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OF THE

BURMA RESEARCH SOCIETY

Volume IV

1914

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(FOUNDED 1910)

For the Investigation and Encouragement of Arts, Science and Literature in relation to Burma and neighbouring Countries.

PATRON.

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President.

FURTHER CORRECTIONS TO THE BURMA RESEARCH SOCIETY'S
JOURNAL Volume IV, Part I

On page 23, 6th, line from bottom (foot note) read "Parahita or" after "Siddhanta."

On page 24, 23rd, line from top for "Bavari" read "Baravi."

On page 43, 1st, line from top for "571" read "751."

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EDITOR'S NOTE

The Editor has made the following changes with regard to the Journal.

1. The size has been enlarged to make it more convenient to print photographs, inscriptions and other plates.

2. The Journal will be brought out three times a year—in April, August and December—so as to arouse more interest than has hitherto been felt.

3. The List of members will be published in the December number only.
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WHY IS BURMA SPARSELY PEOPLED?

There is one point in connection with the history of Burma on which it would be interesting to have some light thrown, and that is the reason why the population of the country has never, apparently, become so dense as it is in the adjoining countries. In India, China and Japan we have populations so dense that, even with constant labour and the strictest thrift, the great mass of the people are barely able to procure enough food to keep themselves alive. Roundly speaking, half the population of the globe is crowded into that corner of Asia, and millions probably go from birth to death without ever knowing what it is to have enough to eat. Yet in the tract lying between India and China and comprising the countries we now know as Burma, Siam, and French Indo-China, there is a large tract of fertile land which is under-populated. That is the state of affairs now, and, apparently, such has also been the general condition for many centuries past. It is true that Cesar Fredericke, writing in the sixteenth century, says that "the King of Pegu hath not any army or power by sea, but, in the land, for people, dominions, gold and silver, he far exceeds the power of the Great Turk in treasure and strength." This points to a considerable population, in Pegu at least, at that time, but it is very unlikely that even then it was great enough to press hardly on the means of subsistence. Had it done so, one would have expected some comment on the poverty of the poorer classes. Cesar Fredericke, however, must have seen a good deal of poverty in the countries he visited, so he may have taken some poverty in Pegu as a matter of course; but it was clearly its wealth that impressed him most forcibly. The absence of any power by sea is a stronger indication that the population did not even then press very hardly on the food supply. Had there been such pressure, continued for any length of time, it would surely have evolved a class of sailors and a navy of some sort, if only for river service at first. The ruins of Augkur Wat point to a fairly dense population in Cambodia at some remote time in the past. There are doubtless, other indications, Pagan, for instance, in Burma, of a fairly dense population, for a time at least, in parts of the tract of country we are considering, but there is no indication, so far as I can gather, of the pressure of the population on the means of subsistence ever having been felt throughout Burma, Siam, and French Indo-China, or of its having lasted for long if it ever did exist, in any part of the tract in question. In India, China and Japan, on the other hand, there has always been a comparatively very dense population. Something approaching the present difference in this respect seems to have prevailed for two thousand years or more. How comes it then that the tract in question has not been filled up, either by natural increase of its own people or by immigration?

No doubt, emigration in the centuries long gone by was a more difficult and dangerous undertaking than in our own times, but all the world over it went on from time to time. When population became so dense that it was difficult for the people to live at home, colonies were sent out to acquire new lands. History, even that of remote times, so far as we know it, shows that such migrations of surplus population were common enough. There is every reason to believe that the present inhabitants of Burma are the descendants of immigrants from India, from China and from Tibet, who came into the country some two thousand years ago or more. We know also that Buddhist missionaries from India came to Burma, probably before the commencement of the Christian Era, and that they penetrated as far as China. We know also that Indian Traders came to Burma from very early times. If there had been actual migrations before, and if missionaries could

* Read at the annual meeting on the 3rd February, 1914.
go all the way to China while traders visited the coast of Burma, surely there would have been further migrations whenever the density of population in China or India made it difficult for the people to continue to live at home. No doubt the first settlers would prove a more formidable foe to any newcomers than any they had themselves encountered on their entrance to the country. This may account for the failure of further armed migrations after the first immigrants had settled down in different parts of the country. But with traders and missionaries visiting the country freely, one would have expected to see some peaceful migrations of families or groups of families whenever the pressure of population was felt severely in India or China. Such immigrants would probably have been welcomed by the Burmese kings who were always anxious to secure a large population, and who were very tolerant of foreign creeds and customs. Yet, neither from this source nor from the natural increase of the domiciled population, did the country ever really fill up permanently.

The cause certainly did not lie in the infertility of the tract in question. The greater part of it is exceedingly fertile, and is singularly free from the droughts which periodically decimated the inhabitants of large tracts in India. The dense forests would not be much of an obstruction to people who would not scruple about burning a clearing for their cultivation. Yet all this fertile tract remained for centuries as sparsely peopled as if it had been as unfertile as those regions in which only a scanty population can live. If, during all that time, China and India were so over-populated that the mass of their inhabitants were always more or less hungry, it is very singular that there were not more migrations, warlike or peaceful, into this comparatively empty tract, where the conditions were so much more favourable. If the pressure in India and China was never great enough to induce further migrations into this fertile tract lying so near, how comes it that the descendants of the earlier migrants did not increase and multiply so as to really fill the land?

One important factor in the welfare of any people is the sort of government it has evolved. With security of life and property maintained the population has a better chance of increasing than if lawlessness prevails. So far as government goes, however, it is doubtful whether the tract of country we are considering was very much worse off than India and China. Despotism prevailed everywhere, and despotism is much the same in all times and places. Occasionally the reigning despot is enlightened enough to understand that the interests of his people are identical with, or rather the very foundation of, his own. At times too he is of a kindly disposition and really anxious for the welfare of his people. But far more frequently the despot is a selfish brute, intent only on the gratification of his own ambitions and passions, and utterly careless of the sufferings of his people. Even when the despot means well his good intentions are often frustrated by his own utter ignorance of economic law, or by the selfishness and guile of his officials. There have been capable and intelligent despots who ruled well, but they have been rare exceptions everywhere; and under despotism the mass of the people have generally had no real security of life and property. The Government of China may have been a little better than those generally prevailing in India, Burma, Siam, or elsewhere. In China the Government was possibly more stable, and the study of literature may have checked to some extent pure barbarism. But even in China the government was a despotism and was often barbarous enough in its methods. In India one tyranny succeeded another and it was quite the exception for the reigning despot to take an enlightened interest in the welfare of his people. Very much the same conditions obtained in Burma and elsewhere. In China, India, Burma and Siam pure despotism prevailed; everywhere there was occasionally a more or less capable despot, but unenlightened tyranny was the general rule. It would be hard to say where things were worst on the average, but there is
no reason to suppose that Government was so much better in China and India as to account for there being dense populations there while in the intervening tract it failed to increase.

War is one of the agencies by which population is supposed to be kept down. But here again there is no reason to suppose that there was less of a check from this cause in India and China than in Burma and the adjoining countries. Indeed, so far as India at least is concerned, the population must have suffered more from war than that in Burma, for instance. Both in India and in Burma, local kings were certainly warring with each other. In that there was little to choose between the two; but India had to suffer recurring invasions from without, a scourge from which Burma was comparatively free. If war had been the main agency in keeping down the population of Burma, India must have suffered more as it had to endure ruthless invasions from without as well as wars between local rulers. Yet the population was not kept down in India as it was in Burma.

Everywhere, of course, there was the same absolute ignorance and disregard of all sanitary laws. But as this disregard tells more powerfully on densely packed populations than on scattered ones, the toll of life destroyed by this cause must have been heavier in India and China than in the sparsely populated intervening tract. Yet, in India and China the population remained dense, while in Burma and the adjoining countries it remained sparse. Nor is there any reason to suppose that the failure to increase was due to any want of fertility in the people. On the contrary, if we may take the rulers as an index, the trouble about succession to a throne in Burma often sprang from the number of sons the departed monarch had left, while in India it was frequently due to his failure to leave any heirs. The system of marriage prevailing in Burma would have been more conclusive to increase, one would have thought, than the Indian system in which mere children are married, sometimes to old men, and widows are not allowed to remarry. As a matter of fact almost all Burmese women do marry, and most of them have several children. They are certainly no less affectionate towards their children than women elsewhere, and, if they are often ignorant of the laws on which the rearing of healthy children depends, they are no worse in this respect than Chinese or Indian women. Yet China and India had always dense populations comparatively to that of the intervening tracts. How great that density was we do not know exactly, of course; but it is very great in our own days and probably was nearly as great during preceding centuries. The ability of the natives of India to live on so little, and the like quality in the Chinese combined with their remarkable industry, could scarcely have been evolved without long experience of a severe struggle to maintain existence.

So far as our knowledge goes, we have every reason to believe that both China and India have always had dense populations compared to that of the intervening tract. Yet in that tract the conditions were on the whole more favourable to an increase of the population. The soil is at least equally fertile and failure of the rains is almost unknown; marriage was based on a more rational principle than in India; and there was comparative freedom from invasion from outside. Everywhere the government was a pure despotism and generally very bad; everywhere there was absolute ignorance of the laws of health; and everywhere the reigning despots were continually at war with each other. Taking all these factors together, one would have thought that the chances of increase in population were greater in Burma, Siam, and French Indo-China than in China or India. Yet the actual result was the reverse of what one would have expected.

There must be some cause for this and I shall be glad if any one can suggest a reason for it. I have not been able to think of any satisfactory explanation. The only suggestion I can make is that one of the causes may lie in the difference in the prevailing religion. In the sparsely peopled tract the prevailing religion has always been Buddhism, more or less mixed with earlier
WHY IS BURMA SPARSELY PEOPLED?

beliefs, no doubt, but still Buddhism is the dominant belief, and the ideas of
the great mass of the people are very largely influenced by Buddhist teaching.
In India Buddhism, on the other hand, has long been ousted from the religious
thought of the great mass of the people. In China, no doubt, Buddhism
has held its ground to some extent, but it can scarcely be called the dominant
belief, and the other religious teachings mixed with it are not the mere primitive
religious beliefs which are mixed with it in Burma and, probably, in Siam
and French Indo-China. I have a very great respect for Buddhism and admire
its teaching, so mean no disparagement of it in any way in what I am
about to say. Religions cannot be tested by their effect in helping on the natural
increase of the population. That increase may be a good thing or a bad
thing according to circumstances. The test of a religion must lie rather in the
quality of the human life it tends to effect than in the quantity. Buddhism
teaches a code of high morality and, in so far as its moral code is obeyed, it
may be conceded at once that its effect must be to improve the quality of life
affected by it. But it is possible that the quantity of human life may be
affected adversely by a religion such as Buddhism, which represents life on
this earth as an evil to be endured; which offers only spiritual rewards to the
righteous; and which makes marriage only a civil contract between persons
avowedly not aiming at the highest life.

