



Dates of Early Historical Records of Bengal

It is a well-known fact that epigraphic records are rarely to be discovered in Bengal and Magadha and the few that have been discovered, being mostly undated or dated in regnal years of kings do not, for want of sufficient data, yield definite dates. In such an extreme dearth of chronological landmarks in the history of Bengal, the European savants of the last century, whenever they came across the slightest chronological clues anywhere, sought to verify them with commendable zeal. Cunningham thus calculated the date of -Dharmapāla's accession to the throne to be 831 A.D. (Arch. Surv. Rep., vol. xv, pp. 150f.) Dr. Venis referred the Kamauli plate of Vaidyadeva to 1142 A.D. (Ep. Ind., vol. II, p. 349) and Dr. Kielhorn found out 1086 A.D. to be the the date of the Amgachi plate of Vigrahapāla (Ind. Ant., xxii, p. 108). Since the advent of Indian scholars in the field of archæology in Bengal, when chronological reconstruction in light of new materials rendered those dates untenable, this particular aspect of the question remained totally neglected. So much so that when the present writer attempted to offer a tentative chronology of Pala kings based upon the working out of all the available epigraphic and literary data, it was held to be "quite an esteemed scholar, who however had his own useless" by reasons for saying so; while Mr. R. D. Banerjee summarily rejected it as ridiculous. A cogent apology is, therefore, due to the scholars, who are yet reluctant to recognise the value of astronomical calculations for the purposes of accurate chronology. And fortunately for us quite a number of calendrical records have been preserved in a work by an author who flourished in the very heart of Bengal late in the 11th century A.D. These will prove even to the most fastidious among historians that the astronomical results arrived at with the help of modern tables are based upon sound principles and should therefore demand better consideration from them. Jīmūtavāhana, the celebrated author of the Dāyabhāga also wrote the Kalaviveka, in which a detailed examination of the Purnimanta and Amanta schemes of the lunar calendar is carried out with the help of a number of figures drawn from actual almanacs for the years 1013 and 1014 saka (1091-93 A.D.). A comparison of

these figures with those arrived at by calculation with up-to-date apparatus is set forth below.

In the year 1013 saka:

(1) On the 17th day of solar $K\bar{a}rtika$, badi 15 coincided with the Citrā and Svātī naksatras without touching the Visākhā (Kālaviveka, p. 64). According to our calculation, on the 17th Kārtika (=Oct. 14, 1091 A.D.) badi 15 began at 23-53 palas after sunrise, ended at 17-57 palas after sunrise the next day, while Svātī began at 30-8 palas after sunrise and ended at 26-0 palas after sunrise the next day.

(2) In solar Agrahāyaṇa, *badi* 15 coincided with Anurādhā and Jyeṣṭhā. On the day in question (Nov. 13 = 16th Agrahāyaṇa) *badi* 15 ended at 43-23 *palas* (after mean sunrise) and Anurādhā ended at 38-14 *palas* the same day.

(3) In solar Caitra, the first quarter of Uttara phalguni ended at 15 dandas before the ending moment of sudi 15 (Ibid., p. 46).

Sudi 15 ended at 50.56 p. on the day in question: Uttara-phalguni began at 20-33 p. ending at 18-26 palas the next day: the first quarter of it thus ended at 35-2 palas i.e. 15-54 palas before the ending moment of the *tithi* (difference of 54 palas only).

In the year 1014 saka :

(4) In solar Vaisākha, the latter half of Citrā began at 13 dandas before the ending moment of sudi 15 (Ibid., p. 46).

On the day in question (March, 1092 A.D.) sudi 15 ended at 15-20 palas, Citrá ended at 32-20 palas (beginning at 35-43 palas the previous day): the incident occurred, therefore, 11-19 palas before the ending moment of sudi 15 (difference of 1-41 palas only).

(5) On the V₁sa-samkrānti day, sudi 15 began in Svātī and the last quarter of Visakhā began 8 dandas before the ending moment of the *tithi* (Ibid., pp. 43, 46).

The Vrsa-samkrānti occurred at 28-50 palas on the day; sudi 15 ended at 35-17 palas the next day and Viśākhā ended at 44-47 p. the next day (beginning at 50-40 palas on the samkrānti day); the last quarter of Viśākhā began, therefore, at 4-2 palas before the ending moment of the *tithi* (difference of 3-58 palas only).

(6) In solar Bhādra, badi 14 for 2 or 3 dandas, then badi 15 and on the same day Aślesā for 7 dandas then Maghā (Ibid., p. 21). On the day (Aug. 5, 1092 A.D.) badi 15 began at 1-4 p. ending the next morning. Aślesā ended at 16-42 p. on the same day (in the latter case, the difference is 9-42 palas). (7) In solar Pauşa, Ārdrā ended at 13 daņdas before sudi 15 (Ibid., p.42). On the day sudi 15 ended at 47-14 palas while Ārdrā ended at 35-10 palas i.e. 12-4 palas before sudi 15 (difference of 56 palas only).

(8) In solar Māgha, *sudi* 15 joins half with Puşyā and half with Aślesā roughly (Ibid., p. 42).

On the day sudi 15 ended at 34-44 palas, beginning at 30-58 palas the previous day, while the Puşyā ended at 4-47 palas the same day.

(9) In solar Phälguna, Maghā ended at 15 dandas after the beginning of sudi 15 (Ibid., p. 43).

On the day sudi 15 began at 12-51 palas and the Maghā ended at 31-22 palas i.e. 18-31 p. after the beginning of the *tithi* (difference of 3-31 palas only).

(10) In the end of solar Jyaistha sudi 15 began 1 or 2 dandas before Anurādhā ended (Ibid., p. 43).

On the day sudi 15 began at 4-10 palas and the Anurādhā ended at 3-54 palas i.e. just missing the *tithi* for 16 p. only.

(11) The most interesting statement is given, however, on page 119 of the work where JImūtavāhana cites the record of Andhūka Bhatta that in 955 Šaka (1033 A.D.) the *Tulā-samkrānti* (occurring, we find, at 12-5 palas) took place in badi 15 (ending at 20-24 palas, as we find, the same day); the Dhanuh-samkrānti also in badi 15 (ending at 51-25 palas while the samkrānti was at 35-51 palas); but the Vršcika-samkrānti by the Sun's aticāra (whatever that may mean) in sudi I. As a matter of fact, the samkrānti was at 6-26 p. while the sudi I began at 6-39 p. i.e. just 13 palas (5 minutes) after. It appears that Andhūka Bhatta and the early astronomers with no means of ascertaining absolutely accurate results had, in the event of such negligible intervals, recourse to a very curious practice of pushing on the samkrānti to the next tithi by a supposed aticāra in the Sun's motion.

It should be noticed that Jīmūtavāhana's figures are only roughly approximate given in whole numbers of *dandas* and, as he himself admits, are subject to correction by I or 2 *dandas* either way (vide p. 42). Considering that our calculations, given in exact *palas*, are about, a hundred times more accurate, the above differences are quite negligible. Only in one case the difference comes up to as much as 10 *dandas* and our conviction is that the reading of the text is at fault there; it should be amended as *sapta-daśa-dandān* in place of *sapta-dandān* (Ibid, p. 21). It is hardly necessary to state that all

these figures are verified according to *true* calculations only. Jimūtavāhana in conclusion gives his emphatic verdict in favour of what we had already stated on the strength of epigraphic evidence (Ind. Ant., 1920, p. 190) viz. the *Amānta* scheme must prevail over the the *Purņimīnta*, the latter being current among the merchants alone (*Kāla.*, p. 54). His ruling in this respect, as in the Hindu Law of Succession, has been uniformly respected in Bengal proper. JImūta's appeal to his sceptic readers can be repeated here with equal force and freshness, though after a lapse of eight centuries:

"Scholars should respect these findings after acquainting themselves with (the correctness of) these time-calculations from mathematicians" ($K\bar{a}laviveka$, p. 54).

The most important literary data bearing on the chronology of the Sena kings are found in a few passages in the $Adbhutas\bar{a}gara$ already cited by us elsewhere. The work is an encyclopædia of omens and prodigies and consequently in its semi-astronomical character takes 1090 Saka, the date of its beginning, as its working year. Thus, its method for finding out a year under the *Vedānga* Jyotişa calendar is as follows:

"The remainder of a particular Saka year less 1090, divided by 5, would correspond to Sam, Pari, Idā, Anu, and Idu years respectively in the numerical order." (*Adbhuta.*, p. 236).

So that 1091 Saka was a Samvatsara, a fact actually found in a ms. of the Dānasāgara. The statement is an important one, as forming perhaps the only authentic reference in mediæval times to a long-lost and ancient system. According to Garga's scheme of the calendar a coincidence of Magha sudi 1 with the Sun in the beginning of Dhanistha and the moon also in Dhanistha (the winter solstice having shifted long ago) is indispensable to start the fiveyears' cycle of the Vedānga Jyotisa. This is actually the case in the year 1091 Saka (1170 A.D.), when on January 19, there was Māgha sudi 1, badi 15 having anded the previous night at 57-47 palas: Dhanisthā began at p. 47-54 the previous night and ended at 53-50 palas the same day: the Sun with a longitude of 295° was also in the beginning of Dhanistha. It is apparent that in the year 1170 A.D., a necessary adjustment by the dropping of an adhika māsa, as explained by the late Mr. Pillai (Ind. Chronology, p. 450) took place in the calendar. This cycle is, however, found to be in variance with the

Annuary given by the same scholar (Ibid., pp. 454f.) and it is our contention that strictly the Annuary is wrong and should be properly adjusted. For in Feb. 2, 1897 A.D., the Sun's longitude was $291^{\circ}8^{\circ}$, which is not exactly in Dhanisthā (293'3'). Quite in consonance with the *Adbhutasāgara*, we can start a cycle in Feb. 5, 1905 A.D. (after 735 years or 21 cycles of 35 years each: cf. Ib., p. 456) when there was Māgha *sudi* I (which began at 24 *daṇdas* the previous day) and Dhanisthā (began at 27-40 p. the previous day): the Sun with a longitude of 293'8° just reached Dhanisthā. So that a strictly correct Annuary can be constructed for a cycle of 35 years, the next adjustment taking place in Feb. 9, 1940 A.D. (not in 1935 A.D.).

The figure 1090 is similarly incorporated in the formula for determining a year under the Jovian cycle of 60 years (Adbhuta, p. 125) and that for calculating the Varsādhipa (Ib., p. 235). Under the Saptarsi cycle, the year selected is however 1082 Saka, instead of the usual 1090, which could easily have been selected. There must have been some reasons for this deviation here and it is our surmise that the year 1082, falling in the beginning of his reign, probably marked the coronation ceremony of Ballala, his regnal year actually beginning a little earlier (1158 A.D.). In the year 1082 Śaka (-1160 A.D.) the Saptarsis completed 61 years' stay in Viśākhā (Ib., p. 203). Here we find a clue to the right explanation of a convention that has appeared ridiculous to all European scholars (cf. G. R. Kaye: Hindu Astronomy, p. 16)-the Saptarsis are supposed apparently by an asrtronomical fiction to spend 100 years in each Naksatra (Br. Samhita, XIII, 4). This convention, as the late Dewan Bahadur Pillai alone has stated (loc. cit., p. 483) is merely equivalent to a reckoning by centuries. The Adbhuta. calculates by taking the fictitious °longitude of the Saptarsis at the beginning of the Kali Yuga to be in Asvini (and not Krttika as in ancient reckoning) and thus in 1082 Saka (-4261 Kali Yuga Era) they have completed one revolution (in 2700 years) and after occupying 15 naksatras in 15 centuries, they are now 61 years in the 16th naksatra Viśākhā. The statement is, therefore, nothing but a mention of the Kali Yuga Era in the language of an astronomical fiction.

