other *z)* as well as upwards of a dozen others, found in Col. Deane's new inscriptions.

Secondly, I believe it to be not necessary, as M. Senart does, to restore the name of king *Khubiraka's* father as *Sahisa* or, according to my system of transcription, *Ṣahiṣa*. The remnant of the second letter consists of a straight stroke, about half an inch long, with an *i*-hook at the top and this stands according to the impression above a large and deep abrasion, which extends to the next letter on the right. The mutilated sign may, therefore, have been, as M. Senart suggests, a *h* or a *p*, or also a *t* or a *r*. The restoration *Ṣa[pi]ṣa*, which according to M. Senart yields no known name, seems to me by no means impossible, as the Aitareya Brāhmaṇa offers the N. Pr. *Sarpi*. Further, the reading *Ṣa[t]iṣa* would lead us to the name *Ṣati*, the equivalent of *Śakti*, which occurs in the earliest Andhra inscription. Even *Sari* would yield a possible form, as it might be the representative of Sanskrit *Śāri*, a well know male name. Hence there is no necessity for the restoration *Ṣahi*, which, it seems to me, could in no way be connected with the term *Ṣāhi* of the Kuṣana inscriptions. For *ṣāhi* is a title and the context of the Bhaṭṭiprolu inscription No VI, *Ṣa.iṣa puto rājā Khubhirako*, requires a proper name before *puto*.

Thirdly, I am unable to share M. Senart's misgivings about the royal name *Kubiraka* or *Khubiraka*, and I do not believe that the vacillation in the spelling need deter us from declaring it to be identical with the Sanskrit *Kubera*. In Pali aspirates occur frequently for unaspirated letters even in well known names of divine beings, as in *Erāpatha* for *Erāvata (Airāvata)* and in *Khandha* for *Shanda*. And the change is

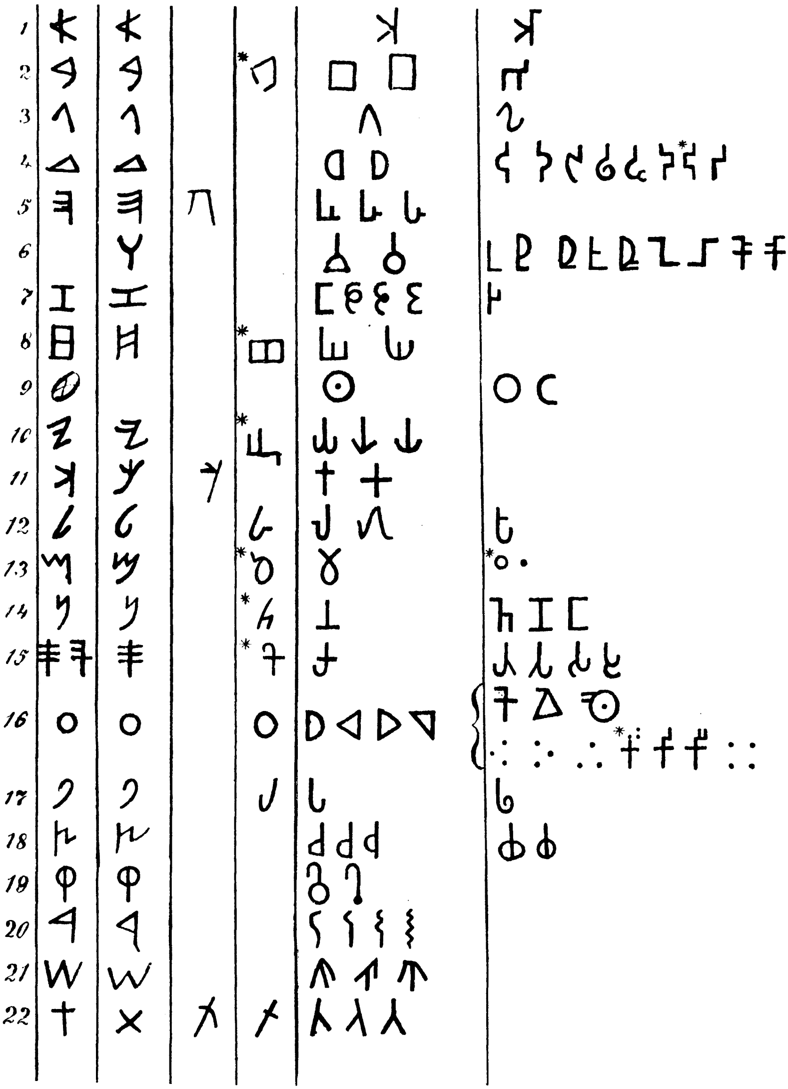
particularly natural in a Prakrit inscription from Southern India, where the Dravidian Vernaculars possess no aspirates and the Aryan immigrants have lost, probably in early times, the feeling for the difference between aspirated and unaspirated letters. The Sanskrit inscriptions of the Pallavas and other Southern dynasties offer also *Āpastambha* for *Āpastamba*. Those who have used MSS. in Dravidian characters, will also be aware that such documents are by no means regular in the use of the two classes of letters. Nor are analogies wanting for the substitution of *i* and *ī* for *e* before single consonants, the Pali offers *pavīṇati* for *paveṇati* and *pahiṇaya* for *paheṇaya* (see E. Müller, Simplified Pali Grammar, p. 12). Thus I think, we can get on very well without the help of the Turkish *Khubilai Khān*, and we may perhaps see in the variant *Khubiraka* for *Kubiraka* an indication that the inscriptions are really of Southern origin.

But my chief argument for the latter assertion is that their letters show a number of forms, only found in the early inscriptions from Southern and Western India, viz the angular *A* and *Ā* (see above p. 35), the *kh* consisting of a vertical with a curve at the top (see above p. 36), the *dh* facing the right (see above p. 37), the *m* with an angle attached to the circle (see above p. 36) and the *s* with the straight side-limb (see above p. 36).

In conclusion I must call attention to a very ingenious and convincing restoration, offered by M. Senart for Bhaṭṭiprolu IX, where he proposes to read *tena ṣamayena (samayena) yena Kubirako rājā aṃṣi* or *aṣi (aṃsi-asi)* instead of *tena kama yena k. r. aṃki*, and to take the last word as an equivalent of Pali *āsi*, Sanskrit *āsīt*. The sense, which M. Senart's reading gives, is much better than that of my transcription, and *ṣamayena* and *aṣi* may be what the mason really incised. For the impression shows a large and deep abrasion at the foot of the first sign, which may have been *ṣa* or *ka*, the apparent dot after *a* is irregular in shape and may be due to an accidental flaw in the stone, and there are some deep scratches at the foot of the last sign, which again make the reading *ṣi* quite possible.

Comparative Table of Alphabets.

I	II	III	IV	V	VI
Archaic Phoenician	Mesa's Inscription	Assyrian Weights	Intermediate forms	Aśoka, Bhaṭṭiprolu and cognate Inscriptions — Original letters	Aśoka, Bhaṭṭiprolu and cognate Inscriptions — Derivatives



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