The difference between the view taken of marriage by Hindus and Buddhists is well brought out by Miss Bode in the following passage, taken from
her "Pali Literature of Burma":—"We come next to the Wagaru Dhamma-
sattha, compiled by the King of that name reigning at Martaban in 1280. It
is typical and important. Forchhammer in his learned study of the text makes
a careful comparison between the Wagaru and the Hindu Manu and other ancient codes, chiefly Yajñavalkya and Narada. The comparison brings out
clearly the pervading Indian element in the code; at the same time the trans-
lator finds material for some very interesting observations on the radical difference between the Buddhistic law, of which this is the first noteworthy docu-
ment, and Brahmanic law, from which the Talaing code takes its form and
most of its provisions. This difference is in the spirit. The Vedic sacerdotal
element has vanished from the Wagaru. For instance, sacraments, (such as
marriage) the efficacy of sacrifice, the possibility of expiation by penance, are
all an essential part of Brahmanic law. But the Buddhist law-givers ignored
the sacramental view of marriage."

To many people who claim to be in the forefront of modern thought
the Buddhist law-givers will appear to have been quite right; and, so far as
the efficacy of sacrifice and the possibility of expiation by penance are concerned we need not discuss the matter here. But though the Buddhist marriage law
may come nearer to much modern thought on the subject than any law based
on the idea of its being a sacrament, it is possible that this sacramental idea of marriage really does work towards the consecration of the home and so tends
towards the preservation of the children and to the increase of the population.
The idea of the State being in any way responsible for the upbringing of the
children is, apart from Spartan discipline and perhaps, one or two other exceptional instances in the past, quite a modern idea even in Europe. In Asia it
was practically unknown. The despots ruling throughout the countries we are
considering regarded the people as an asset and utilised them extensively for
fighting purposes or for building gigantic temples, if that happened to be the
prevailing hobby. But not one of these despots, so far as I know, ever thought
for a moment of any duty in regard to the preservation or right upbringing of
the children. That was left entirely to the parents, and if they died, the child-
ren must have had a poor chance. In Buddhist countries the system of free
education in the monasteries must have done much for orphan boys, and, at
first sight this would seem to make for a greater preservation of the children than in non-Buddhist countries. But it is possible that the sacerdotal view of
marriage in India was really a more potent influence in this direction. It em-
phases the relationship of the father, his responsibility and his duty; whereas, with purely civil marriage, the relationship of the mother is apt to be the more dominant idea. In troublous and unsettled times especially, this difference in the point of view might, possibly, make a considerable difference in the survival of the children. In the one case, the idea of the sacredness of the family to which the children belonged through their father would be some sort of protection, not only during his life, but even in the event of his death, as his relatives would wish to see the family life carried on. No doubt, there was much of the same sort of help in Buddhist countries through natural family affection, but even the affections are the better of being reinforced by other considerations, when it comes to taking over the maintenance of a brother's family left destitute; and the sacramental view of marriage, along with the ideas usually going with it, give precisely this reinforcement to natural affection.

The ideas which have generally gone with the sacramental view of marriage are well brought out in the case of the Jews. In Genesis we are told that Adam said on the creation of Eve:—“This is now bone of my bone and flesh of my flesh... Therefore shall a man leave his father and his mother, and shall cleave unto his wife; and they shall be one flesh.” This at once puts marriage on a very different footing from a civil contract, and the Jews, I understand, have always kept more or less strictly to this exalted view of marriage. Throughout the whole of the Old Testament, it is evident that the ideas associated with marriage were the hopes of a numerous and permanent posterity. The rewards of the righteous man were not purely spiritual ones but also prosperity during his lifetime and a numerous posterity. A few instances will suffice to show how this idea of carrying on the family permeated Jewish thought. After the flood, God blessed Noah and his sons and said unto them:—“Be fruitful and multiply and replenish the earth.” Again, when Abram was told to leave his country and kindred, the promise made to him was:—“I will make of thee a great nation.” Later on, in the Psalms we are told that the seed of the righteous man shall be mighty on earth; that children are an heritage of the Lord, and happy is the man that hath his quiver full of them. Christianity, of course, struck a very different note. In the New Testament the rewards offered became more purely spiritual ones, but Christians retained the Old Testament as part of their sacred scriptures, and the Christian Church very early insisted on the sacramental nature of marriage. It is the Jews, however, whom we are considering at present, and it is a very remarkable fact that they have continued to increase and multiply in spite of centuries of persecution and oppression. If the Jews in existence today, scattered over every quarter of the globe, could be replaced in Palestine the country could not maintain them; and this is true, I believe, even if we take only those who have remained true to their Church and creed, in spite of centuries of exile. Besides these, of course, there are numbers who have been absorbed into the nations among whom their lot was cast and whose descendants have ceased to be reckoned among the Jews. Everything seemed to be against the increase of the Jews; yet, they have increased, and it is possible at least, that their ideas about marriage and their strong desire for a numerous progeny have been among the factors bringing about that increase.

The Hindus have also made marriage a sort of sacrament and their religion has done something to foster the desire for a son or sons. Here too the result seems to have been a population always pressing more or less closely on the available food supply. I know very little about the ideas prevailing in China regarding marriage, but the veneration paid by a Chinaman to his ancestors must lead to a desire for sons to carry on the family line. In the country lying between India and China, and in which Buddhism became the prevailing creed, the population has failed to increase in the same way, and I suggest that this may be due, in part at least, to the purely secular view taken of marriage and to the absence of any idea of a distinctly religious end to be served by leaving male descendants. There is no need to consider mountai-
ous regions which could not support a large population, and, apart from these, the only other country where Buddhism has long been the prevailing religion is Ceylon. I know little of the details of the history of that island, but, apparently, the Buddhist inhabitants had considerable difficulty in holding their own against invading Tamils. How far was this due to the Buddhist population not increasing as rapidly as that of the Tamils did? The latter seem to have invaded Ceylon repeatedly, pressed on, probably by the difficulty the increasing number of Tamils found in maintaining existence at home. It is curious that the same cause does not seem to have caused repeated invasions of Burma from India and China, and for this, I can suggest no satisfactory reason though, no doubt, an invasion of Burma from India or China would have been a more arduous task than an invasion of Ceylon by the Tamils.

In conclusion, I repeat that no depreciation of Buddhism is meant. It is not the aim of religion to increase the quantity of human life but rather to spiritualise the thoughts of its followers. Nor do I maintain that it is always a gain to increase up to the very limit of the food supply available. But it is a very remarkable fact that the large and fertile tract of country we are considering should have remained, century after century, so sparsely peopled instead of filling up as India and China did; and I suggest that one factor in bringing this about may have been the absence of sacerdotal and sacramental ideas about marriage and of any religious motive to reinforce the natural desire to leave descendants to carry on the family line. If the same state of affairs really did prevail in Ceylon, the case for this being one factor in bringing about this result is strengthened. There may have been other factors also though I have not been able to think of any probable one. But, more especially in view of the tendency of modern thought to favour some loosening of the marriage bond and to shirk the burdens of parent-hood or at least, to restrict families, it would be interesting to know how far Buddhism has helped to bring about the scanty population in pre-eminently Buddhist countries. Dense populations have their drawbacks, of course. They intensify the struggle for existence and make life very hard for the mass of the population. But it is through such struggles that grip and character, industry and thrift are evolved; and, as France is beginning to realise, a stationary population is apt to be at a serious military dis-advantage when its neighbours are increasing and multiplying in the most approved Biblical style.

J. STUART
RĀJĀDHĪRĀJA VILĀSINI

"THE MANIFESTATION OF THE KING OF KINGS"

A PALI HISTORICAL WORK EDITED AND TRANSLATED

BY

Professor MAUNG TIN, M. A.
RANGOON COLLEGE

Preface:—The present text of Rājādhīrāja Vilāsini is based on a palm-leaf manuscript in Burmese characters obtained from Mandalay and deposited at the Bernard Free Library, Rangoon. The text is accompanied by a commentary in Burmese, which I have consulted with great profit.

The work is an historical account of one of the greatest of Burmese kings, Bodawpaya, who reigned from 1781-1819 A. D. It would be too much to expect from a work like this any great discoveries, if any such were to be made, with regard to that king. Everything we should know has been related in the extent voluminous Burmese histories. The Kon-boungset history especially is a mine of information in this respect. Yet the present work is of great importance not only because it is the work of a Burmese scholar but also because it gives us, as part and parcel of the main story, a very full account of the ancient traditions of the Kings of Burma. Two instances will suffice: The ancient ceremony of anointing the king and the treatise on the white Elephant.