The above date of the Adbhutasāgara, thus figuring correctly in the very technique of the work in several places, has been shown by us to be in accord with the historical and literary references of the period, counting about a dozen in all (Ind. Ant., 1922, pp. 145 ff.). But Mr. R. D. Banerjee, who professes too much of the scientific

nature of his historical researches, in the second edition of his History of Bengal (vol. I), would still stick to his old views, deliberately remaining blind to the numerous adverse references, and touching only the most shaky one¹ among them, though they are, he says, nothing new to him. Further he has made the statement that the present writer has cut a most ludicrous figure in proving, what as a matter of fact he has himself nowhere disputed, viz. Ballāla's authorship of the *Adbhutasīgara* and the *Dānasāgara* (vide History of Bengal, vol. I, p. 336).

The Mymensingh Copperplate inscription of Viśvarūpasena, son of Laksmana, only recently discovered and published by M. M. Haraprasāda Śāstrī (Ind. Hist. Quarterly, vol. II, p. 84) has fortunately preserved an important clue to its date, unnoticed by the editor. One of the grants (of Kumāra Purusottama) ratified by the plate was made on "chaturdaśī-vyāpiutthāna-dvādaśyām" (l. 24 reverse) i.e. in a year where the Utthāna-dvādaśī or the Kārtika sudi 12 fell on a tryahasparša day, joining with the 14th tithi, the 13th tithi being suppressed. This is by no means of frequent occurrence. As a matter of fact our calculations extending over a century and a half (1122-1272 A.D.) actually yield only two dates:

(1) In 1247 A.D. (Oct. 13) the *tithi* in question—Kārtika *sudi* 12 ended at 1-2 *palas* after mean sunrise and *sudi* 13 ended at 1-15 *palas* before the next sunrise.

(2) In 1271 A.D. (Oct. 17) similarly sudi 12 ended at 3-44 p-after sunrise and sudi 13 ended at 1-45 p. before the next sunrise.

There is nothing to choose between these two dates; though in 1271 A.D. the incident of a *tryahasparsa* is of greater certainty by reason of the longer margins either way. This date of Visvarūpa, is another death-blow to Mr. Banerjee's favourite theory—unless it is held that

I The Saduktikarnāmṛta written in 1206 A.D. by the son of a protegé of King Lakṣmaṇasena points to the latter half of 12th century A. D. as the *probable* date of that king. Mr. Banerjee ignores the word *probable*. According to him (loc. cit., p. 327) Lakṣmaṇa reigned for 30 years from 1119 A.D. and thus flourished in the first half of the century. If a man is found to be flourishing, say, in 1906 A.D., we should be seeking for his father's period of activity in the last half (1850-1900) of the last century, rather than its first half (1800-1850).

Viśvarūpa born, say, towards the end of his father's reign, lived for more than a century and reigned for more than three quarters of it. The earlier dates, where the 13th *tithi* (here necessarily of less than 60 *dandas*' duration), just escaped from being suppressed by a small margin are given below for the curious readers:

1176 A.D.-sudi 12 for 8-43 p, and sudi 13 for 5-20 p. next day.

			6-40 p.		5-20 p.	37
1177	3,	"		"	1000 C	,,
1200	,,	",	8-6 p,	33	3-8 р.	"
1209	,,	,,	6-7 p.	دو	c-35 p.	,,
1228	,,	,,	7-52 p.	, ,,	2-21 p.	",
1238	,,	39	6-33 p.	,,	3-8 p.	"
1253	,,	,,	8-47 p.	"	4-48 p.	رو
1262	,,	,,	5-56 p.	"	1-5 p.	,,

Of the few epigraphic records that have fortunately preserved sufficient data for verification, those connected with the chronology of the Pala kings are dealt with separately below. There are two more remaining, of which one the Nartesvara Image inscription of Layahacandra, dated Āşādha badi 14, Thursday and Puşyā of the 8th year (J.A.S.B., 1914, p. 88)-refers to a king of unknown age and connection and is thus incapable at present of yielding any definite date by a choice from among the many possible ones. The other is the delightful record of Nanvadeva cited by us elsewhere (Ind. Ant., 1022). In the whole domain of Bengal and Magadha antiquities there is not another record with such a date of marvellous accuracy. It states that Nanvadeva "made an erection in the simha-lagna (i.e. early morning) of a Saturday in (solar) Śrāvana, the tithi being sukla 7 and the Naksatra Svātī in the year 1019 Šaka." On July 18, 1097A.D. (1019 Šaka) which was a Saturday and the 23rd day of solar Srāvaņa, sudi 7 ended at 32-28 palas after sunrise and Naksatra Svātī ended at 51-54 palas after sunrise the same day. This accurate verification is a sufficient guarantee for the genuineness of the record, which may not be traced to any authoritative work.1

I Mr. Banerjee is quite unable to appreciate the scientific value of this record. On the contrary, he cries shame upon us for confessing our inability to trace the record to its original source. It is, nevertheless, quoted by a number of distinguished authors, including the late Dr. Vidyābhūşaņa (Indian Logic, p. 521)

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Mr. R.D. Banerjee has recorded a warning to those scholars engaged in historical researches, who feel aggrieved to abandon their former views (op. cit., vol. I, p. 329). But he himself would not give up his old favourite theories though exploded by later researches. The whole chronology of the Pāla dynasty, as constructed by him in the new edition of his work, stands upon two favourite theories of his—the date of Dharmapāla's accession to the throne between 790 and 795 A.D. on the one hand (loc. cit., p. 178), and on the other, the origin of the *Lakşmaņa Samvat* of 1119 A.D. as marking the beginning of Lakşmaņasena's reign. As he would still stick to them, palpable blunders like the following crept into his work.

(I) Dharmapāla, who came to the throne between 790 and 795 A.D., reigned for at least 32 years and according to Mr. Banerjee for about 35 years (p. 199). So the next reign of Devapāla should accordingly start somewhere between 825 and 830 A.D. In the first edition of his work, Devapāla is stated to have reigned precisely from 825 A.D., but in the 2nd edition, the date of Devapāla is made to begin, after a correction, from 820 A.D. (p. 215)!

(2) The total length of the reigns of the eight kings from Dharmapāla to Mahīpāla I counts to be at least 240 years and according to Mr. Banerjee it is 250 years. Mahīpāla's death should accordingly occur in 1040 A.D. (or 1030 A.D. at the earliest). But Mr. Banerjee states 1025 A.D. (p. 250).

(3) Nayapāla dies according to him in about 1045 A.D. (It cannot be earlier in view of his synchronism with Atīša, who wrote to him from Nepal in 1041 A.D.) The length of the following reigns up to the eighth year of Madanapāla counts at the least possible calculation (allowing only 2 years to the four reigns of Mahīpāla II, Śūrapāla II, Kumārapāla and Gopāla III) to be 65 years. So that the

and Mr. J. M. Roy (History of Dacca, vol. II, p. 317). None of them could cite the original source, nor would Mr. Banerjee (loc. cit, p. 336). If it is held to be a fabrication, it must be a most remarkable fabrication in the field of Indian antiquities, with an accuracy of details impossible to work out without the help of quite modern chronological tables.

8th year of Madanapāla falls in 1110 A.D. at the earliest. But Mr. Banerjee still holds that Vijayasena, who died according to him not later than 1108 A.D., conquered Varendra after the 8th year of Madanapāla (pp. 312, 317). In such a state of things obtaining in Mr. Banerjee's history of Bengal, it is our duty to make independent investigation on the subject.

The history of the Pala dynasty of Bengal may be regarded as dividing broadly into two distinct periods, viz., (a) from the election of Gopāla I to the Kāmboja usurpation, and (b) from the reign of Mahīpāla I to the final dissolution. An attempt was made by us in a paper to fix the dates of the kings of the second period in greater details than was hitherto reached. Prof. R. C. Mazumdar has since published in the J.A.S.B. (1921, p. 1ff.) a valuable paper on the -Pala chronology. It has become necessary in light of newer materials to reconsider the chronology put forth by Prof. Mazumdar along with the one I had published (Ind. Ant., 1920, pp. 189f.). Prof. Mazumdar foreshadowed his main paper by a note (A.S.B., 1920, pp. 300 ff.) in which he threw doubts on Mr. R. D. Banerjee's identifications of Pala kings mentioned in four Mss. colophons. As three of these colophons were utilised by me in my paper, I have to state the reasons that led me to accept Mr. Banerjee's identifications. It goes of course without saying that the Mss. themselves do not specify the kings. But the learned Prof. has been, we are afraid, so over-cautious as to forget the simple truth that the Ms, written in the 15th year of Gopāla at Vikramaśilā, (J. R. A. S., 1910, pp. 150f.) can neither refer to the reign of Gopāla I, which falls much too early, nor to that of Gopāla III, who was too short-lived. Facts of history will similarly decide in favour of referring the Mss. in question to the reign of Mahīpāla I generally in preference to Mahīpāla II. For, it is doubtful, if Mahīpāla II ever reigned for a length of six years and even if he did, his sixth year falling presumably towards the end of his reign, must have been marked by the great and successful Kaivarta revolt, enough to preclude the possibility of peaceful subjects referring to it in such full glory as "pravardhamāna-kalyāņavijayarājye" (Pālas of Bengal, p. 75). The short length and nature of Mahīpāla II's reign of oppression, which began in bad policy ("anItikārambhamaya") and ended in a successful Kaivarta revolt, were possibly among the reasons that led Vaidyadeva, as they would lead any other peaceful subject, to shun his name. It seems therefore somewhat hypercritical on the part of Prof. Mazumdar to question

the decent identifications of Mr. Banerjee as far as Mss. of the reign of Mahipāla and Gopāla are concerned.¹

I appreciate, however, his doubts on the identification of Vigrahapāla, as I can now offer better reasons for assigning a fairly long reign to Vigrahapāla III. In the Manabali grant, Vigrahapāla III, is stated to have reigned "for a long time" (sāsaty eva *ciram* jaganti janake—verse 15). Moreover, a short reign of 12 years to Vigrahapāla III leaves a good margin to be added on to the known length of Nayapāla's reign (15 years). But we must not lengthen the latter's reign if we can help it for the following reason. The Bāngad plate of Mahīpāla I, dated in his 9th year (Ep. Ind., XIV, 328) gives the following account of its engraver at the end:

posalīgrāma-niryāta-vibhramāditya-sūnunā /

idam śāsanam utkīrņam śrīmahīdharašilpinā // .

The Āmgāchi plate of the 12th year of Vigrahapāla III (Ib., XIV, 293) gives again the following account of its engraver in line 49:

posalīgrāma-niryāta-mahīdharadeva-sūnunā / idam šāsanam utkīrnam šašidevena šilpinā //

These would clearly establish the relation of father and son between the two engravers, who are separated, however, by the truly vast interval of 67 (i.e. 40+15+12) years. We should not therefore, further increase that interval even by a single year if we can help it. That the 15th year of Nayapāla possibly marked the end of his reign is also clear from the fact that three Gayā inscriptions of the same man Viśvāditya or Viśvarūpa are dated, two in the 15th year of Nayapāla and one in the 5th year of Vigrahapāla III (Pālas of Bengal, pp. 81-2).

The chronology of the later Pāla kings may be very approximately determined by the working of the following data:

I His inglorious reign is in our opinion hinted at covertly in the Manahali grant: "Śrimān Mahīpāla iti dvitīyo, dviješamauliķ šivavad babhūva" This apparently means "Mahīpāla *the second* was like siva a *dviješamauli* i.e. devoted to the Brahmins." (The meaning "was like a *second* siva" given in Gaudalekhamālā, p. 156, is wrong rhetorically). The covert meaning would be something like this, though it is far-fetched: Mahīpāla who was *dvitīya* "having a match" (not matchless), had his *mauli* i.e. lands, owned by birds and snakes (*dviješa*). (1) The date of Vaidyadeva's grant; visuvat sankrānti combined to a Hari-vāsara.

(2) The date of Rāmapāla's demise as given in the Sekaśubhodayā.

(3) The date of Mahīpāla I: in his 6th year, Kārtika *badi* 13 was a Tuesday.

Between 1100 and 1150 A.D. there are altogether seven dates roughly combining visuvat with Hari-vāsara 1104, 15, 19, 23, 34, 38 and 42. In 1115 on the samkrānti day (March 24) there was dvādašī throughout and trayodašī for 3-15 palas only, the Hari-vāsara, therefore, falling on the previous day. This is also the case in 1134 (trayodašī for 37-13 p. on the samkrānti day). In 1123 again on the samkrānti day, there was dašamī for full 30-54 p. and ekādasī later, a combination stigmatised in a separate section in the Kālaviveka (dašamīyuktānām nisedhavacanāni, pp. 441-51). So also in 1104 (dašami for 41-6 p. on the Samkrānti day) and 1142 A. D. (dašamī for only 0-38 p. ekādašī ending at 4-17 p. the next day).

The pet theory of Mr. Banerjee that the Laksmana era starts from king Laksmana's accession, has been mainly responsible for the trend among recent scholars to seek for the date of Madanapāla's accession to the throne in the first quarter of the 12th century A.D. at the latest. It now appears to us that the original view of Dr. Venis is not far from the truth, for though his date, 1142 A.D., is to be rejected on technical grounds, the date we now decide upon-1138 A.D.-is near enough. Our reasons for rejecting now the earlier date, 1119 A.D. are more than one. King Govindacandra of Kanauj, whose reign extended from 1114 to 1154 A.D., had for one of his queens Kumaradevi, a daughter of Devaraksita of Magadha and Pithi. We find in the Rāmacarita that this Devaraksita was a son-in-law of Mahana, who quelled his hostility towards Rāmapāla and he was dead when Rāmapāla was preparing against the Kaivarta rebel. For Bhīmayasas was the then king of Magadha and Pithi. It is thus clear that Kumāradevī was born sometime before the great campaign, which presumably took place not later than the second decade of Rāmapāla's reign. With circa 1110 A.D. as the date of Rāmapāla's death, Kumāradevī becomes almost too old for Govindacandra. On the other hand, Rāmapāla whose death synchronised with that of his uncle Mahana and who became already famous in his father's reign, should not be too far removed from the 3rd quarter of the 11th century A.D. Reconciling these two factors we should seek for the date of Rāmapāla's death circa 1120 A.D.

Bhīmayaśas has been described in the commentary of the Rāmacarita (2/5) as "kānyakubjarājavājinī-gaņthana-(? gañjana)-bhujanga." Mr. Banerjee (vol. I, p.256) referred the incident conveyed by this epithet to a period before the rise of the Gahrawal dynasty under Candra-"deva. We are inclined, however, to read in this epithet a curious parallel of an event of the previous generation. Just as Mahana's victory over Devarakşita seemed to have secured the hand of the victor's daughter for the vanquished, Bhīmayaśa's victory possibly over old Candradeva or his regent son Madanapāla, secured for the son of the yanquished, the hand of the victor's relative (sister or niece?) Kumāradevī. At any rate, the successor of Devarakşita cannot be reasonably supposed to have been active before the time of the grandfather of Devarakşita's son-in-law.

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Considerable improvement is possible in the interpretation of the Sekaśubhodayā recording Rāmapāla's death, which we verse in sought to verify in our previous paper. In "sake yugmayenu-randhragate (?)" the word yugma undoubtedly means 2, it can never mean "double" and never qualify a following noun in that sense. Moreover yamatithi better means badi 14 for on krisna caturdasī it was customary to invoke the 14 yamas (vide Kalaviveka, p. 471: also Vișnudharmottara, III, 187-yamavratavarnana-p. 389). The date thus recorded is Asvina māsa, badi 14, Thursday. There are three possible dates between 1100 and 1135 A.D., when the combination took place viz. Sep. 7, 1116; Sep. 23, 1120; and Sep. 20, 1123 A.D. Of these the year 1120 A.D. (badi I ended at 34-20 palas on Thursday, Sep. 23= Asvina 27) corresponds to the Saka year 1042 ending with the number 2 (yugma). Rāmapāla's death thus occurred in the forenoon ("saptaghatikopari" according to the Sekasubhodayā) of Sep. 23, 1120 A.D. Accordingly the unfortunate lacuna in the reading of the year in the verse, where two short syllables are wanting to -complete the metre, can be filled up with the least possible change in the following manner:

For Śake yugmaveņu-randhragate

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Mr. Banerjee (loc. cit. pp. XIII and 336) again mistakes a "suggested emendation" in my previous paper for an "arbitrary change of reading" (yatheccha parivartana) and dismisses the whole paper with a broad grin as being "based" upon it (pratisthita). We have to repeat what we had stated before that the verse in question was regarded to be a genuine record by the late Mr. Batavyāla who brought it to light; it received remarkable corroboration from the Rāmacarita and, last of all, it has the honour of being quoted, though in a foot-note, in the ultra-scientific history of Mr. Banerjee himself in both the editions. Kumārapāla thus gets a reign of 12 years in our scheme. Mr. Banerjee assigns a very short length to his reign, which is somewhat incompatible with the fairly lengthy reference to him in the Kamauli plate.

In the 6th year of Mahīpāla I, Kārtika *badi* 13 coincided with Tuesday (Buddhist Mss., p. 2). The probable dates between 972 and 997 A.D. are the following:¹

 Nov.
 2,986 A.D. badi
 13 ended at 59-15 palas after mean sunrise

 Nov.
 18,990
 "
 "
 "

 Nov.
 14,993
 "
 "
 "
 "

We are now in favour of the latest date, 993 A.D., for the Tibetan authorities are unanimous in their statement that Nayapāla came to the throne *just at* the time when Atīša left for Tibet in 1039 A.D. Tāranātha (Schiefner p. 244) states this on the authority of all previous biographical works. The reference is probably to the coronation. At any rate 1039 A.D. fell very early in the reign of Nayapāla.

The chronology of the later Pāla kings may thus be fixed in the following manner:

Length of reign

Mahīpāla I	988-1036 A.D.		48 years
Nayapāla	1036-1050		15
Vigrahapāla III	1050-1076		26
Mahipāla II) and } Sūrapāla II J	1076-1078	•••	3
Rāmapāla	1078-1120	•••	42
Kumārapāla	1120-1132		12
Gopāla III	1132-33		I or 2
Madanapāla	1134-circ. 1153		20
Govindapāla	circ. 1153-1161	•••	8

It should be noted that we have stated 1161 A.D. as the date of the final destruction of the Pāla kingdom on the strength of the Gayā inscription of 1175 A.D. as interpreted by us (Ind. Ant., 1922, pp. 155-6). For reasons stated above Mahīpāla I, Nayapāla, Mahīpāla II and Śūrapāla II are not likely to get longer reigns by future discoveries. Even if they do there is sufficient margin left before 988 A.D. to accom-

I For the curious reader I give below the results if the reference be to the reign of Mahīpāla II. Between 1058 and 1082 A.D., there are only two dates in the Amānta scheme—Nov. 9, 1064 A.D. and Nov. 22, 1071 A.D.: his date of accession to the throne would then be either 1059 or 1066 A.D., none of which are suitable.

Viśvarūpa born, say, towards the end of his father's reign, lived for more than a century and reigned for more than three quarters of it. The earlier dates, where the 13th *tithi* (here necessarily of less than 60 *dandas*' duration), just escaped from being suppressed by a small margin are given below for the curious readers:

1176 A.D.-sudi 12 for 8-43 p. and sudi 13 for 5-20 p. next day.

1177	,,	· ,,		6-40 р.	73	5-20 p.	,
1200	"	,,		8-бр,	**	3-8 p.	,,,
1209	,,	,,		6-7 р.	,,	c-35 p.	,,
1228	,,	,,	•	7-52 p.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2-21 p.	,,
1238	,,	,,		6-33 р.	"	3-8 p.	. ,,
1253	,,	,,		8-47 p.	"	4-48 p.	دو
1262	"	",		5-56 p.	,,	1-5 p.	"

Of the few epigraphic records that have fortunately preserved sufficient data for verification, those connected with the chronology of the Pala kings are dealt with separately below. There are two more remaining, of which one the Nartesvara Image inscription of Layahacandra, dated Aşādha badi 14, Thursday and Puşyā of the 8th year (J.A.S.B., 1914, p. 88)-refers to a king of unknown age and connection and is thus incapable at present of yielding any definite date by a choice from among the many possible ones. 'The other is the delightful record of Nanyadeva cited by us elsewhere (Ind. Ant., 1022). In the whole domain of Bengal and Magadha antiquities there is not another record with such a date of marvellous accuracy. It states that Nanvadeva "made an erection in the simha-lagna (i.e. early morning) of a Saturday in (solar) Śrāvaņa, the tithi being sukla 7 and the Nakşatra Svātī in the year 1019 Šaka." On July 18, 1097A.D. (1019 Šaka) which was a Saturday and the 23rd day of solar Śrāvana, sudi 7 ended at 32-28 palas after sunrise and Naksatra Svātī ended at 51-54 palas after sunrise the same day. This accurate verification is a sufficient guarantee for the genuineness of the record, which may not be traced to any authoritative work.1

I Mr. Banerjee is quite unable to appreciate the scientific value of this record. On the contrary, he cries shame upon us for confessing our inability to trace the record to its original source. It is, nevertheless, quoted by a number of distinguished authors, including the late Dr. Vidyābhūşaņa (Indian Logic, p. 521)

·· III

Mr. R.D. Banerjee has recorded a warning to those scholars engaged in historical researches, who feel aggrieved to abandon their former views (op. cit., vol. I, p. 329). But he himself would not give up his old favourite theories though exploded by later researches. The whole chronology of the Pāla dynasty, as constructed by him in the new edition of his work, stands upon two favourite theories of his—the date of Dharmapāla's accession to the throne between 790 and 795 A.D. on the one hand (loc. cit., p. 178), and on the other, the origin of the *Lakşmaņa Samvat* of 1119 A.D. as marking the beginning of Lakşmanasena's reign. As he would still stick to them, palpable blunders like the following crept into his work.

(1) Dharmapāla, who came to the throne between 790 and 795 A.D., reigned for at least 32 years and according to Mr. Banerjee for about 35 years (p. 199). So the next reign of Devapāla should accordingly start somewhere between 825 and 830 A.D. In the first edition of his work, Devapāla is stated to have reigned precisely from 825 A.D., but in the 2nd edition, the date of Devapāla is made to begin, after a correction, from 820 A.D. (p. 215)!

(2) The total length of the reigns of the eight kings from Dharmapāla to Mahīpāla I counts to be at least 240 years, and according to Mr. Banerjee it is 250 years. Mahīpāla's death should accordingly occur in 1040 A.D. (or 1030 A.D. at the earliest). But Mr. Banerjee states 1025 A.D. (p. 250).

(3) Nayapāla dies according to him in about 1045 A.D. (It cannot be earlier in view of his synchronism with Atīša, who wrote to him from Nepal in 1041 A.D.) The length of the following reigns up to the eighth year of Madanapāla counts at the least possible calculation (allowing only 2 years to the four reigns of Mahīpāla II, Śūrapāla II, Kumārapāla and Gopāla III) to be 65 years. So that the

and Mr. J. M. Roy (History of Dacca, vol. II, p. 317). None of them could cite the original source, nor would Mr. Banerjee (loc. cit, p. 336). If it is held to be a fabrication, it must be a most remarkable fabrication in the field of Indian antiquities, with an accuracy of details impossible to work out without the help of quite modern chronological tables.