The author is Nāṇābhivāṃsadhammasenāpati, the learned Sangharāja or the Supreme Head of the Clergy, in Bodawpaya's reign. From a literary and historical point of view, the present work is his masterpiece, reflecting credit less on the achievements of the king than on the accomplishments of the author himself. Indeed, there are so many references that my chief difficulty has been to verify them. The style on the whole is very ornate and diffuse. The work speaks for itself, and does not need much by way of introduction. Hence I have thought it proper to reserve a few remarks of mine for the Appendix, only pointing out here that Mrs. Bode, in her Pali literature of Burma, pp. 74 et seq. has analysed the work very ably. As it is not likely that palm-leaf MSS will be possessed by many readers, I have given in foot-notes the references to those works published in Roman characters only.
RĀJĀDHİRĀJA VILĀSINĪ

Nama tassa Bhagavato Arahato Sammāsambuddhassa

Jayatu :—1. Dhammābhicakkaṁ dharadhippajaggo
Dhammāvudho yo dharaṇāridhānaṁ
Pattu jayaṁ yojjhasahāṁ name naṁ
Me dātu-m-ukkāmsajayaṁ tadago

2. Susetachattaṁ va tapan nisedhako
Susetachattaṁ va sukhabaddado ca yo
Vasanāupāsanaṁavarānam nam edaṁ
Rahāthu helārahasātasāharaṁ

3. Saṅgandhikeneva saphulla ādminā
Saṅnāya rāgādisadāturāṁ jahā
Saddhammatejena saduttamaṁ name
Sandātu me bhimmaspūtapāhanyaṁ

4. Rājādhirāja yo sūro jagindo jagatissaro
Saṅkuto satimā dhīro supūṁno suṭṭhāno viro

5. Pitakesu ca vedesu vejjasatthesu chekako
Nipuṇo hathhisipādāṁ 'nekavijjasu sabbathā

6. Cando viya 'nuggahaṇe sūriyo viya iddhiyā
Chamā viya kammākamme guṇehi sīgaro viya

7. Iccādinā thomitassa assa rājādhirājino
Abāsākānubhāvena lokasaṅgahāņena ca

8. Sasanānuggahenaṁ 'nekārājiddhiyāgataṁ
Visesato chābh Isisakakari ājānaṁalakkhaṇo

9. Taduppattiṁ dipayanī ayaṁ hessati sūdhakaṁ
Kāmačāyaṁ tathābhūtā rājākathādinissitā

10. Kammakatāsaṁbutaṁ sūpañ sūtaṁmayādkaraṁ
Bhavissati taṁ suṇatāṁ pitāmpājavadhiyanam

11. Tasmā taṁ rājādhirāja vilāsiniṁ yathātathaṁ
Nisāmetha sammābhitaṁ dullabhaḥ hi ayaṁ kathā ti.

CHAPTER I.

Tatrāyaṁ uddeso hoti. Esa hi mahārājā asambhinnakhatthiyānvayassa
ādīcchavānasambhubhūtassa Ratanāsīnīkapūrakārassa Buddhākutaramahādhama-
rājassa puttabhūto Mahājeyapūrakārassa mahāraṇo ceva Ratanāpārakārassa
CHAPTER II

5. Samutli.
CHAPTER III.

Evamayan mahādharmarājā sakalanikhilabhāpālamāṇḍalābhisekavisesam anātāgadārasadhitaparamparābhīśeκanacesadisesā adhunā anānāśādārāgyaṁ sītisayaṁ mahādharmarājābhāvamubhāṭaṁ paramavara kāṭhiyābhisekamukumāṇddhiyabhaṁ patvā lokahitamā sāsanāhitacca dīghadassī dīghampākekkhamānā raṇo cakkavatissaya parināyakaranarāyaṁ viyā adhvaṁhamammatkālaṁparisaṅkalasūdīpaṁcaṅgasamannāgatānaṁ sūraviradhāraṇānāpūnā padhāṇāvantaṁ Sirimahādharmābhijeṣisasuṁsrā nāma parināyakam ubbatosisuṭṭyāya saha pīḍhayatiya uparajābhisekana saṃbhinnakāṭhiyādīccavṛsaṁsaṛavamahānviṣanamāniscari paṭipādepyavā ubbatosisuṭṭasurūpiyānaṁapāpaṭipācādīccavṛsaṁsampannaṁ paṁnapūnāsaṁrasobhaṁādīsirikinetanīkam Māheṣyapurāṇaṁpiṣayetanetam 6 ubbatosisuṭṭya saṁbhinnā pīḷaṇṇetatiya rājaṅukurattanayıḷadda saṃbhinnakāṭhiyādīccavṛsaṁsampannaṁ nīcālanā śīlaṁ tīrayati pīḍhayatiya saha pīḍhayatiya. Kāthāṁ lokasaṅgaḥtāye tāva? "Yasmin bhikkhave samaye rājano adhammikā honti rājayuttā ṭasmin samaye adhammikā honti" ti ādina Aṅguttarāgamavare Bhagavataṁ vutthaṁ adhammikatadosanāṁ dhammikatāṁsaṁhaṁca manasi saṅkāraṁ yaṁ "yo ca rājā adhammattho raththaviddharaṁ suo muṇo tāpaṁyāva janapadaṁ tāpanne pecca 7 paṭcā" ti ādina Saṅkhiccājatake saddassam dassetām adhammim-
THE MANIFESTATION OF THE KING OF KINGS

THE MANIFESTATION OF THE KING OF KINGS

Honour be to Him, the Blessed, the Saint, the Fully Enlightened.

May there be victory. —1. The Buddha, who holds (1) the noble wheel of the Law, rides the elephant of intellect and makes a weapon of the Law, has attained to victory, having shaken off the enemies of existence (sc. the kilesas). May He hold in battle I honour. May He thus exalted in honour (2) grant me unstinted victory.

2. The Law, which like the graceful white umbrella (3) subsides anxious thoughts, and like the graceful white umbrella bestows happiness and is excellent in being praised by Him who knows the best (the Buddha) I honour. May this trio of dalliance, secrecy and pleasure be put away from me.

3. By the power of the good Law and by perfect knowledge, the perennial diseases of lust and so forth have been abandoned by the Clergy, just as though they have been removed by the sweet fragrance of a full blown lotus. That Clergy of eternal goodness (4) I honour. May they help me to forsake all fear together with evil (5).

4, 5. The King of kings was a hero, lord of men, master of the world, wise, mindful, steadfast, possessing great merit, very active and mighty; well versed in the Scriptures, the Vedas and treatises on medicine and thoroughly skilled in managing elephants and in various other arts and sciences.

6. In patronizing the people he was like the moon, in majesty he was like the sun, in work great and small he was like the earth, in merit he was like the ocean. (7)

7, 8. Thus by the power of the coronation of this King of kings, so honoured and by virtue of his favour shown to the world and of his maintenance of the religion, he was replete with the various requisites of kingly power. The white elephant (8) of pure breed arrived for his use.

9—11. This treatise will explain carefully all the circumstances. Because it verily is compiled from royal mandates and other sources and will produce in listeners increase of joy and gladness and give them that knowledge, which, besides other things, is connected with the condition of having karma as one's portion, (9) and which is acquired through verbal intercourse with the wise, (10) therefore listen attentively to this treatise, the Manifestation of the King of kings, a faithful record. Such a true record it is difficult to get.

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(1) dhara=dhārā.
(2) tad-aggo.
(3) Burmese emblem of royalty.
(4) Sad-uttamam=Sada-uttamam. It may also be taken to mean Sat-uttamam, "best among the good."
(5) Bhimma-sa-papa-hayanam.
(6) Sa-uthana.
(7) In this simile, the moon is the emblem of kindness, the sun of power, the earth of patience, and the ocean of extensiveness.
(8) Chabbisā, 'having six-rayed tusks' = chuddantā, the name by which the white elephant is known to the Burmese.
(9) Kammusakāta.
(10) Sula-maya.
SYNOPSIS OF THE STORY.

Here is the account in brief:—This king was descended from an unbroken line of kings of the Solar race and was the son of King Buddhakura, (11) who built the city of Ratanabāhu (12). He was also brother (13) to the king (15) who built Mahājeyapūra and to the king (15) who built Ratanapūra (15); and he himself built the royal city of Amaṛapūra, similar to the city of the gods. He was endowed with the excellent wheel of the attainment of meritorious deeds done in former existences. Having crushed all the host of his enemies, he attained to the noblest royalty and was twice anointed king. He took a constant delight in the observance of hereditary precepts, such as patronizing the people, (17) the conditions of non-decay, (18) the kingly duties (19) and so forth. He was well practised in the Perfections, (20) such as alms-giving, precept, patience, exertion, etc. He showed favour to the world by finding out the various means of making the country people happy, and he showed favour to the religion by choosing the various means of establishing the good Law. Thus he was inaugurated twice on the strength of his meritorious deeds rightly heaped up in former existences. By virtues of his inauguration in having duly performed the kingly duties, by virtue of his favour towards the world in promoting the happiness of the country people, and by virtue of his favour towards the religion in establishing the good Law, all manner of islands, ports, kingdoms, districts, villages and towns become his own by conquest; presents of all sorts were sent by various kings; and many noble elephants of various breeds, colours and ages were distinguished by being made state elephants (21). Thus was he replete with the various kingly powers. And especially there arrived to him the white she-elephant born full-white, replete with the five attributes of a jewel in the difficulty of possessing it, of getting a sight of it, etc., endowed with excellent beautiful characteristics and as lovely as the jasmine flower, the lily or the autumnal moon light. More excellent still than that was the noble full-white elephant, which also arrived, which was of pure breed, endowed with the five attributes of a jewel in the difficulty of possessing it, of getting a sight of it etc., descended from a race of royal elephants having six-rayed tusks, a representative (22) of the sky-traversing elephants, covered with an excellent skin beautiful as the lotus full-blown and with a white pericarp in the middle, and replete with the characteristics of beauty, both great and small. The result of karma is indeed beyond imagination. Here ends the story in brief (uddesa).

CHAPTER II.

INAUGURATION.

Now the Uddesa (the short story) will be expanded sometimes by the Niddesa (of medium length), sometimes by the Paṭiniddesa (in detail) in a fitting manner, in accordance with truth and free from falsehood by making use of the six ornaments of interpreting a passage, (viz, condensation, preliminary remarks, exposition, differentiation, commentary and regulation) and of the five parts of speech, (viz, concord, simile, causation, example, deduction).

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1. Alamāra (A. D. 1753-1760).
2. Shwebo.
4. Sagaing.
5. Sinbyushin (1763-1776).
6. Ava.
7. The four Sangaha's, viz, alms-giving, sweetness of speech, beneficent rule and impartiality.
8. Viz: 1. To hold frequent meetings with the ministers. 2. Not to transgress ancient rules and regulations. 3. To honour the aged. 4. Not to sin against the daughters of the people. 5. To make offerings to shrines both inside and outside the town. 6. To preserve shrines.
9. To succour the Clergy.
10. See below p. 21.
11. opaguyhabhava.
12. 'Samanito, one who brings or is comparable to.'
There was a king named Mahāsammata, a powerful king, the abode of the purest virtues, of the Solar race, the eye of the world, radiating rays of virtue and dispelling darkness like a second sun. Being anxious for the benefit of the world, he laid down rules of conduct for all and no opponent dared transgress them. They say that this famous king of kings, the great hero, who was director of the world’s regulations and who existed from the first was Mānu. Thus as related in various books in this auspicious koppa which is to witness the birth of five Buddhas, (23) starting from the beginning of all kings, the great king Mahāsammata, otherwise called Mānu, offspring of the light-giving sun, we come to the whole line of his sons, grandsons and descendants, Roja, Vararoja, Kalīya, Varakalīya, Uposatha, VARAPOSATHA, Mandhūta, Mahāmandhūta and so forth, whose number passed the bounds of calculation. When the great religious festival of giving the drink of the gods to their relations, mankind, had been duly celebrated by the four fully enlightened Buddhas (24), who discovered the four Truths (25) in the course of an immense period of time expressed by the eighth antarakoppa (26), and when the parinibbāna (death) of the Sākiyan Saṅhati, the lion of the Sākiyans, of the dynasty of the Sākiyans, torch-bearer of the Truth and offspring of King Okkāka had taken place, and when Mahādharmarājīdhīpati of Ratanāpūra had duly reigned for eighteen years as the last of the kings, who built according to their dynasties many hundreds of towns, such as, Sīvākhettpūra, (27) Arimaddanapūra, (28) Bhūmikapūra, (29) Vijaya- pūra, (30) Jeyapūra (31) and Ratanāpūra (32) at a time when the whole of Burma was in a fearfully disturbed state, a peace-maker appeared very opportunely in the person of Budhaṅkurā Mahādharmarājī, who was directly connected, through an unbroken line of kings, with Mānu of the dynasty of the Sun the giver of light to the whole world, who was descended from Narapatijeyasūri (1174-1211 A.D.) of Arimaddana, who was the glorious home of wisdom, merit, beauty of form and other qualities and who brought exceedingly great happiness to the people. Celebrated in every place, this great king ruled as the king of kings in the whole of Burma, having fully stamped out her fears. He created the great city of Ratanāsūkha, adorned with golden palaces and complete in all its parts. Doing good for the world and the religion he enjoyed for eight years kingly glory like the glory of the king of gods and in no way different from the glory of a universal monarch. After him reigned for four years his eldest son, named Siripavaramahādharmarājī (33) builder of Mahājeyapūra. When he passed away, his middle brother, Sirisuddhamamahārājī (34) lord of men and builder of Ratanāpūra reigned for twelve years. After him, his son (35) reigned for six years. [11] Thus there were thirty years of kingly rule commencing from Budhaṅkururamaḥādharmarājī. Thus when his predecessors as said above had reigned justly for thirty years, this king, (36) who was of the Solar race and descended from an unbroken line of kings, by his unparalleled authority, might, power and merit, crushed all the host of his enemies, who were destroyers of the

(23) The present koppa is called bhadda, because five Buddhas must appear. Kakusandha, Konagamana, Kassapa and Gotama have appeared. The fifth will be Metteyya.

(24) See note (23).


(26) An immense period of time during which man's age increases from ten years to an incalculable number and then decreases again to ten years. It is divided into eight yugas.

(27) Frome, founded by Dwittabuun in 463 B.C.

(28) Pagan, built by Pyinpya-mia in 849 A.D.

(29) Myinsing, built by Asaikhyaya-mia in 1300 A.D.

(30) Pinya, built by Thihathu in 1312 A.D.

(31) Sagaing, built by Saw-yum in 1315 A.D. This was before Alaungpaya’s time. Later, Sagaing was built by Naung-daw-gyi, see notes (13), (14).

(34) Ava, founded before Alaungpaya’s time by Thado-minbya in 1364 A.D., later by Sinbyushin, see notes (15), (16).

(83) See note (13).

(34) See note (15).

(35) Singu Min (1775-1781 A.D.)

(36) i.e., Bodawpaya, the hero of the present book. He reigned from 1781 to 1819.
lineage of the religion and of the line of their ancestral kings, and who were like Aśvāmanī, destroyer of the Daśānemi dynasty and Kaṭārajñaka, destroyer of the Maṅghadeva dynasty (37). In the excellent town of Ratanāpūra, replete with various gems, he attained to the highest kingship. As related in books King Siridhammuṣoka (38) the righteous before his inauguration attended for four years to the duties great and small of the kingdom. So also this king before his inauguration attended for three years to the duties great and small of the kingdom and of the Truth. There was a tradition handed down by the wise as the prophecy of the Buddha to this effect, “At such a time such a king of Truth will build such a city, a prosperous and successful town where the religion will flourish, on a high plot of ground designated the Giribajā (Mountain Fence), well guarded by four powerful yakṣhas, (39) noted for its evenness and close by the Golden Mount of Mandalay.” The king remembering well this wide-spread prophecy built his royal city, which dived in splendour the Amaravati of the gods, and was named Amarapūra from its having been superintended by the Sammūlī gods and from its likeness to the city of the gods, ablaze with golden palaces as high as the Vejananta (40) palace being one hundred and thirty cubits in height, graceful with forty-seven turrets and gate-towers, adorned with twenty-four gates big and small, having a total circumference of four thousand anda's (41) surrounded by watch-towers and walls having the appearance of Mount Kelasa (42) and replete with all its parts. As Rājagaha (43) in the absence of the Buddha or of a universal monarch was not considered the royal city but was a deserted place, a forest abode haunted by ogres, so this city in other times was not the royal city but was a deserted place, a forest adobe haunted by ogres. But as Rājagaha, when the Buddha or a universal monarch appeared, became the royal city, a populous city inhabited by men, so at this time did this city become the royal city, a populous city inhabited by men. As Rājagaha being surrounded by five hills, Vehāra, Vepulla and so on was called Giribajā, so also this city being surrounded by Rājavāna, Hemicala and various other hills (44) was called Giribajā. As by the proclamation of the guardian gods of the world an uproar concerning the Buddha goes about to the effect that after the lapse of a thousand years the omniscient Buddha will appear in the world and by the declaration of the guardian gods of the world an uproar concerning the universal monarch goes about to the effect that after the lapse of a hundred years the universal monarch will appear in the world, so by the instruction of the guardian gods of the world an uproar concerning the king went about to the effect that at such a time such a righteous king, of great power and glory, lord of white elephants would appear in the world and that he would build such a city, a prosperous and successful town where the religion would flourish. When not long after the well-built royal city of Amarapūra was completely finished in every respect, the king, who had the Law for flag, the Law for banner and who was inclined towards the Law, and who is like a slope up the side of the mountain of the Law, well remembering the wide-spread prophecy, handed down by the wise as the declaration of the Buddha and desiring to govern righteously and equitably, considered the essentials of righteous Government. The exact traditional ceremony of inauguration, observed by righteous kings, beginning from the creation of the world with Mahāsammata the descendant of the light giving sun, otherwise called

Manu and coming down in order to Rāja, Vararōja, Kalyāṇa, Varakalyāṇa and other kings,—the exact process of the inaugural head-bathing and other rites as laid down in Narapatiyāsakariya (45) and other books,—the five symbols of royalty, as the requisites of inauguration as given Jātaka and other books,—

(46) in like manner the auspicious fig pavilion as the fitting place for inauguration,—the throne, the wheel and so on as measures of the time for inauguration,—the person to be inaugurated belonging to the three families worthy of the three conches as given in various books,—(47) the inaugural rites themselves replete with words auspiciously recited with due ceremony according to custom and as laid down in books,—(48) the advantages of inauguration in obtaining the title of True King with all manner of kingly powers,—and the disadvantages of non-inauguration in not obtaining the title of True King with all manner of kingly powers,—this ninefold meaning of inauguration he understood clearly. He had himself inaugurated, as befitting a worthy prince, by three worthy persons, with due ceremony, according to full traditional rites and with a sufficiency of verbal formalities, the consecrated oil being poured out of three conches going round in the right direction and falling like a continuous healing shower of ambrosial juice thus altogether surpassing the inauguration of all other kings of the earth. Resolution in kingly duties constitutes inauguration.

[122] Therefore by the power of his inauguration and the productive motive of his former actions, the king, who was inaugurated in accordance with the scriptures and tradition acquired all manner of kingly powers, just as such powers were acquired by Siridhammaśoka and Devānampiya Tissa (49). And because these kingly powers, acquired by virtue of one's former meritorious deeds, were the result of something, they may be said to have been acquired by virtue of his inauguration. It is mentioned in such books as Sāratadhāпi to that they are like the Patisambhida's (50) and all other distinguished qualities, which are acquired by virtue of the Path of Saintship. The title of king is rightly acquired only after inauguration. Thus in Mahāsutasomajātaka the verse, muddhābhisītta katamāmadheyya (51) means that the title is rightly acquired when the king's head has been anointed. This is said with reference to cause and effect,—anointing the head being the cause and acquiring the title being the effect. One who is not inaugurated does not acquire the kingly powers nor the title of King. So it is said in Saddanitī, "When one is not inaugurated one does not go by the title of Mahārāja." Hence in Mahāvamsa and other books the one-year rule of the unanointed minister Upatisa in immediate succession to King Vijaya (52) is called an interregnum as also the seventeen-year rule of the unanointed Pāṇḍukabhay in immediate succession to King Abhaya (53). What need is there to quote other authors? Even in Rūjasikkhāpada (54) the unattainment of the Title of King by one who is not duly anointed has been definitely said by the Blessed One, the Omniscient. Inauguration is abused if one is unmindful of the advantages of inauguration and of the great evils of non-inauguration. And unrighteous kings being unwise dare not take upon themselves this three-fold ceremony, which consists of, first, observation of ancient custom, secondly, consecration of the

(45) I do not yet know of the existence of this work. Probably the MS. is lying undetected in some monastery.


(47) e.g. see Vaddhakisukara Jātaka, No. 283 and page 278 of Vol. II, translation.