8th year of Madanapāla falls in 1110 A.D. at the earliest. But Mr. Banerjee still holds that Vijayasena, who died according to him not later than 1108 A.D., conquered Varendra after the 8th year of Madanapāla (pp. 312, 317). In such a state of things obtaining in Mr. Banerjee's history of Bengal, it is our duty to make independent investigation on the subject.

The history of the Pala dynasty of Bengal may be regarded as dividing broadly into two distinct periods, viz., (a) from the election of Gopāla I to the Kāmboja usurpation, and (b) from the reign of Mahīpāla I to the final dissolution. An attempt was made by us in a paper to fix the dates of the kings of the second period in greater details than was hitherto reached. Prof. R. C. Mazumdar has since -published in the J.A.S.B. (1921, p. 1ff.) a valuable paper on the Pala chronology. It has become necessary in light of newer materials to reconsider the chronology put forth by Prof. Mazumdar along with the one I had published (Ind. Ant., 1920, pp. 189f.). Prof. Mazumdar foreshadowed his main paper by a note (J.A.S.B., 1920, pp. 300 ff.) in which he threw doubts on Mr. R. D. Banerjee's identifications of Pala kings mentioned in four Mss. colophons. As three of these colophons were utilised by me in my paper, I have to state the reasons that led me to accept Mr. Banerjee's identifications. It goes of course without saying that the Mss. themselves do not specify the kings. But the learned Prof. has been, we are afraid, SO over-cautious as to forget the simple truth that the Ms. written in the 15th year of Gopāla at Vikramaśilā, (J. R. A. S., 1910, pp. 150f.) can neither refer to the reign of Gopāla I, which falls much too early, nor to that of Gopāla III, who was too short-lived. Facts of history will similarly decide in favour of referring the Mss. in question to the reign of Mahīpāla I generally in preference to Mahīpāla II. For, it is doubtful, if Mahīpāla II ever reigned for a length of six years and even if he did, his sixth year falling presumably towards the end of his reign, must have been marked by the great and successful Kaivarta revolt, enough to preclude the possibility of peaceful subjects referring to it in such full glory as "pravardhamāna-kalyāņavijayarājye" (Pālas of Bengal, p. 75). The short length and nature of Mahtpāla II's reign of oppression, which began in bad policy ("anītikārambhamaya") and ended in a successful Kaivarta revolt, were possibly among the reasons that led Vaidyadeva, as they would lead any other peaceful subject, to shun his name. It seems therefore somewhat hypercritical on the part of Prof. Mazumdar to question

the decent identifications of Mr. Banerjee as far as Mss. of the reign of Mahipāla and Gopāla are concerned.¹

I appreciate, however, his doubts on the identification of Vigrahapāla, as I can now offer better reasons for assigning a fairly long reign to Vigrahapāla III. In the Manahali grant, Vigrahapāla III, is stated to have reigned "for a long time" (sāsaty eva *ciram* jaganti janake—verse 15). Moreover, a short reign of 12 years to Vigrahapāla III leaves a good margin to be added on to the known length of Nayapāla's reign (15 years). But we must not lengthen the latter's reign if we can help it for the following reason. The Bāngad plate of Mahīpāla I, dated in his 9th year (Ep. Ind., XIV, 328) gives the following account of its engraver at the end:

posalīgrāma-niryāta-vibhramāditya-sūnunā /

idam śāsanam utkīrnam śrīmahīdharasilpinā //

The Āmgāchi plate of the 12th year of Vigrahapāla III (Ib., XIV, 293) gives again the following account of its engraver in line 49 :

posalīgrāma-niryāta-mahīdharadeva-sūnunā / idaņ sāsanam utkīrņam sasidevena silpinā //

These would clearly establish the relation of father and son between the two engravers, who are separated, however, by the truly vast interval of 67 (i.e. 40+15+12) years. We should not therefore, further increase that interval even by a single year if we can help it. That the 15th year of Nayapāla possibly marked the end of his reign is also clear from the fact that three Gayā inscriptions of the same man Viśvāditya or Viśvarūpa are dated, two in the 15th year of Nayapāla and one in the 5th year of Vigrahapāla III (Pālas of Bengal, pp. 81-2).

The chronology of the later Pala kings may be very approximately determined by the working of the following data:

I His inglorious reign is in our opinion hinted at covertly in the Manahali grant: "Śrimān Mahīpāla iti dvitīyo, dviješamaulih šivavad babhūva" This apparently means "Mahīpāla the second was like siva a dviješamauli i.e. devoted to the Brahmins." (The meaning "was like a second šiva" given in Gaudalekhamālā, p. 156, is wrong rhetorically). The covert meaning would be something like this, though it is far-fetched: Mahīpāla who was dvitīya "having a match" (not matchless), had his mauli i.e. lands, owned by birds and snakes (dviješa).

(1) The date of Vaidyadeva's grant; vișuvat samkrānti combined to a Hari-vāsara.

(2) The date of Rāmapāla's demise as given in the Sekašubhodayā.

(3) The date of Mahīpāla I: in his 6th year, Kārtika *badi* 13 was a Tuesday.

Between 1100 and 1150 A.D. there are altogether seven dates roughly combining visuvat with Hari-vāsara 1104, 15, 19, 23, 34, 38 and 42. In 1115 on the samkrānti day (March 24) there was dvādasīthroughout and *trayodasī* for 3-15 *palas* only, the Hari-vāsara, therefore, falling on the previous day. This is also the case in 1134 (*trayodasī* for 37-13 *p*. on the samkrānti day). In 1123 again on the samkrānti day, there was *dašamī* for full 30-54 *p*. and *ekādasī* later, a combination stigmatised in a separate section in the Kālaviveka (dašamīyuktānām nisedhavacanāni, pp. 441-51). So also in 1104 (dašamī for 41-6 *p*. on the Samkrānti day) and 1142 A. D. (dašamī for only 0-38 *p*. ekādasī ending at 4-17 *p*. the next day).

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Govindapāla	circ. 1153-1161	 8	1.1

It should be noted that we have stated 1161 A.D. as the date of the final destruction of the Pāla kingdom on the strength of the Gayā inscription of 1175 A.D. as interpreted by us (Ind. Ant., 1922, pp. 155-6). For reasons stated above Mahīpāla I, Nayapāla, Mahīpāla II and Sūrapāla II are not likely to get longer reigns by future discoveries. Even if they do there is sufficient margin left before 988 A.D. to accom-

I For the curious reader I give below the results if the reference be to the reign of Mahīpāla II. Between 1058 and 1082 A.D., there are only two dates in the Amānta scheme—Nov. 9, 1064 A.D. and Nov. 22, 1071 A.D.: his date of accession to the throne would then be either 1059 or 1066 A.D., none of which are suitable.

modate them accordingly. In the event of Vigrahapāla III and Rāmapāla getting longer reigns, which is equally unlikely, we shall have to reject the verification of the Sekhaśubhodayā verse. In the present state of our knowledge, however, the scheme we have drawn above does not militate against any known facts of history. In the Belabo grant of Bhojavarmā, king Jātavarmā is stated to have defeated among others, Divya, the Kaivarta rebel.¹ We had elsewhere accepted as genuine the traditional date of Śyāmalavarmā's accession to the throne (1072 A.D.). This can be well adjusted on the assumption that the beginnings of Kaivarta unrest occurred in the reign of Vigrahapāla III, who was helped by his immediate kin Jātavarmā (both being sons-in-law of Karņa Cedi).

The death of Mahīpāla I according to a tradition as recorded by Tāranāth (Schiefner, p. 225) synchronises with that of the Tibetan king Khri-ral. Recently a writer in the Sāhitya Parisat Patrikā (1333 B. S. p. 52-3) fixed 1038 A.D. as the date in question, assuming that Khri-ral is identical with king Lha Lhama Yeśe-hod, whose former name was Khor-re. Though the date marvellously fits in our chronology, we have to reject the identification of Khri-ral, on which it rests. For Khri-ral is known to be the same as the famous king Ralpacan (vide Rockhill's Life of Buddha, p. 223: Vidyābhūṣaṇa, Indian Logic, p. 517, referring to Csoma de Koros's Tibetan Grammar, p. 185).

We are able now to work out the chronology of the earlier Pāla kings in fuller details in light of new materials. We had mentioned in our previous paper that Gopāla II is stated in the epigraphic records to have reigned for a long time (*cirataram*). This is now amply corroborated by a Ms. colophon. A Buddhist work—Maitreya Vyākaraņa—was copied in the 57th year of Gopāla II, whose reign thus becomes the *longest* of the whole dynasty. It is a pity that this most important colophon remained so long entirely unnoticed and escaped even the eyes of Mm. H. P. Śāstrī, who passes it without any remark in his Descriptive Catalogue of Buddhist Mss. (p.13). The newly discovered Nālandā copper-plate of Devapāla is dated in his 39th year. The Bargaon stone pillar inscription of Rājyapāla is dated in his

I The verse in question (v. 8 of the Belabo grant), it should be noticed, contains without much exaggeration a statement of the earthly achievements of Jātavarmā, whose sudden connection with "celestial" (divya) arm becomes therefore out of place in the phrase, "nindan divyabhujaśriyam."

24th year (Ind. Ant., 1918, p. 111). All these data produce an almost impossible situation, rendering untenable the date of the Kamboja usurpation of 966 A.D., as referring to the reign of Vigrahapāla II. For the total length of years from Devapala to Gopala II comes up to 177 (39+3+54+24+57) at least. This either places Dharmapāla's death before (966-177) 789 A.D., which is before the time of Govinda, or places the accession of Vigrahapala II to the throne in 970 A.D. at the earliest. The date of Kamboja usurpation (966 A.D.) will then have to be referred to the reign of Gopāla II, who is credited, however, in all the epigraphic records with a decidedly peaceful reign. The only reasonable solution we think possible is to reject as doubtful the stone pillar inscription of Rājyapāla as deciphered by Mr. Banerjee. It is not very likely that Rajyapala coming between two enormously long reigns of Nārāyaņapāla (54 years) and Gopāla II (57 years) reigned for a good length of 24 years.¹ In the Bargaon inscription the figure 24 was perhaps carelessly placed after Samvat and is to go with marga-dine, where the figure is wanting. Or like the inscriptions of Mahendrapala. the record probably refers to the Gurjara Pratihāra king Rājyapāla.2

Another happy date has been worked out from the two identical inscriptions of Sūrapāla I. The editor of the inscriptions, Prof. Chakravarti, referred them to the reign of Sūrapāla II (*JASB.*, 1908, p. 107). Against this Mr. Banerjee, on palaeographical grounds, referred them to Sūrapāla I (Palas of Bengal, p. 57), which is much more likely. Sūrapāla II is not mentioned in the Rāmacarita to have ever sat on the throne. His mention in the Manahali Grant may have been occasioned by a few months' so-called reign in those troubled times when he found himself helpless and deserted as the significant words "ekah sāhasasārathih" sufficiently bear out. There cannot, therefore, be any doubt that the inscriptions refer to Sūrapāla I. The dating of the inscriptions has not yet been carefully scrutinised. "Samvat 2 dvirāsādha badi 11" was the reading of Prof. Chakravarti.

I King Rāsapāla, the nearest approach to the name Rājyapāla, is stated in Tibetan books to have reigned for 12 years only : Schlefner's Tāranātha, p. 214 : also p. 205 fn. referring to Lassen, III, 730 f.

² Curiously the language of the Bargaon inscription e.g. "Rājapāla devarāje" is like that of one of the inscriptions of Mahendrapāla (vide Plate XXXI in the Pālas of Bengal) corrupt.

But in the plate accompanying his paper, the figure after Samvat is most clearly 3 and not 2. Prof. Chakravarti evidently took the unusual word "dvih" to be a repetition in word of the figure after Samvat. But the real interpretation has been hitherto entirely missed by all scholars. The word "dvirāsādha" is a well-known technical term in Indian astronomical and Smrti literature. There is a separate section named "Dvirāsādha-viveka" in Jīmūtavāhana's Kālaviveka (pp. 169-174). The word primarily means an adhika māsa falling in Saura Āşādha and secondarily in a wider sense any adhika māsa falling within the first six months of the year (Vaiśākha to Āśvina). It has been used here in the first narrow sense to indicate the exact month. Now, there were adhika Aşādha months in the years 822, 833, 841, and 852 -A.D. Of these possible dates, 822 and 833 are too early, placing Dharmapāla's death in 792 A.D. at the latest. 852, on the other hand, is too late, placing Vigrahapāla II's accession to the throne in 987 A.D. at the earliest. The date of the inscriptions is therefore 841 A.D. Devapāla's death is thus fixed within a year before June, 839 A.D. and Dharmapāla's accession to the throne cannot be dated later than . 770 A.D., thus remarkably supporting our previous conjecture (Ind. Ant., 1920, p. 193).

The Bodh-Gaya inscription of the 26th year of Dharmapāla contains a verifiable datum: Bhādra-bahula-pañcamī combined with Saturday. Cunningham (ASB., XV, p. 150-1) tried to work it out and selected "856 A.D. as the 26th year of Dharmapāla". After him no scholar seems to have attemped to fix the date in the light of recent materials. Before giving my results in details, an attempt is made to arrive at the earliest possible date of Gopāla I. A mass of ill-digested historical and legendary matter is found in the Tibetan histories, bearing on the reigns of Gopāla I and his immediate successors. A careful examination of some of this matter would throw some new light on the early Pala chronology. Taranatha, it is true, gave a wrong genealogy of the first three Pala kings, but the correct genealogy was not altogether unknown among Tibetan historians, one of whom at least-Buston-gave it and was held to be more reliable by Sum-po (Pag Sam, preface, p. iii). Tāranātha records in a true historical spirit the views of two ancient historians on the exact date of Gopāla's election to the throne. According to Indradatta, Gopāla was elected one year after what must have been a famous event in those times viz. the death of one "Acarya Mimamsaka," while according to Ksemendrabhadra it was seven years after that event (Schiefner : p. 204).

It is not known who is exactly meant by Ācārya Mīmāmsaka, but whoever it is—either Kumārila or Prabhākara—the event evidently dates back to the early decades of the 8th century A.D.

Gopāla is credited with the establishment of the Odantapurī vihāra near Nālandā (Tāranātha, p. 206). It is stated in the Pag Sam that the famous Samye monastery of Tibet was erected after the model of the Odantapurī vihāra and the date of its erection is said to be 749 A.D. (p. 171: also Indian Logic, p. 517). Śāntaraksita, who worked in that monastery, "was born in the reign of Gopāla and died in that of Dharmapāla" (Pag Sam, p. 112). Gopāla, during whose reign Śāntaraksita was born, say 40 years before 749 A.D., must then have come to the throne somewhere between 690 and 710 A.D. Both Tāranātha (p. 205) and Sumpo (p. 110) state that Gopāla was a contemporary of king Śrīharsa of Kasmir. In our opinion the Tibetan historians had confused three kings of the same name Sriharsa :- Sriharsa of Kasmir, the famous Harşavardhana and Śri-Harsadeva of Kāmarūpa (whose son-in-law was reigning in 759 A.D. (Ind. Ant., IX. p. 178) The last of these probably was meant to be the king who was contemporaneous with Gopāla I. These three Tibetan references point roughly to the first half of the 8th century A.D. as the probable date of Gopāla. A mass of legendary matter in a worse state of confusion is found also in the Jaina biographies of Bappa-bhatti, where the persistent mention of king Dharmapāla as a contemporary of Yasovarman or his son Ama, may just be taken in conformity with the Tibetan evidence, as a piece of history pointing to the middle of the 8th century A.D. as the date of Dharmapala. Accordingly we extend our calculations (to about 755 A.D.) with the following results, referring to the Bodh-Gaya inscription of the 26th year of Dharmapāla.

Amanta scheme.

In 796 A.D. (Aug. 27, Saturday) Bhādra badi 5 for 57-32 palas (mean). Under true system the tithi ended at 0-47 p. (Sūrya S.) or 2-6 p. (Ārya S.) the next dags which was Sunday.

In 793 (Aug. 31) the mean tithi ended at 19-33 p. but the true tithi ended at 44-35 p. (Sūrya S) or 44-20 p. (Ārya S.) the previous day, which was a Friday.

In 789 (Aug. 15, Saturday) the mean tithi ended at 47-52 p. and the true tithi at 59-46 p. (Sūrya S.) or 58-35 p. (Ārya S.)

In 786 (Aug.19) the mean tithi for 10-0 p. and according to the Arya

S. true tithi for only 0-25 p. the same day, but according to the Sūrya S. true tithi ended at 59-42 p. the previous day, which was a Friday.

In 776 (Sep. 7, Saturday) the mean tithi ended at 54-15 p. and the true tithi at 21-58 p. (Sūrya S.) or 22-40 p. (Ārya S.)

In 773 (Sep. 11) the mean tithi ended at 16-22 p. and the true tithi at 10-23 p. (Sūrya) or 8-25 p. (Ārya).

In 769 (Aug. 26) the mean tithi for $44 \cdot 11 p$. and the true tithi for $42 \cdot 11 p$. (Sūrya).

In 762 (Aug. 14) the mean tithi for 35 p. and the true tithi for 49-30 p. (Sūrya), but the lunar month in which the tithi is included was an *adhika mūsa*.

Purnimanta scheme.

In 792 A.D. (Aug. 12 Sunday) the true tithi ended at 51-40 p.

In 785 (July 30, Saturday) the true tithi ended at 58-12 p., but the mean tithi ended the next day.

In 782 (Aug. 3, Saturday) the true tithi ended at 15-36 p.

In 779 (Aug. 7, Saturday) ,, ,, 15-0 p. In 765 (Aug. 10, Saturday) ,, ,, 48-0 p., but the mean tithi ended the next day.

Though we have given, for the curious readers, both *mean* and *true*, calculations (in both the Amānta and Purņimānta schemes), we would confine ourselves to the Amānta and the true dates alone; for true calculations of tithis already came into operation since the times of Varāhamihira (6th cent. A.D.) and were certainly in vogue in the 8th century A.D. The tithi of the Eran Pillar Inscription of the Gupta period dated 484 A.D. has already been worked out similarly under the *true* system (Fleet: Gupta Inscriptions, p. 157). The following five dates are therefore available as marking the beginning of Dharmapāla's reign:-737, 744, 748, 751, and 764 A.D. In 737, the month is inauspicous being an adhika māsa: the date besides seems too early. 764 on the other hand seems a bit too late, allowing about 36 years' reign to Dharmapāla. There is nothing whatever to choose between the three remaining dates-744, 748, and 751 A.D.

The chronology of the earlier Pāla kings may thus be tentatively fixed in the following manner:-

			Leng	th of reign
Gopāla I	circ.	700-744 A.D.	45	years (vide Tāranātha)
Dharmapāla	101	744-800	56	e e trà
Devapāla		800-839	40	

590

Śūrapāla I	839-845	- 7 years (vide Tāranātha)
Nārāyaņapāla	845-8991	54
Rājyapāla	899-923	24
Gopāla II	923-980	57
Vigrahapāla II	980-988	9

For the satisfaction of scholars who would place the Kāmboja usurpation of 966 A.D. to the reign of Vigrahapāla II and reject the Bargaon Pillar inscription of the 24th year of Rājyapāla, an alternative list of the last three kings will have to be adjusted thus:—

Rājyapāla 899-903 (5 years); Gopāla II 903-960 (57 years) and Vigrahapāla II 960-988 (28 years).

The only thing that stands against the above chronology is yet another surmise of Prof. Mazumdar. He makes out from a study of the Rāstrakūta inscriptions that Dharmapāla probably met Govinda III in about 808 A.D. His reason is this: the Radhanpur grant of Govinda III dated Śrāvana 730 Śaka mentions the expedition against the Gurjaras, which is omitted in the Wani grant dated in Vaiśākha, 730 Saka. So the Gurjara expedition may have taken place in three months intervening between the two grants. This inference is unsound. The Gurjara invasion is not mentioned last of all in the Radhanpur plate. The Wani grant is irregular in its date (Ind. Ant., XXIV, p. 11, no. 172) and the omission of the Gurjara expedition therein is only a careless one like its omission of the Pallava conquest in Dhruva's reign. It is much more reasonable to assume that a chronological order is indicated in the conquest of Govinda III in the Radhanpur plate and the expedition against the Gurjaras took place very early in his reign followed by four other expeditions all before

I A Tibetan tradition has been mentioned above which synchronises the death of king Khri-ral with that of Mahīpāla I, who had a reign of 52 years under the same tradition. King Mahīpāla, son of a Vanapāla (and grandson of Dharmapāla) and father of a Mahāpāla is a myth, but the statement may be interpreted as indicating the death of an early Pāla king, with a very long reign, who can be conveniently identified with Nārāyaṇapāla. The reign of Khri-ral, however, is not definitely dated. According to Chinese authorities Khriral or Ral-pa-can died in 838 A.D. According to Csoma he died in 899 A.D. and according to Setsen in 902 A.D. (Rockhill p. 225). We have taken Csoma's date. 808 A.D. We see no reasons therefore to bring down Dharmapāla further than 800 A.D. For Govinda III ascended the throne in 753-4 A.D. and met Dharmapāla sometime before 800 A.D. This does not also militate against Dharmapāla's synchronism with Nāgabhatta, who may have ascended the throne any time after 783 A.D., when Vatsarāja was still alive (JRAS., 1909, p. 250).

DINESH CHANDRA BHATTACHARYYA

Indian Literature Abroad

VIII

Dānapāla was a śramana of Udyāna of Northern India. He arrived in China in A. D. 980 along with Dharmadeva and Tien-si-tsai. Two years after his arrival he received from the Chinese emperor the

title of Hsien-chiao-ta-shih, Tien-si-tsai received Ming-Dānapāla and Tantra Literature, 980 A. D. shih. The number of books translated by Dānapāla was

one hundred and eleven—mostly Dhāraņīs. These Mantras became very popular with certain section of the Buddhists, the Chinese, and they swelled the bulk of the Buddhist Chinese literature. Since the days of Amogha-vajra, Tāntrikism made a little progress, and this literature was greatly cultivated and propagated by the Indian Tāntrik Buddhists. Dānapala rendered into Chinese a few booklets ascribed to the great Nāgārjuna, e. g., Bodhihrdayarūpavimukta-šāstra (No. 1304), Mahāyāna Bhava-bheda-šāstra.