(48) e.g. see Tačcha-Sūkara Jātaka, No. 492 and page 220 of Vol. IV, translation.

(49) A king of Ceylon see Mahāvamsa (Pali Text Society's Edition) Ch. XI, which also gives details of the consecrating ceremomial of a king.


4. Pathibhāna, see further Childers's Dictionary S. V. Patisambhida.


(52) Mahāvamsa, VIII 5.

(53) Mahāvamsa X, 105.

prince in testimony to his kingship, and *thirdly*, consecration of the head. Thus these three parts, namely, ancient custom, princely consecration and consecration of the head are mentioned in such books as *Sumaigala Vilāsini* and *Sarathapakṣānti*. Thus it should be understood. This king of righteousness, understanding as mentioned above the nine-fold meaning of inauguration just as well as he might know a myrobolan on his palm, twice celebrated this three-fold consecration according to the Scriptures and ancient custom with his Chief Queen Siripavarāmahārājindīmaigālārataṇīdevī, who was endowed with a glory and beauty of form and other qualities in no way different from those of a celestial nymph; who was adorned with the decorations of faith, morality and other qualities, untainted, unshakeable, complete, firm and solid; his co-worker in merit—following the example furnished in the Jātaka's by King Udaya with Queen Udayabhaddā (55) and King Suruci with Queen Sumedhā (56). And at the conclusion of the coronation ceremony even in the midst of the assembly he was known everywhere by the Title of Siripavaraṣṭriyāṁantayasātribhavanādiyādhīpatipaṇṭamahāhāmmārjasādhirāja, acquired by virtue of his meritorious deeds and conveying a most profound, sweet and essentially auspicious meaning. This is the account of his inauguration.

CHAPTER III.

PATRONAGE OF THE WORLD.

Thus this king of righteousness went through the noble excellent ceremony of inauguration, the basis of kingship, in a manner surpassing any inauguration celebrated at the present time, the consecration ceremony being comparable to a continuous healing shower of ambrosial juice and different from that of any other king. The long-sighted king foreseeing the benefit that would be bestowed on the world and on the religion conferred the Crown Princess on his eldest son, Sirimahāhāmmābhijeyasāhasūra, (57) a daring, heroic prince, brave, wise, virtuous and powerful, endowed with the five qualities of a universal monarch's eldest prince—to know what is beneficial, the nature of a thing, the measure of a thing, the proper time for any thing and any assembly that may be gathered; and made the unbroken dynasty of the Solar Kings strong and unshakeable by giving the prince in marriage to his beloved daughter of pure descent on both sides; and again joined this unbroken dynasty of the Solar Kings in a more strong and unshakeable tie by making nascent sovereigns (in wedlock) of his beloved grand-daughter, of pure descent on both sides and his beloved grandson, Mahābhijeyasāhasūra (58) who was the home of wisdom, merit, beauty *et cetera* and replete with the five qualities of pure descent on both sides, beauty of form, loveliness, amiableness and wisdom. Ruling the kingdom in righteousness and in equity and considering the various ways of making the people happy, he showed favour to the world. Choosing the various means of establishing the Good Law, he showed favour to the religion. First, how did he show favour to the world? "Whenever, O Monks, kings are unrighteous, those who are connected with the kings also become unrighteous." Thus by this and similar passages spoken by the Blessed one in the noble Aṅguttara Nikāya, (59) he was fully convinced of the evils of unrighteousness and the merits of righteousness. And he also remembered these evils and merits as

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(56) See *Jātaka* No. 469, Vol. IV, p. 315.
(57) This prince died without becoming king.
(58) Known as the Sage Min, who succeeded his grand-father under the name of Baqyidaw (1819-1837).
(59) Vol. II, p. 74 of P. T. S. edition, where instead of *rājaputti* our author reads *rāja-yuttāpi*. The reference should be made to the paccuppavatthu of Tsaknajatakha (No. 521) where the word is *rājajuttāpi*,
shown by the all-seeing Buddha in Saṅkiccajātaka, (69) “An unrighteous king destroys his own kingdom and is silly; and because he is a scourge to his country, he hereafter must suffer in Tāpāna hell” and so forth. [13] Continuously and intermittently he practised unto perfection the ten kingly duties, which he honoured like his marble umbrella and which he compiled from such Jātaka stories as the Mahīśahṣa, (61) viz.: alms-giving, precept, self-sacrifice, equity, gentleness, religious austerity, absence of anger, harmlessness, patience, agreeableness. He practised the kingly duties given by the Tathāgata in Cakkavattisutta, (62) which says “Let there be no evil deed done in the country.” Accordingly, he forbade the people to do such unmeritorious acts as life-taking et caetera, and enjoined on them the observance of such meritorious acts as alms-giving, precept and so forth. Indeed, he so strongly prohibited life-taking that he would not allow even a chicken to be killed, laying to heart the lesson furnished by King Elijā, who placing his only beloved son on the same footing as a calf, executed him for having crushed to death a calf under the rolling wheels of his chariot (63). He strongly restrained the people from theft and such fraudulent acts as the use of false weights, false measures, false coins et caetera, which are in direct opposition to Nīghanta, remembering the effect of karma, which says that an evil act done habitually brings forth evil fruit even in one’s life-time. Likewise he strongly checked them from unlawful sexual intercourse, well knowing its evils as shown in various treatises, for instance, “Adultery is a baneful cause, one that causes corruption of the body in any form of existence”; from telling lies, well understanding its evils as laid down by the Lord of the world in Tesākṣuṣaṭa (64) and some other books thus: “To tell a lie is a great sin, one that robs the soil everywhere of its fertility. Owing to its evil effects cultivated fields sink as law as seven cubits. Consequently, food-stuffs like oil, honey, molasses et caetera together with medicinal herbs lose their nourishing power. The people who eat these insipid food-stuffs are afflicted with divers diseases;” and from gambling and spirituous and intoxicating drinks, considering their evils in the loss of visible wealth. He then made them zealous in such good acts as alms-giving, precept and so forth, by beat of drum on the fifth Sabbath day of every month, in conformity with the rule laid down by the compilers of the Law, thus following also the precedent furnished by the righteous kings of old, as related in Umaṣaṭa (65) and some other books. He enjoined on his ministers and people the observance of the Sabbath duties as practised by the good, being well pleased with the precedent furnished by King Nimi as given in Magha pavaṇa;—(66) “He who observes the Sabbath is allowed to enter into the royal presence; he who does not observe the Sabbath is not allowed to do so.” It is given in Manavatāpīraṇī and other books that it was the traditional duty of the righteous kings of old to show favour to the world in four ways, i.e., 1. Saccasamadha, to take one-tenth of the total product of the country as tax 2. purisaṃadha, to give food to the people once in six months. 3. sammapiṣaṃ, to lend money to the people free of interest for a period of three years and 4. vacáspeyyaṃ to enter into friendly conversation with the people. The king strictly followed this path taken by the righteous kings of old and showed favour to the world not only in these four ways but also in four other ways (67). Thus he showed favour to the world continuously and intermittently to a marvellous degree and in an unheard of manner. This is his patronage of the world.

(60) No. 530 page 267 of Vol. V, where for mugo and Tāpane our author reads mugo and Tāpane.

(16) No. 534 page 354 of Vol. V.


(64) No. 521, page 199 of Vol. V.

(65) No. 546, page 330 of Vol. VI.

(66) Majjhimanikāya II, page 74.

(67) See note (17).

(to be continued)
BURMESE ASTRONOMY (1)

BY

THOS. P. DeSILVA

Some years ago a correspondent requested through the medium of an Indian Astronomo-Astrological Magazine, amateurs and adepts to impart their knowledge of the different systems (2) of our Astronomical calculations. Since then it has ever been my desire that Burma should participate in the contribution towards so desirable an achievement ; and seeing no sign of compliance with the request—from Burma at least——, I intended to take the matter up myself with a view to awaken the attention of others who are well qualified for such investigations and to incite them to pursue the subject more successfully.

But considering that I am no scholar and judge in Astronomy but only a busy man always away in the districts I cannot devote much of my leisure time to the study of the subject.

While labouring under these and other disadvantages and difficulties, I being an ardent admirer of one's national sciences take this present opportunity of recording in this Journal one of the well-known systems of our Burmese Method of Computing the Longitudes, etc., of the seven (or nine) planets etc., now in vogue all over the province of Burma and practically and chiefly deduced from the well-known Indian work "Suryasiddhanta" (3).

(1) While the style of expression of the texts of the various treatises I have seen is generally brief and elliptical, in some cases to an extent that would make its purport entirely unintelligible the mode of expressing numbers is more so, by being enigmatical and epigrammatical which apparently and originally was intended to be mnemonic.

Some of these queer expressions are:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass, the mouths</td>
<td>12</td>
</tr>
<tr>
<td>Rasa, the tastes</td>
<td>6</td>
</tr>
<tr>
<td>Guas, qualities of all created things</td>
<td>3</td>
</tr>
<tr>
<td>Eheda, the vedas</td>
<td>4</td>
</tr>
<tr>
<td>Yuga, an age of the world</td>
<td>4</td>
</tr>
<tr>
<td>Rudra, group of deities</td>
<td>8</td>
</tr>
<tr>
<td>Ehashe-vasus, a class of deities</td>
<td>11 in number</td>
</tr>
<tr>
<td>Minni, alluding to the sages</td>
<td>7</td>
</tr>
<tr>
<td>Rama, 3 celebrated personages, viz : Parasurama, Balarama, Ramachandra or Sitarama.</td>
<td></td>
</tr>
<tr>
<td>Camma for two, kha for cipher, bana for 5, ruapa for 1, jaya for 4, krana for 2, bhaja for 2, merga for 1, and digha for 2.</td>
<td></td>
</tr>
<tr>
<td>Deva for 33, khinka for 90, Deviang for 933, Rupa khinka rudra 11901, karinanda rupamuru for 14198</td>
<td></td>
</tr>
</tbody>
</table>

As will be observed in the last, when the units of the figure contain more than one, it begins with the last and is taken in reverse order.

It will also be observed that the terms are more the symbolical expression and ideas of the Hindus than those of the Burmese.