Three years after the death of Dānapāla, Dharmarakṣa (Fa-hu), a śramaṇa of Magadha, arrived in China. As I have already told Fa-hu

Dharmaraksa and the Translation Board, brought some Sanskrit manuscripts with him and he applied himself to translating them till A.D. 1058, when he died in his ninety-sixth year. In 1054 he. received from the Emperor Jen-Tsung (1023-1063 A.D.) the special

title of P'u ming-tzu-chiao-chwang-fan-ta-shih for his meritorious work. In 1009 a Translation Board was formed by the Imperial command with Fa-hu, Wei-tsing and others. The *Ratnamegha-Sūtra*(Nanjio 964), one of the most popular Mahāyāna Sūtras, a shorter form of

which had been twice translated before, was translated by Dharmaraksa. Fa-hu and the Chinese monk mentioned above rendered into Chinese in 20 fasciculi Tathāgatu-acintva-guhva-nirdesa, a Mahāyāna Sūtra, which had been translated by another Dharmaraksa (Fa-hu) in the W. T'sin Dynasty (265-316) in 7 fasciculi. This formed a part of Ratnakūța Group of Mahāyāna literature. Another distinctly Tāntrik book He-Vajra-tantra (Nanjio, 1060) which agrees with the Tibetan version in the Kanjur was made accessible in a Chinese form. Bodhisattva Dharmayaśa's Mahāyāna Sangīta-bodhisattva-vidyāśāstra (1298) was for the first time translated by Fa-hu and Sūrya-yaśas in 20 fasciculi. In the Ming collection this book is placed for the first time among the Abhidharma works and was admitted into the Canon during the Sung-Yuen period. At this late period a Hinayana work was translated by Fa-hu and his colleagues. It was Mahā-Maudglyāyana's Prajňaptipāda-Śāstra (Nanjio 1317); this is the last of the six pāda works of the Sarvāstivāda Abhidharmas.

Wei-Tsing, a Chinese śramana, who seems to have worked together with the Indian monks mentioned before, and had joined the Imperial Translation Board in 1009, must have acquired sufficient knowledge of Sanskrit to translate a few books from the original. His most important

contribution was his translation of Bodhisattva Sthiramati's commentary on Nāgārjuna's *Madhyamaka Śāstra*. Jñānaśri (Chu chi-siang) and Sūryayaśas were contemporaries of Fa-hu and Sūryayaśas actually worked with Fa-hu. Sūryayaśas himself translated two books of the great Aśvaghoşa—one being a book of fifty verses on the rules for serving a teacher (N. 1080), another known as *Daśadusţa-karmamārga Sūtra* (N. 1379). That the Buddhist monks were still held in great honour is shown by the fact that Maitreya-bhadra, a śramaņa of Magadha, became Kuo-Shih or the State-teacher of the Chinese Court. He is responsible for five translations.

Probably the last book that was translated in the Sung Dynasty by Shao-tih, Hwui-Sung and others was *Bodhisattva-Jātakamālā* (1312).

It was originally composed or collected by the Bodhisattva Āryaśūra and commented upon by Muni Jinadeva in 12 fasciculi. The translation did not find favour with the Chinese for its defective style. The Sanskrit original is preserved in Hodgson manuscripts and has been published by Kern in the Harvard Oriental Series and translated by Speyer.

The Northern Sung Dynasty ended with Hui, Tsang (1101-1127),

who was carried in captivity by the Kitan Tartars. The Sungs retired

Barrenness of the N. Sung period.

to the south of the Yang-tse, and Hang-chow became their capital. During their rule (1128-1280) we do not meet with any translator either Indian or Chinese. Buddhism of Chan (Dhyana) school enjoyed respect

and contributed many landscape painters to the roll. The greatest figure of this age was Chu-hsi, the famous commentator of Kung-fu-tze (Confucius), and he was greatly influenced by Buddhist thought and inspite of his denial, it is clear that he was imbued by the mystic spirit of Bodhidharma.

The Mongols now became supreme in China. They were a rude, uncultured people of nomadic and marauding habits. Khubilai Khan,

Khubilai Khan and the Mongol Rule.

the first Mongol emperor of China, was a man of completely different temperament, and he was anxious to encourage any faith that might humanize his rude followers. Buddhism suited them best.

One Tibetan Lama, Pagspa (Arya), invented a script on a Tibetan model for the Mongols. It was issued by Khubilai, but failed to

Pagspa, the Tibetan.

be popular because the writing was more complicated and ornate than the simple Syriac writing which had also been introduced. Pagspa in recognition of his

service received the exalted title of "Prince of the Great and Precious Law of Buddha" from Khubilai. He knew Sanskrit and Chinese and edited a book on Hinayāna Vinaya which gave brief rules for the learning and practice of bhiksus. The restored title would be Mūla-sarvāstivāda-nikāya-pravarjyopasampadā-karmavācā. (Nanjio 1137).

Another book translated by Pagspa's disciple Sha-lo-pa known in Chinese Chang-su-shih-lun or the Sastra on explaining known objects

(Nanjio 1320). It is sometimes mentioned as a Sastra of Chang-su-lun of the Hīnayāna, but it is distinctly a book on Mahāyāna. Pagspa.

This is a very useful and interesting manual of the

Buddhistic terminology, consisting of extracts from several sastras, such as Sūrya-garbha-śāstra, Saddharma-smrtyupasthāna-sūtra, Abhidharma-kośa-Śāstra of Vasubandhu and few other minor books. It consists of five chapters as Bhojana-loka, Sattva-loka, Mārga-dharma, Phala-dharma, Asamskrtadharma. It was compiled by Pagspa for the sake of Chan-Chin, the Crown Prince of the Emperor Khubilai. The original, which was probably compiled from Sanskrit sources in Tibetan, was translated into Chinese by Sha-lo-pa, a disciple of Pagspa. He

I. H. Q., SEPTEMBER, 1927

received from the Emperor great honours and the title of Tripitakabhadanta (Hung-Chiao-fo-chih).

The list of translators at this age is very limited. We find three more names of whom only one, was an Indian Śramana, the second was from Tibet, and the third was a Chinese official; the exact date and other details of these translators are unknown. Although the Yuen Period did not produce as many great translators as the former periods did, this period of 88 years of Mongol rule attracted the attention of persons with a religious and literary bent. I have already noted somewhere that the Dhyāna School of Bodhidharma began to gain ground at a later date and became very popular in China and Japan. In 1291 a priest of the Chan or Dhyāna School named Siang-Mai compiled a work known as *Pien-wei-lun* (Nanjio

Compilation work by Chinese monks. 1607). It was a polemic work against the Taoist. Chu-pa collected in 1314-1320 A.D. some gāthās known as Guhyapāda-malla-mahā-rddhirāja-sūtra-gāthā of 175 verses (Nanjio 1384). I have already referred to Chu-pa's Cata-

logue of the Tripiţaka (Nanjio 1611). Wan-Tsai, a Chinese priest, compiled two works—one being a new commentary on a Treatise by San-Chao, a disciple of the great Kumārajīva, and a commentary on the same (Nanjio 1627, 1628). P'u-tu, a priest compiled a work in 1314 A.D. entitled 'A precious mirror of the Lotus school,' being a work of a priest of Lu-Shang in 10 fasciculi. A very important book, viz., the history of the Patriarchs and other eminent priests of the Dhyāna school, which had been originally collected by a monk of the Southern Sung Dynasty in 1033 A.D., was continued by T'sing-men. A big tome of 30 fasciculi, consisting of the sayings of Upādhyāya Chung-fang, was compiled by his disciple of the Dhyāna School in 1321-23. In

Tsung-mi. 1322 Yuen-Chia wrote a commentary on Tsung-Mi's well-known treatise 'on the origin of Man'. Tsung-Mi was the fifth patriarch of Hwa-Yen or Avatamsaka School, who wrote his book about 841 A.D.

Nien-Chang of the Yuen Dynasty compiled a complete history of Buddhism in Chinese in 36 fasciculi (Nanjio 1637). The narration of

Miscellaneous writers. this work begins with the first Emperor down to 1333-1344 A.D., when the compilation was finished. It relates several events concerning not only Buddhism, but also

Confucianism and Taoism. One Pai-chang had written a few 'Pure Rules', something like Sanskrit Niti-books, in the T'ang Dynasty. Te-hwui and Ta-su edited and published them. 'Most of these rules

referred to worldly matters, so that they are not only far from the Vinaya, but also from the original rules of Pai-Chang.' The rest of the Chinese writers were either of the Dhyana School or the T'ien-Tai school. Wei-tso of Tien-Tai school wrote a big commentary in 20 fasciculi, on the Surangama Sutra and Sukhavati-Vyuha, the latter known as "an important gate or doctrine of meditation on the state of the Pure-land." P'u-zui, a priest of the Hwa-yen School wrote a big commentary in 40 fasciculi on the commentary of Buddhavatamsaka-sūtra (Nanjio 1322). Phu-chao, Chi no, Chi-cho, Chu-ting all wrote on the Dhyana School. This long and rather dry list is given here to show that the Chinese were not inactive as regards Indian books. As most of the Buddhist books had already been translated, people now gave more matured thought on its contents and wrote and studied either commentaries or expository notes on them. Another important work, which has nothing to do with translation, is Su-chwan-tang-lu, in 36 fasciculi which contains the lives of 3118 eminent priests of the Dhyāna School. A similar work was compiled in the later Sung Dynasty. That was also a history of the Indian and Chinese Patriarchs of the Dhyana School. From historian's point of view these books are very valuable.

The Mongol Emperors were extremely superstitious and showed their sincere devotion to Buddhist religious literature. Khubilai's atti-Khubilai saw to the fact that the monasteries in Peking tude towards Buddhism. were all supplied with books and ordered the priests to recite them on stated days. A new collection of Tripitaka was published in 1285-87, under the Imperial order of Khubilai. This Catalogue was compiled by Ching-Chi-Siang in collaboration with Indian, Tibetan and Chinese assistants and is known as Chi-Yuen-lu. The number of translated books in the Tripitaka mentioned in it is 1440 in 5586 fasciculi. These are the works made by 194 persons under twenty-two dynasties during the period of 1219 years'

I "Preparatory to the translation of the Tripitaka into Mongolian the Emperor Khubilai convened his priestly and lay subordinates and constituted there a committee to examine the Buddhist works (1,400 in number) then extant in China and Tibet. This Committee consisted of some 28 men of several countries, China, Tibet, India, Turfan, Uigur and Mongolia." Takakusu, J.P.T.S., 1904-05, p. 80).

(67-1285 A.D.). Besides this there are 95 Indian and 118 Chinese works which are not purely Buddhist books but books dealing with Indian subjects. All the translations of Tripitaka and other Indian works are compared with the

Tibetan Tanjur and Kanjur translation and to each of them is added the Sanskrit transliteration and a note after the Chinese title, stating whether both the translations were in agreement or not and whether the book was wanting in the Tibetan version. This composition, however, seems to have been made only through a catalogue of Tibetan books, and not actually with the translations themselves. From the Tibetan sources we get some information as regards this translation; ".....during the reign of the Tartar Emperor, Sa- Chhen, the Chinese scriptures were compared with the Tibetan collections of Kanjur and Tanjur. Such treatises and volumes as were wanting in the Chinese were translated from the Tibetan scriptures. All these formed one complete collection, the first part of which consisted of Buddha's teaching (Kanjur). To the second part 21 volumes of translations from Tibetan, with Chinese Sastras, and works of emiment Ho-Shang (monks), comprising 153 volumes, were added. The whole collection consisted of 740 volumes. An analytic catalogue of all these books are furnished. In this collection many sastras were found which did not exist in the Tibetan collections" (JASB., 1882, p. 92).

Another catalogue compiled originally by Wang-Ku of the Sung Dynasty was continued by Kuang-Chu-pa in A.D. 1306 under the Yuen (Mongol) dynasty. This Catalogue entirely depends upon the previous one and adds a short account of the contents of each book. The Catalogue was first sent by M. P. Habace of Russia to S. Julien of Paris in 1848. After a careful study, Julien published a "Concordance-Sinico-Sanskrita" in the Journal Asiatique (1849 pp. 351-446). Bunyio Nanjio, while compiling his great Catalogue made use of this valuable Catalogue in which many Sanskrit words have been restored (*JPTS.*, 1905, p. 81).

The activities of Khubilai to enhance the cause of Buddhism was manifold. Towards the find of the thirteenth century, a census was

Mongolian Translation of Tibetan and Sanskrit Tripitaka. taken, by the imperial command, of the Buddhist temples and monks in China. Of the former, the reported number was 42,318 and of the latter 213, 148. About this time, Lamaism or the form of Buddhism developed in Tibet spread to Northern China and Lamas were not re-

garded as men of different sect as it is now done. I have already

said that Khubilai was much influenced by Tibetan culture, and he ordered a Mongol to study Tibetan language. A complete translation of the Buddhist Sūtras and Sāstras from the Tibetan and Sanskrit into Mongolian, was presented to Khubilai in 1294 A.D. These were cut out in blocks of wood and distributed among the chiefs of the Mongols. Tibetan language was held in great honour in the capital. In 1312 the Mongol Emperor Jen-Tsung ordered Pu-lan-na-shih-li, who had learned Chinese and Sanskrit in his youth, to translate Buddhist books into Mongol Language. From Chinese he translated the Leng-Yen-Ching, (Lankāvatāra), a Sūtra highly honoured by the Chinese people, and four Sūtras from the original Sanskrit and an other from Tibetan, in all a thousand fasciculi or chapters. As the history of Mongolian Buddhist literature is directly connected with Tibetan Buddhist literature, we shall deal with it elsewhere. Eliot says (III, p. 274)" It is possible that the Buddhism of the Yuen Dynasty was tainted with Saktism from which the Lama monasteries of Peking are not wholly free" He suggests that some of the indecent scandal of the last Mongol emperors contributed to the speedy downfall of them. The Mongols were driven by the native Chinese dynasty known as Ming, who reigned from 1368 to 1644.

Few Ming Emperors showed much personal interest in religion and their favour was always guided by some political motive. Still

The Ming Dynasty. study

the first Ming emperor ordered that all monks should study Lankāvatāra-Sūtra, Prajnāpāramitā-Hrdaya and

Vajra-cchedika. He called together the priests of the Dhyana School to write commentaries, and Tsung-lo and Yu-chi wrote three commentaries on these books in 1378 A.D. The third emperor Cheng-tsu, when a boy was educated by a Buddhist Priest and the Emperor imbibed Buddhistic religious and literary tendencies. He wrote ten laudatory compositions in prose and verse between 1410 and 1415 which are incorporated in the Chinese Tripitaka. On the whole Buddhism flourished under the Mings and got the imperial support. It was only from time to time that it suffered persecution. The reign of Wutsung (1506-21) was extremely favourable to Buddhism. The Emperor himself learnt Buddhist literature and knew Sanskrit as well as Mongol and Arabic. The study of Sanskrit had been throughout encouraged in China and books on Grammer, Lexicon were written in Chinese, for the benefit of scholars. During the Ming Dynasty Sanskrit study decayed in China, still Yun-lo founded in 1407 a school of language for training interpreters at which Sanskrit was taught among other tongues (Eliot, III, p. 278).

During the Ming Dynasty the thirteenth Catalogue of the Chinese Tripitaka was published in 1368-1398 A.D. in 3 fasciculi. It was re-issued

 The Ming Collection. by the Third Emperor with more books added to it and finally published by Mi-tsang at the beginning of the seventeenth century. Afterwards it was republished

in Japan by a Japanese in 1678-1681 A.D. There were two distinct collections in China—Northern and Southern. The Emperor T'ai-tsukao (1368-1398) caused the whole Tripitaka to be engraved in Nanking; and the Emperor T'ai-tsung-wan (1403-1924) again caused a good edition to be published in Peking.

The Chinese Tripitaka was preserved in Mss. from 67 A.D. to 972 A.D. for about 900 years, when they were first printed. Beal in his *Catena to Buddhist Literature in China* says that the tripitaka had been printed at various times in China from wooden blocks, which were often destroyed by fire or civil war. It is said that during the Sung and Yuen Dynasties (960 1368) as many as twenty different editions had been produced, but during the troubles occurring towards the end of the Yuen Period, all of them perished.

Under the Manchu Rule which began in 1644 and ended in 1910, the Chinese Tripitaka was published by the Emperors Shih-tsung

Classification of the Ming Tripitaka. Iripitaka was published by the Emperors Shin-tsung and Kao-tsung who ruled from 1723-1795. But the most important and widely known collection is the Ming collection of the Tripitaka, the Catalogue of which has been edited by B. Nanjio in 1883. It enumerates 1662

works, classified into four divisions: (1)Sūtra, (2)Vinaya, (3)Abhidharma, and (4) Miscellaneous. The first three contain translations and the fourth original Chinese works. The first division called Ching or Sūtras amounts to nearly two-thirds of the whole, for it comprises no less than 1081 works and is divided as follows: (a) Mahāyāna Sūtras 541 books (b) Hināyāna Sūtras 240, (c) Mahāyāna and Hīnayāna Sūtras, 300 in number, admitted into the canon under the Sung and Yuen Dynasty.

The Chinese Tripiţaka is a literary and bibliographical collection rather than an ecclesiastical canon. It consists of translations of Indian works belonging to a particular class which possess a certain age and authority. Among these the Mahāyāna Sūtras contain the works most esteemed by Chinese Buddhists. It is divided into seven classes:—(1) Prajñāpāramitā, (2) Ratnakūţa, (3) Mahāsannipāta, (4) Avatamsaka, (5) Parinirvāņa, (6) Sūtras in more than one translation but not falling into any of the above five classes, (7) other Sūtras existing in only one translation.

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The Vinaya Piţaka is divided into Mahāyāna and Hīnayāna texts. The latter comprising five well-defined recensions of the code, besides extracts, compendiums etc. (I) Vinaya of the Sarvāstivādins, (2) Vinaya of the Mūla-Sarvastivādins of I-tsing (3) Vinaya of the Dharmagupta School, (4) Vinaya of the Mahīsāsakas, said to be similar to the Pāli Canon. (5) Mahāsanghika Vinaya.

The Abhidharma Piṭaka is also divided into Mahāyāna and Hīnayāna. They are philosophical works of Aśvaghoṣa, Nāgārjuna, Asaṅga, Vasubandhu and others. They represent two principal schools of thought, Yogācāra and Madhyamaka. The Hīnayāna Abhidharma show no correspondence to the Pāli Abhidharma Piṭaka.

The Miscellaneous portion contains books from Sanskrit as well as Chinese. The latter consist of about 200 works, historical, critical, controversial, homiletic written by 102 writers.

PROBHAT KUMAR MUKHERJEE

Cosmographical Theories of the Hindu Astronomers

From the earliest stage of the development of human knowledge attempt has been made to fathom the mysteries of creation and to link by a common principle of metaphysical and scientific investigation the different members of the solar system. Now in proceeding with this enterprise they encountered two distinct problems. One was concerned with the nature of the primeval World-stuff; the other with the operation to which it had been subjected. Modern theorists have made it their primary object to expound the mechanism of cosmic growth, the play of forces involved in it, the transformations and progressive redistributions of energy attending it. But early thinkers till the time of Descartes tried to solve this question by assuming an appropriate material for the exercise of their constructive ingenuity.

Thales asserted all things to have been derived from water. Anaximenes substituted air. A crude attempt to determine the cosmic origin is also found in the Rg-veda, where it is stated that at first darkness prevailed everywhere, it was only chaos and water abounded in the whole creation.¹ The Manu Samhitā also asserts that

I Rg-veda, X, 129.

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the creator at first created water and then fire and life.¹ The Vortex Theory of Descartes or the Modern Nebular Theory of Kant and Laplace ultimately reduces itself to the theory that the universe originated from vapour as nebulæ are no better than vapour.

Hindu astronomers have begun the discussion on cosmographical theories with a series of questions regarding the earth, its magnitude and divisions, the situation of the seven Patala Bhumis or imaginary lower regions of the earth, the sun's revolutions the causes of day and night of the Gods, the Demons and the Pitrs, the order of the stars and planets, the position of their orbits with respect to each other in the Universe.² Next they speak of imperceptible agencies of creation, almost the same metaphysical theories as may be found in the Vedas, the Purāņas and other mythological works.

It is said, "At first only darkness prevailed; in that darkness Vasudeva (in whom the whole Universe lay latent), the Supreme Being whose manifestation is everything that exists, who is transcendental, without attributes, and tranquil, who is beyond the twenty-five primordial matters and inexhaustible, who pervades all places within and without,⁸ who is the contracting power (lit., he who contracts) first created water at the beginning and threw his own power (of contraction) in it. That water with the power of contraction in it produced a golden egg. The sides of the egg were even then enveloped in darkness. Out of that egg evolved Aniruddha (whose motion cannot be stopped) Sanātana (who is everlasting). Hence he is called Hiranyagarbha in the Vedas; as he was the first to evolve out he was called Aditya and for the creation of the Universe he is called Sūrya (the Sun). Sūrya (the Sun), whose another name is Savitā, who dispels darkness and who is the cause of the creation, existence and destruction of all beings, is always moving and brings to light the different worlds...... From this originated the moon, the five planets, stars, the earth and other worlds. Brahman, the creator, exists within that egg and hence that egg is called Brahmanda (the Universe). In the hollow of that egg is situated this world consisting of Bhū, Bhuvas etc. and not outside that

I Manu Samhita, chap. I.

² Sūryasiddhānta, chap. XII, verses 1-9.

³ Cf. Rg-veda (Purușa Hymn), x, 90, 1.

egg. It is round (गोलकाक्तति:), as if two cauldrons are joined together with faces in contact."1

Though the above theories seem to be more or less metaphysical, yet they can be given a scientific interpretation. It is seen that अप was first created or was at first in existence. अप is generally translated as water but it also means watery vapour or simply The word any also indicates ether and hence it means vanour. ethereal vapour. Hence it can easily be understood to be the same as nebulæ. Thus as first it was only darkness and ethereal vapour or nebulæ all around. Into that was thrust the force of contraction and the result was the outcome of a golden (सुवर्ष) egg. Utpalabhatta meant by this word "luminous".² In the Manu Samhitā in connection with the theory of creation of the Universe, Kullukabhatta, the commentator, has clearly said that it was not golden but brilliant like gold (ग्रांडिगुगयोगवग्रात्). The visible universe is shaped like an egg, it is not exactly round. By the force of contraction, stars, planets, the sun and other orbs are formed. The force acts within the egg in a state of constant rotation. That is to say, the ethereal vapour which existed at first produced this universe by the forces of contraction and rotation.

The explanation given above is not far-fetched or imaginary. It is the most natural explanation. Then what is the difference between the above theory stated in the Sūrya Siddhānta and the Nebular Hypothesis of Kant and Laplace ?

The Brahmānda or the golden egg of Brahmā is the vast hollow . sphere of the Universe at the centre of which is the earth ; within it all the stars are supposed to revolve daily, and beneath them are the orbits of the planets Saturn, Jupiter, Mars, Venus, Mercury, the Sun and the Moon, in the order of their distances from the centre.³ The earth stands firm at the centre by its own power without other support in space.⁴

In this connection the Hindu Astronomers dwelt on some peculiar geographical theories which have now probably lost their earlier

I Sūrya Siddāhnta chap, XII, 12 to 29 verses.

2 Brhat Samhitā—The chapter on Upanayana (जपनयन), comment on verse 6.

- 3 Sūrya Siddhānta, Chap. XII, verses 30, 31.
- 4 Siddhānta Širomaņi, Golādhyāya, Chap. I, verse 2.
- I. H. Q., SEPTEMBER, 1927

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mythological significance and seem to be pure figments of the imagination.

The circumference of the sphere of the Brahmānda, to which the solar rays extend, is declared to be equal to the product of the moon's revolutions (57,753,336000) in a Kalpa by the circumference of the moon's orbit. Bhāskara says, "Some astronomers assert that the length of the circumference of the sphere of the universe is 1871206920000000 yojanas. But those by whom the astronomical science was thoroughly understood say that it is the length of the circumference of the sphere up to the limit the darkness-dispelling rays of the sun extend. In my opinion every planet covers so much distance in yojanas in one kalpa. Hence it is called Vyomakakṣhā (चोमकजा)".