So to an ordinarilily educated Burman of to-day in his own tongue, these treatises without a tika or commentary, will be a subject that will not be very enticing for his study and research.

The chief commentators I have come across are: one by the late Bhakara-Sayadaw and another by the Kanni-Atn-woon-mingyi; both dealing on the same method, i.e., Makara-Na, and that too more precisely on the elements of the Calendar and the rudimentary parts of the Science. And when they do touch on the actual method of astronomical calculation, the explanations are rather vague and incomplete, so much so that there is a gap which needs filling up, especially in the one by Sanditha method.

Thanks to the keen interest taken by an eminent person like the Honorable A.M. B. Irwin, C.S.I., I.C.S., retired Judge, Chief Court of Lower Burma, the proceeding portion of it has already been executed by him in his treatises on the Burmese Calendar; and it is my endeavour here to fathom as much as possible the mystery of the rules and figures laid down in the latter part in Sanditha.

(2) The various systems in vogue among the Hindus are the Parasita or Siddhanta, Vakya and the DrigGasana methods.

(3) "Suryasiddhanta" this is one of the most highly esteemed, best known, among the different Siddhantas or Hindu text-books of Astronomy, which professors to have been revealed by "Surya" the Sun, to a demon named "Mayasura", through "Chayur-purusha" a person who came out of the Sun, more than two millions of years ago, i.e., at the end of the Krita yuga.
I may say that this article save the Notes is a mere translation and based on our Pali and/or Burmese works. I therefore crave the reader's indulgence for any misrendering or errors which may have crept into the work through my neglect and incapacity and request those who are better acquainted with the Science than myself to improve or remedy the defects.

The following are some of the works that are already in existence in Pali and/or Burmese and that have any bearing on the subject referred to:

**Printed and published and also in palm leaves:**

- Suryasiddhanta (published only last year)
- Sara-vijayada (on the calculation of Solar and Lunar eclipses)
- Sāndīṭṭha (in prose and poetry)
- Makaranda (2 methods, old and new)
- U Kyaw Yan's abridged method of calculation of the Intercalary months and days (La-tat and yet-ning-wel-nee)
- Orpho-sayadaw's Adhi-mīśa vineccayas.
- Bara-guji and Bara-kojhi (partly Astrological)

**In palm leaves:**


**Treatises on the Elements of the Burmese Calendar in English:**

By Rev. Mr. Stilson (out of print but to be had in Burmese).
By Mr. J. C. Clancey, F. R. A. S., F. R. G. S., F. S. I., etc., Assistant Director of Land Records and Agriculture, Burma, (See his Calculating Tables).
By Mr. Htoon Chan, B. A., B. L., Wakiil of Calcutta High Court and Advocate of Burma Chief Court (Arakanese Calendar).

The two systems of computations now in use in Burma are the new Makaranda (derived from the juice of flowers) and Sāndīṭṭha (thoroughly visible).

An Ephemeris for 40 years by the latter method (A. D. 1868 to 1908 or B.E. 1230 to 1269) has been compiled and after that regular annual issues (in advance have been made, giving the daily positions of the eight planets, 27 nakkhats and tithis (Lunar asterisms and lunar days).

It will be seen from that the latter is becoming more and more popular and is undoubtedly fast gaining ground over the former, owing to the revision which has brought up all the fractions which had been neglected by the former.

It is by the latter method that I propose to show by means of examples how to calculate the Longitudes of the planets, etc.

The above mentioned Treatises in English have already very clearly and elaborately dealt with the elements of the Science. These have therefore saved me much trouble in laying down rules, theories and axioms. I must ask my readers to refer to those works for the elements of its process. Irwin's Treatise is especially recommended, as the history, origin and other particulars are there also given which may make interesting reading.
BURMESE ASTRONOMY

Required the true positions of the planets, Sun, Moon, Mars, Mercury, Jupiter, Venus, Saturn, Rahu and Ketu on Sunday at 10 o'clock ante meridian, on the 9th decrease of Pyatho 1235, Burmese era (4) or 11th January 1874 A.D., or Srinakha Samvatsara, Salavahana Saka 1795, (5) Poasha Navami Krishna Paksha.

We have to proceed by what in Burmese is called Nhit-boh-twet-nee.

Rule—Add to the required era 3739, the result is Kaliyuga; from the Kaliyuga deduct 4839, (or from the required Burmese era deduct 1100) (5a), remainder is termed Rassa (Nhit-kywin or short era.). (6) (7). Multiply the the Rassa by 292207, to the product add 17742 to which sum deduct the quotient of the Rassa (if divisible) by 193. Divide the sum by 800, the quotient of which increased by one is the elapsed number of Savana days or Solar days, since the commencement of Samditha era; the remainder deducted from the divisor (800) is the number of Kymmati remaining at the beginning of the Solar year.

Note down the Savana days in three places.

(4) There were various eras in Burma. The one given here is also called Poppawaw Rabaw era (the Monk-king) which has its commencement in 638-639 A.D. The eras are expired ones.

(5) When Salivahana Saka is given add 3179 years and the result is Kaliyuga years.

(5a) 1100 years are expunged, in order to obtain the Samditha era or the number of years of the new Epoch. To earn an immortal fame, it is customary among Kings to expunge certain number of years of an Era, in the process of which and to enable it to carry forward all the adjustments made in the expunged era to the new one, it entails a laborious calculation. Though the current era had been expunged by 798 years by Mohayin-min-tara-gyi this has not been successful.

(6) This is in contradistinction to another rule known in Burmese as "Yet-boh-twet-nee", which is as given below with an example:—

From the required Burmese era deduct 1100, the remainder is rassa; multiply this by 12 to the product add the number of months elapsed up to except the one given, the result is Suryamasa.

Write down the Suryamasa in two places: multiply is the first place by 28, to which product add 690 and also the quotient of the rassa divided by 472; the sum divided by 911, the quotient resulting therefrom is La-Lun or Adhimasa and its remainder is Adhimasa-sea.

Add Adhimasa to Suryamasa in the second place, the sum is Chandramasa; multiply this by 30; to which result add the number of days elapsed, up to except one, of the month given. The sum is accumulated tithis.

Set this down in two places: in the first place, multiply by 11, from which product deduct the quotient of the rassa divided by 25 and to which result add 176; the sum divided by 703, the quotient is Khaya in days and its remainder is Avamami.

Deduct the Khaya from the accumulated tithis in the second place, the remainder is the Savana days.

The Savana days decreased by two and divided by seven, counting the remainder from Sunday, or the Savana days divided by seven, the remainder counting from Friday is the day sought of the date under calculation.

Multiply the Savana days by 800; from which product deduct 17742 and also the quotient of the rassa divided by 193, the result divided 292207, the quotient is the same as rassa and the remainder is Kymmat.

The Kymmat divided by 800, the quotient is Sudaddin and the remainder is An-Kymmat i.e., the Kymmat at the commencement of the Solar year.
Example:

From Burmese Era
Expunge

1235
1100 years

135 Rassa, the number of years since beginning of new
Epoch.

Multiply by

12

1630

9 (from Ta gu to Pyatho except one)

Add months

No. 1
Multiply by

1619 Suryamasa
28

13012
3258

45612

690 constant brought over at beginning of Epoch.

Add also rassa \(\frac{135}{475} = \)

0 adjustment

Divide by

911 ) 46302 ( 50 Adhimasa
45550

Remainder

752 Adhimasa sesa

No. 2.
To Suryamasa

1619 Months

50 "

Add Adhimasa

Chandramasa

1679 Lunar months

30

50370

Add number of days

23 \(\frac{1}{2}\) 1 to 15 increase of moon = 15 days

1 to 9 decrease except one = 8 "

No. 1.
Accumulated tithis

50393 Lunar days

11

554323

Deduct Rassa \(\frac{135}{25} = \)

5

554318

Add constant

176 brought over at beginning of epoch.

Divide by

703 ) 554494 ( 788 Khaya
553964

Remainder

530 Avamam.

No. 2.
From accumulated tithis

Deduct

50393

788 Khaya

49605 Savana days

Savana days decreased by two and divided by 7 = \(\frac{49603}{7}\) = Remainder one, counting from
Sunday is Sunday, or Savana days \(\frac{49605}{7}\) = Remainder 3, counting from Friday is Sunday
the day sought of the date under calculation.

Savana day \(49605\)

Multiply by

800

39684000
Deduct 17742 constant brought over at beginning of new Epoch
& Rassa $\frac{135}{193} = 0$
Divide by 292207 \(\frac{39666258}{39447945}\) (135 this is the same as rassa
Divide by 800 \(\frac{218313}{217600}\) Kyammats (272 Suddadin

Remainder \(\frac{713}{713}\) Ata-Kyammats.

(?) The Burmese or rather the system of Samdittha, alike the Suryasiddhanta, reckons the
natural day for Astronomical purposes from midnight to midnight, whereas the Hindus mode is
generally from sunrise to sunrise.

Burmese: 60 anukaras = one kara; 60 of these = one bijana; 60 of these = one nari and
60 of these = one natural, civil, terrestrial or Savana day = (in English solar day).

Suryasiddhanta: 60 naris make a sidereal day and night; 30 of these is composed a month;
a civil (savara) month consists as many Sunrise; a lunar month of as many lunar days (tithis);
a solar (saara) month is determined by the entrance of the Sun into a sign of the Zodiac; twelve
months make a year.
The year consists \(\frac{1577917828}{432000} \) Savana days (see below) according to
Suryasiddhanta
Samdittha
365 days 15 naris 31 bijanas 31 karas 24 anukaras
365 " 15 " 31 " 30 " 0 "
Making a difference of \(0 \quad 0 \quad 0 \quad 1 \quad 24 \)
Samdittha makes up for this difference by adjustment of one Kyammats, additive, for every
193 years over the Rassa; i.e.,
As one year = 1.4 or 1\(\frac{2}{5}\) Kara short takes \(x\) no. of years when accumulated to one

\[\text{Kyammats or} \quad \frac{1}{800} \times 60n \times 60b \times 60k \quad \text{or} \quad \frac{216000K}{800} = \frac{1}{7}\]

\[\frac{1}{432000} \times 1350 \quad 1 \text{yr} \times 216000 \times 5 = \frac{1350}{7} \]

Since Samdittha Solar year = 365 \(\frac{55890}{316000} \) or \(\frac{365}{800} = 292207 \)

\[\frac{292207}{800} \]

\[\frac{17742}{193} \]

The constant 17742 Kyammats, additive \(\frac{17742}{800} = 22\) days 10 naris 39 bijanas, is adjust-
ment brought over at the beginning of the Samditha epoch, inclusive of the undermentioned quantity.

The calculation is made for the then capital of Burma proper (Amarapora desantara) i.e.,
the difference in time with Lanca 3 naris 18 bijanas = \(\frac{11880}{800} = 44\) Kyammats, has been
included in above constant. After this, the adjustment for the difference of longitude with
other places in Burma may be neglected, as the quantity is so very insignificant that the calculation
cannot be very perceptibly effected.

In 4320000 years there are \(\frac{1582237828}{432000}\) Asterism days
From which deduct Solar revolutions \(\frac{4320000}{432000}\) will give
Natural, civil or terrestrial or Savana
\(\frac{1577917828}{1577917828} \) days
And there are Moon’s
Deduct Solar revolutions (Sun’s)
Giving Moon’s Synodical revolutions \(\frac{53435336}{5184000} \) Lunar months (Chandrana)
Deduct (4320000 \(\times 12\) months) \(\frac{5184000}{5184000} \) Solar months (Saurama)
Gives Intercalary months 1393336 Adhinasa

To lunar months $3433336 \times 30$ Lunar days will give this.

From which deduct 1603000080 Lunar days

Gives Omitted Lunar days 157791828 Savana days

---

25082252 Tithikshaya

The above therefore may be worked out in accordance with Suryasiddhanta as follows:

As 4320000 yrs : 4974 yrs = 1577917828 Savana days : x = x Savana days and Remainder as Gata (past) Kyammats.

As 1577917828 Savana days : x Savana days = 25082252 Kshaya days : x Kshaya days and Remainder as Avamani.

\[
x \text{ Savanas days} = \text{Remainder counting from Friday is the Ata-ne' of the Solar New Year.}
\]

\[
x \text{ Savanas days} + x \text{ Kshayas} = x \text{ Accumulated tithis.}
\]

\[
\frac{x \text{ Accumulated tithis}}{30} = x \text{ Chandramasa and Remainder Yet-Lun (epact)}
\]

The gata Kyammats deducted from 4320000 the remainder is gamya (to be past) Kyammats at the beginning of the Solar Year.

Instead of the figure 4974 years in the foregoing, it is more appropriate to take 3892974 years, for of the four (4) Yugas,

1728000 years have elapsed in Krita yuga
1296000 do. Treta yuga
864000 do. Dwapara yuga
(un to B. E. 1335) 4974 do. Kali yuga

It is quite plainly seen that the above if put into actual solution is rather a long and tedious calculation to be undergone and to curtail which Samidhtha was invented as an abridged system.

11 Kshaya days are the difference between 692 Savana days and 703 tithis, which is an approximation to \(\frac{1577917828}{1633000080}\) of Savana day = one tithi.

By reducing this fraction into its lowest term we have \(\frac{394479457}{400750071}\) (which cannot be any further reduced) and the mean lunation of a day, gives 59n-38i-4ku-13-99271 anukaras.

For the sake of curtailing a long calculation Samidhtha (so also Makaranda) by subtracting 13 from the numerator and adding 51 to the denominator, makes \(\frac{394479444}{400750071}\) reducible by the greatest common multiple of 570857 to 703, thus giving the mean lunation of a day by this method 59 naris 3 bijanas 40 karas 11-9879 anukaras and making a small difference of 2 anukaras and fraction between the two systems.

Samidhtha to adjust this difference of excess makes it subtractive by the equivalent of one Avamani in every 25 years of the rassa i. e.

2. 04392 anukaras daily difference, in excess about 1 karas 1. 3176 anukaras difference, monthly excess about 12 karas 15. 8112 anukaras difference yearly excess

As one year = about 12 \(\frac{16}{60}\) Karas or 735 \(\frac{8112}{10000}\) anukaras in excess

\[
x \text{ no. of years} = \frac{21600 \text{ Karas} = 1 \times 21600 \times 60 \times 10000}{703} = 7358112 \times 703 = 25 \text{ years.}
\]

The constant 176 Avamani additive is \(\frac{176}{692}\) = 15 naris 15 bijanas, 36 karas, 25 anukaras, adjustment brought over at the beginning of the epoch.
In the First place, multiply by 11, from which product deduct the quotient obtained of the Rassa divided by 25, to which result add 176. The sum divided by 692, the quotient is called Khaya (Kshaya) and the remainder is Avama (Avama).

Add the Khaya to the figures in the Second place, the sum is the accumulated tithis. This divided by 30, the quotient is Chandramasa (Lunar months) and the remainder yet-lun (ecliptic, moon’s age in tithi at commencement and in excess of Solar year.)

And in the Third place, divide the Savana days by seven, the remainder counting from Friday, is the Ata-ne (Solar New Year Day Mesha Sankranti).

<table>
<thead>
<tr>
<th>To Burmese Era</th>
<th>1235</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>3739</td>
</tr>
</tbody>
</table>

Add Kaliyuga
4974 years
4839 or to curtail calculation,

<table>
<thead>
<tr>
<th>From Burmese era</th>
<th>1235</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take</td>
<td>1100</td>
</tr>
</tbody>
</table>

| = | 135 Rassa (short era) |

Multiply by 292207

| Add constant | 17742 (difference brought over at beginning of era) |

Add Rassa $\frac{135}{193}$
0

<table>
<thead>
<tr>
<th>Divide by</th>
<th>800</th>
<th>39465687</th>
<th>49332 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>39465600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remainder of the old year
27 Kyammats

From Divisor
800
Take Remainder
87

Remaining $\frac{713}{3}$ Kyammats, for which add 1 day

<table>
<thead>
<tr>
<th>No. 1</th>
<th>49333 Savana days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiply by</td>
<td>11</td>
</tr>
<tr>
<td>----------------</td>
<td>-----</td>
</tr>
<tr>
<td>Take Rassa $\frac{135}{25}$</td>
<td>5</td>
</tr>
</tbody>
</table>

| Add constant | 176 (difference brought over at new epoch) |

Divide by 692

<table>
<thead>
<tr>
<th>542658</th>
</tr>
</thead>
</table>

Remainder
306 Avama

<table>
<thead>
<tr>
<th>No. 2</th>
<th>49333 Savana days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add as above obtained</td>
<td>784 Khayas</td>
</tr>
</tbody>
</table>
Divide by 30) 50117 Accumulated tithis

\[
\frac{1670 - 17 \text{ lunar days or yet-lun at commencement of solar year, i.e., 2nd decrease of the first Burmese lunar month, i.e., Tagu (Chitra).}}
\]

Nos. 1 & 2 are also thus arrived at:—

As (692 Savana days : 49333 Savana days − \( R \frac{135}{25} + 176 \)) : 703 tithis : x

\[
(49333 \times 703) - \frac{135}{25} + 176 = 49333
\]

\[
\frac{= 692}{703} = 49333
\]

\[
\frac{34681099}{171} = 34681270
\]

\[
\frac{692}{34680964} (50117 \text{ accumulated tithis})
\]

Avamañ 306

No. 3.

Divide by 7) 49333 Savana days

\[
7047 - 4 \text{ counting from Friday (the day on which the era begins) is Monday.}
\]

(8) The required date being given as the 9th decrease of the 10th Burmese month, Pyatho, (Pousha 9th, Krishna paksha cr 11th January) we have to find the number of days expired since Atañ-yet, i.e., from beginning of Solar New Year day to this given date.

This is called Suddadin (Suddadinäñ) which is arrived at as follows:—

<table>
<thead>
<tr>
<th>Tagu</th>
<th>12 days (29-17 days see above)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kason</td>
<td>30 days</td>
</tr>
<tr>
<td>Nayon</td>
<td>29 days</td>
</tr>
<tr>
<td>Waso</td>
<td>30 days</td>
</tr>
<tr>
<td>Wagaung</td>
<td>29 days</td>
</tr>
<tr>
<td>Tawthalin</td>
<td>30 days</td>
</tr>
<tr>
<td>Thadingyut</td>
<td>29 days</td>
</tr>
<tr>
<td>Tasaungmön</td>
<td>30 days</td>
</tr>
<tr>
<td>Nadaw</td>
<td>29 days</td>
</tr>
<tr>
<td>Pyatho</td>
<td>24 days (up to full moon 15 days and 9 days in decrease of moon)</td>
</tr>
</tbody>
</table>

272 days Suddadin and
713 Kyammats remaining at beginning of solar year (see page 29).

(8) The Burmese year is a Lunisolar one.
The names of the Burmese ordinary months are:—

As the mean lunation is about 29\(\frac{1}{2}\) mean solar days, these months contain 29 and 30 days, alternately, = 354 days in an ordinary year or a non-wa-tat year.

There are two others beside this, called Wanga-tat and Waga-tat years, respectively consisting of 364 and 365 days (meaning small lent and big lent repeated.)

In the former an insertion of second Waso of 30 days is made between Waso and Wagaung, while in the latter in addition to this insertion, the month Nayon has 36 days.
LONGITUDE OF THE SUN

(9) Rule:—Suddadin reduced to Kyammats (i.e. Suddadin multiplied by 800 plus the Kyammats remaining at the beginning of the year) multiplied by 1000, from which product subtract the product obtained of the Suddadin multiplied by six; the remainder divided by 13528 the quotient in minutes, reduced to signs, degrees and minutes, is the sun’s mean longitude (in Burmese Taninganway madhya).

As per calculation on page 30:—

Multiply by

\[
\begin{align*}
272 \text{ days Suddadin and 713 Kyammats} & \times 800 \\
217600 \\
713 \text{ Kyammats (remaining at beginning of year)} & \times 1000 \\
218313 \\
\text{Take } (272 \text{ Suddadin } \times 6) & = 1632
\end{align*}
\]

(9) 69 seconds or vilipats make a minute or lipta; 60 of these a degree or amsa; 30 of these constitute a sign or rasi; of 12 of the last is composed a revolution or bhagaṇa.