Varāhamihira has given further details of the constitution of the Universe in his Pañcha Siddhāntīkā :

"The round ball of the earth, composed of the five elements, abides in space in the midst of the starry sphere, like a piece of iron suspended between magnets; covered on all sides with trees, mountains, towns, groves, rivers, oceans and other things, in its middle there is Sumeru, the abode of the gods and below there is the place of the Asuras. Straight above Meru in space one pole is seen; the other pole is seen below, placed in space. Fastened to the pole the sphere of the stars is driven round by the pravaha wind."

Beneath the equinoctial circle is Lankā; there the sphere is right. Day and night there are always of the same length, viz. 30 nādikās.

Of the moon which is constantly placed below the Sun, one half is illuminated by the sun's rays, while the other half is obscured by the moon's own shadow, as is the case with a jar standing in the sunlight. The rays of the sun, being reflected from the moon which consists of water, destroy the darkness of the night, just as the rays of the sun falling on the surface of a mirror destroy the darkness inside a house.

Above the moon there are Mercury, Venus, the Sun, Mars, Jupiter and Saturn (in succession), and then the stars. All planets move towards the east with the same velocity, each in its own orbit. The planets arranged in the ascending order upwards from the moon are the Lords of the months (in succession); in their descending order downwards from Saturn, they are the Lords of the hours; if we take each fifth member of the ascending series we have the Lords of the days. The Lords of the year have been explained before."¹

1 Pañca Siddhāntikā, Chapter XIII.

We have thus given a complete account of the cosmographical theories and the constitution of the universe as stated by the Hindu astronomers. However crude might these theories have been, they were surely the forerunners of the Vortex Theory of Descartes and the Nebular Theory of Kant and Laplace.

SUKUMAR RANJAN DAS

Kumarila and Dinnaga

Any one who is acquainted with the Indian philosophical texts will admit that the controversy between the Buddhists and the Hindu philosophers appears most prominent in the history of Indian culture. But it is a matter for regret that nothing has yet been done to disentangle the various threads in the web of this controversy. The neglect of this field is not, however, without reason. The authors of the texts either make a passing reference to the views of others or quote them without informing us either of their source or of their The commentaries, too, sadly lack the information we seek author. for. They mention only occasionally names of philosophers who hold the opposite views without, however, referring to the work or works from which they have drawn their quotations. Owing to ravages of time many valuable books that were current at the time among literary circles have been lost, and the meaning of many passages of the texts we read today have therefore become obscure. We do not know the proper setting of the views that are found controverted in these books. This is perhaps one of the reasons why the full significance of the controversies has still remained a mystery to us. Fortunately for us, some of the texts that have been lost in Sanskrit have been preserved in Tibetan and Chinese translations. The only thing that we could do under the circumstances is to make a comparative study of the Hindu and Buddhist texts that exist in Sanskrit, Tibetan, and Chinese.

As an illustration we may now refer to the Ślokavārtika of Kumārila and its ŢIkā, the $Ny\bar{v}yaratnākara$ of Pārthasārathimiśra, and compare some of their passages with those of the *Pramāņasamuccaya* of Dinnāga now available only in Tibetan translations. The name of Dinnāga is well-known to the readers of the Nyāyavārtika of Uddyotakara with īts ŢIkā by Vācaspatimiśra. The pages of the Nyāyaratnākara (Chaukhamba Skt, Series) abound in quotations

from the works of a Bhiksu.1 There are also direct references to Dinnāga.ª Kumārila himself once refers to him as Nyāyavid.³ A comparative study of these passages with those of Pramanasamuccaya would convince the reader that Kumārila hurls his vehement attacks here against the views of Dinnaga; and the terms Bhiksu, Bhavadvraddha, and Bhavadīya4 occurring in the Nyāyaratnākara are but impersonal references to the Buddhist philosopher, Dinnaga. This is made still more explicit in the chapter on Apoha; for there it seems as if Kumārila had by his ;side the Pramānasamuccaya of Dinnāga when writing that chapter of his Vārtika.

The parallel passages are given below without noting occasional differences :-

Nyāyaratnākara.

Pramānasamuccaya.5

sbyor las de ni rtogs par hgyur |

bar dan bcas pa hdzin pa dan I

ses pa lhag pahan thob mi hgyur II

1: 37 c-d -38 a-b.

1 : 20^{c-d}.

1 : 7ª.b.

p. 365.

gal te vod pas med bsal na 1

van dag sbyor ba nes par ni l vod ñid la ni bstan pa yin II

- (1) सदित्यसदृव्य दासाय न नियोगात स गंस्रते। संप्रयोगो हि निधमात सत एवोपपदाते॥
 - 4. 36 ; p. 144.
- (2) सान्तरग्रहण' न खात प्राप्ती खानाधिक ख वा। 4, 41 ; p. 146.
- (3) बुद्धिजनानि पुंसुय विक्वतिर्धयनित्यता। अधाविक्ततिरात्माऽयं प्रमातेति न यज्यते॥ 4. 52; p. 150.
- skyes bu rnam par hgyur nas blo I gal te bskyed na mi rtag hgyur || ci ste bdag la hgyur med na l de la tshad ma hthad ma yin II 1:48.
- rtog pahan ran rig ñid du hdod I (4) कल्पमाऽपि खसंवित्ताविष्टा नाधे विकल्पनात् ।। don la ma yin der rtog phyir # 4. 134 ; p. 175.
 - 1 (a) तव सिचुगा, p. 144.
 - (c) यत्त भिचुणा पचधर्मेत्यादि, p. 377.
 - 2 (a) दिख्नागवचनमपि न्यायमूललात, p. 250. (c) दिङ नागवचनमपि, p. 259.
- (b) भिद्युगा विषयैकलंदरणया, p. 361.
- (b) अत एव दिङ्नागाचायेरप्यभय, p. 253. (d) दिङ्गागस्विर प्रत्यचविराधोदाहरण,
- 3 वडानामप्यसदीयानामिदमेवाऽभिमतमित्याइ-न्यायविक्तिरिति, p. 258.
- 4 (a) भवदुई रेव दिङ नागाचार्य:, p. 250. (b) भवदीयेनापि, 250.
- (c) तदा भवदीयात, p. 488. 5 The Xylograph used by me belongs to the Visvabharati Library.

(5)

(5)	अचाऽनेकलवैयय्ये खार्थे भिन्ने ऽपि शकतिमत् ॥	gcig min gzugs sogs gcig tu gyur 1 mthon na dban po las di min 1 dban gz'an don med hgyur phyir ro 1
		ran yul tha dad kyan hdzin nus II I; 25 ⁶ -26ª.
(6)	दृष्टान्तीऽभिह्नितो ह्येष वैधर्म्येषाऽसुश्चितिै: । 5. 154 ; p. 254.	mi mthun phyogs la legs bslabs pas I
	· .	dpe de ñid du brjod pa yin l II ; 103 ^{e.d} .
(7)		gz an gyi don gyi rjes dpag ni ran gis mthon don gsal byed yin - III ; 98 ^b .
(8)	ज्ञानान्तरेगाऽनुभवे हीष्टा तवापि च सृति: । विषयान्तरसंचारसवया न स्वात् स चेष्यते ॥ - 5. 27, 187 ; pp. 277, 321.	ses pa gz an gyis ñams myon na l thug med la han dran pa ste l yul gz an dag la hpho ba na l med hgyur de yan hdod phyir ro ll II; 13,
(9)	पूर्ववत् फलमस्य । 5. 52 ; p. 361.	hbras bu snar bz'in hdi gñis kyi i IJ ; 49°.
(10)	विरुपाझिङनोऽर्घं दक् । 5. 49 ; p. 488.	tshul gsum rtags las don mthon paho l II ; 49 ^b .
(11)) न जातिग्रब्दी भेदाना- मानन्त्यव्यभिचारत: । वाचकी योगजात्योर्वा भेदार्घे रप्टथक् ु्युते : ॥ 51, 114 ; p. 596.	rigs sgra khyad par rnams la min l mthaḥ.yas phyir dan ḥkhrul paḥi pyir l brjod byed ldan nam rigs tha dad l don dan tha dad med thos phyir ll V; 171.
(12)) तद्दती नाऽस्वतन्त्रलात्। 5. 120 ; p, 598.	ran dban med phyir de Idan min I V ; 173ª.
(13)	तबांखु भेद एवेष्ट: स तु पूर्व निराक्तत: । तबन्गावे ऽपि सम्बन्ध: सना वेति विचारितम् ॥ 5. 128, 131 ; pp. 600-601.	de ldan kyad par ñid la brjod $ $ de yan snar ni spans pa yin $ $ de ldan tsam ni hbrel ba ham $ $ yod pa yin z'es rnam par dbyed $ $ ∇ ; 178.

			RUMARILA AN.	D DINNAGA
	(14)	तदानर्थों घटादिर्थ - न्न घटादिषु वर्तते । सामान्यमर्थः स कथ- मितिं तद्ददवाखता ॥	5, 131 ; p. 601.	de ltar de ni bum sogs bz'in 1 bum pa la sogs rnams la spyi 1 mi hjug de don ji ltar yin 1 de yan rgyu mtshan med mi hdod 11 ¹ V; 179.
	(15)	मा सूदर्धान्तरे बत्ति- य [°] द्येकवाऽचितादिवत्	5. 131 ; p. 601.	gcig la dkar po min sogs bz'in 1 V; 180°.
	(16)	नैवं जातेरजातित:	5. 131 ; p. 602.	de min rigs la rigs med phyir V ; 180°.
	(17)	त्रर्थाचेपेऽ c वनैकान्त:	5. 133; p. 602.	don gyis ḥbaṅs kyaṅ ma ṅes so l V ; 180ª.
×	(18)	भेदो भेदान्तरार्थं तु विरोधिलादपोच्चते ।		khyad par don gz an khyad par ni l hgal bahi phyir na sel bar byed li V; 197 ^{a.b} .
	(19)-	त्र्रच्यत्वे ऽपि न सामान्य- भे दपर्यां यवाचिनाम् ।	5. 149 , p. 606.	spyi dan khyad par rnam grans sgra gz'an ñid yin yan sel mi byed V ; 194 ^{c-d} ,
	(20)	अटष्टलाइ व्युदासी वा भेदानामितरेतरम् ।	5. 155 ; p. 608.	yan na ma mthön phyir sel to j khyad par gyi ni spyi bsal hgyur jj V; 200 ^{a-b} .
	(21)	नाऽन्ययुक्तस्य दृष्टलात्	5. 155 ; p. 608.	ma yin gz´an ldan mthon bahi phyir 1 V ; 2 00°.
	(22)	तन्माताऽऽकाङ्चयाद भ तत्सामान्वे न नोज्भितः		de tsom hdod phyir khyad par ni \cdot ran gi spyi yis spoņ mi byed ı V; 195 ^{ab} .
•	(23)	हचलपार्धिं वद्रव्य- संञ्रेया: प्रातिखोम्यत: । चतुस्त्रिद्व ाकसन्देद्रे निसित्तं निषयिऽन्यथा ॥	5,158 p. 609.	sin ñid sa las gyur rdzas yod 1 ses bya go rim bzlog pa las 1 bz'i gsum gñis dan gcig the tshom 1 gz'an du des la rgyu mtshan yin 11 V•; 204.
	(24)	जातिधर्मव्यवस्थितेः ।	5, 163 ; p. 611.	rigs kyi chos ni rnam gnas phyir (V; 206ª.
	THE OF	ADVANCE		H. R. RANGASVAMI IVENGER
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