The names of rasis are: Mesha, Prisha, Medon, Karaka, Sein, Kan, Tu, Briccha, Dhanu Makara, Kun and Mem.

This rule is on the principle of revolution of 12 Signs or

As 21600 lipatas : one liphta : : 292207 Kyammats : x = 13528 Kyts.


. . . 13528 Kyammats : 218313 Kyammats : : 1000 lipatas : x liphta = \[
\frac{218313 \times 1000}{13528}
\]

This without the deduction for correction viz:— six times Suddadin divided by 13528

Suddadin × 6 (\[
\frac{13528}{13528}
\]) is a little in excess, hence to adjust which, is the same as when deducting Suddadin × 6, before dividing by 13528.

The excess and adjustment are as seen from the illustrations, below:—

The ordinary process:—

As 292207 Kyammats : 800 Kyammats or 1 Sav day : : 21600 lipatas : x = \[
\frac{21600 \times 800}{292207}
\]

= 59. 13616 lipatas.

Suryasiddhanta:—

As \[
\frac{1577917828}{1577917828}
\] Savaṇa days : one day : : 4320000 Sid. Rev. : x = \[
\frac{4320000 \times 12 \times 30 \times 60}{1577917828}
\]

= 9331200000

As per above with correction:—

As 13528 Kyammats : (800 Kyts or 1 Sav. day : : 1000 lipatas − 6) : x = \[
\frac{800 \times 1000}{13528}
\]

\[
\frac{799994}{13528} = 59. 13616 \text{ lipatas.}
\]

As above without correction:—

As 13528 Kyammats : 800 Kyts or 1 Sav. day : : 1000 lipatas : x = \[
\frac{800 \times 1000}{13528}
\]

= 800000

= 13528

59. 13675 lipatas.

No further adjustment is needed for desantara, this is already done in the constant 17742 (see Notes on page 27.)
### BURMESE ASTRONOMY

Divide by 13528) 218311368 ( 16137 minutes 218301338

For remainder 10030 add 1 minute

Reduce 60) 16138 minutes

30) 268—58 minutes

Sun’s mean longitude at midnight B. E. 1235, 9th decrease of Pyatho, Sunday \{ Ravimadhya 8s. 28d. 58m.

Take as per table below, difference in day’s duration — — 59

Previous day at midnight i.e. Saturday 8s. 27d. 59m.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun ...</td>
<td>0° 59’ 8”</td>
<td>387</td>
<td>2° 17’ 17”</td>
<td>.. ..</td>
</tr>
<tr>
<td>Moon (Sidereal)</td>
<td>13 10 35</td>
<td>* ...</td>
<td>0 52</td>
<td>Subtractive. do.</td>
</tr>
<tr>
<td>Oocha (Apsis)</td>
<td>0 6 41</td>
<td>...</td>
<td>4 21</td>
<td>do.</td>
</tr>
<tr>
<td>Mars ...</td>
<td>0 31 26</td>
<td>204</td>
<td>4 11 3</td>
<td>1 14 Additive.</td>
</tr>
<tr>
<td>Mercury ...</td>
<td>4 5 32</td>
<td>368</td>
<td>7 23 28</td>
<td>4 2 Subtractive. do.</td>
</tr>
<tr>
<td>Jupiter ...</td>
<td>0 4 59</td>
<td>900</td>
<td>5 20 22</td>
<td>3 0 do.</td>
</tr>
<tr>
<td>Venus ...</td>
<td>1 36 8</td>
<td>535</td>
<td>2 17 52</td>
<td>6 3 do.</td>
</tr>
<tr>
<td>Saturn ...</td>
<td>0 2 0</td>
<td>39</td>
<td>8 8 37</td>
<td>5 2 Additive. do.</td>
</tr>
<tr>
<td>Rahu (Moon’s node)</td>
<td>0 3 11</td>
<td>...</td>
<td>2 27</td>
<td>do.</td>
</tr>
<tr>
<td>Moon (Synodical)</td>
<td>12 11 27</td>
<td>...</td>
<td>...</td>
<td>.. ..</td>
</tr>
</tbody>
</table>

* Varies according to calculation; (40 + 12).

(10) These are obtained according to the rules of Suryasiddhanta in a Kalpa, i. e., 1000 times a Maha yuga = 4320000000 years.

The number of Solar years before the end of

- Krita yuga 1953720000 years
- Treta " 1296000 "
- Dwapara " 864000 "
- Up to time of calculation Kali " 4974 "

1953884974 "

As 4320000000 Kalpa yrs. : 1955884974 yrs. : 387 Rev. of Sun’s Apsis : x

\[
= \frac{1955884974 \times 387}{4320000000} = \frac{756927494938}{4320000000} = 175 \text{ Revolutions } 2 \text{ siga } 17 \text{ degrees } 17 \text{ minutes Sun's Mandocha.}
\]

For the apsidal of the planets Mercury, Venus, Mars, Jupiter and Saturn, similar mode of calculation is resorted to, using their respective number of bhāganas.
TRUE LONGITUDE OF THE SUN (PHUṬA).

**RULE:** From its Oocha (Apogee in Signs, degrees and minutes as per Table see page 32) deduct the Madhya (mean longitude). If from the Oocha sign it is not subtractable add 12 to it and then subtract. The remainder is Manda. Divide the sign in this by three the quotient is termed Gola. The remainder of gola with the fractions (in degrees, minutes etc.) brought down from Manda is called Argument, which when Gola is 0 or 2, (even) take (as it is) for Bhuja, and when Gola is 1 or 3, (uneven or odd) deduct it from 3 signs, the remainder is Bhuja.

(11) Bhuja reduced to minutes divided by 225, the quotient is Khandam and remainder is Vivara. Refer as per this Khandam obtained to the corresponding Jya and the Jya next to it (in the Manda Table) the difference (also called vivara) in minutes, multiplied by vivara of Khandam above obtained (when Khandam is zero (0) multiply by the first Jya) the product divided by 225; the quotient added to the Jya of the Khandam obtained = Bhuja-phala, which is additive or subtractive to the Madhya according to Gola.

The results given in the above Table are almost invariably fixed for a period of number of years past and to come. On account of the slow motion of the nodes and apsides, it would require a good length of time, which is termed the Anomalistic period, i.e., Kalpa, before the planets could return to the same situation again, or to vary the result of the computation. But this would not be so for the Moon's apsis, as it is treated in a different manner, hence the remark "varies according to calculation", the method of calculating this is given on page 33.

<table>
<thead>
<tr>
<th>Planets</th>
<th>Number of revolutions in Mahayuga 4320000 years of 1577917828 Savana days.</th>
<th>Single Revolution.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bhagana</td>
<td>D. N. B. K. Anuk</td>
</tr>
<tr>
<td></td>
<td>Madhya</td>
<td>Sighra</td>
</tr>
<tr>
<td>Sun</td>
<td>4320000</td>
<td></td>
</tr>
<tr>
<td>Mercury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mars</td>
<td>2296332</td>
<td></td>
</tr>
<tr>
<td>Jupiter</td>
<td>364220</td>
<td></td>
</tr>
<tr>
<td>Saturn</td>
<td>146568</td>
<td></td>
</tr>
<tr>
<td>Moon's Sidereal revolutions</td>
<td>57753336</td>
<td></td>
</tr>
<tr>
<td>Moon's Synodical revolutions</td>
<td>53433336</td>
<td></td>
</tr>
<tr>
<td>Moon's Rev. of apsis (accha)</td>
<td>488203</td>
<td>(Apogee)</td>
</tr>
<tr>
<td>Moon's Rev. of node (pata)</td>
<td>232238</td>
<td>(Retro-grade)</td>
</tr>
</tbody>
</table>

i.e. As 4320000 Rev. = 1 Rev. = 1577917828 days : x as above. The remaining are also similarly calculated.

(11) Eight Jyas or tabular units are reckoned to one sign and one Jya to 31 degrees = 225 minutes.

The numbers in the Table extend only up to 24 = 90 degrees = 3 signs. These are taken as to include all the equations from the least to the greatest and the equation is not carried beyond minutes.

Corresponding to the quotient is called the Gata (the past) sine, and the next sine is called Gamyā (to be past) sine.
### Burmese Astronomy

Note when Gola 0 or 1, Meshadi, add to the mean Longitude, and when 2 or 3, Tuladi, subtract from the mean longitude; the result is Phuta (true longitude).

<table>
<thead>
<tr>
<th>From</th>
<th>2s 17d 17m Sun's apogee as per Table (see page 32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take</td>
<td>8 27 59 Sun's (madhya) mean longitude (see page 32)</td>
</tr>
</tbody>
</table>

Divide by 3 (5) 19 18 Manda

<table>
<thead>
<tr>
<th>Gola 1 &amp; 2s 19d 18m which take from 3s</th>
</tr>
</thead>
<tbody>
<tr>
<td>2s 19d 18m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bhuja</th>
<th>0 10 42 or 642m</th>
</tr>
</thead>
</table>

As 3d 45m or 225m : 642m :: 1 Jya : x = \[ \frac{642}{225} \] or 2 Jya & 192m

Khandañ 2 Jya = 17 difference of 9ms

\[ 3 \text{ Jya} = 26 \text{ as 3d 45m or 225m : 192m :: 9m : } x = \frac{192 \times 9}{225} = 7 \text{ minutes which added to Khandañ 2 Jya = 17 + 7 = 24 minutes} \]

and as Gola is one which signifies additive for Meshadi we have:

<table>
<thead>
<tr>
<th>Madhya</th>
<th>8s 27d 59m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>0 0 24</td>
</tr>
</tbody>
</table>

True Longitude 8s 28d 23m Sun's (phuta) on Saturday at midnight.

<table>
<thead>
<tr>
<th>From</th>
<th>2s 17d 17m Sun's apogee as per Table. (see page 32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take</td>
<td>8 28 56 Sun's mean on Sunday at midnight (see page 32)</td>
</tr>
</tbody>
</table>

Divide by 3 (5) 18 19

<table>
<thead>
<tr>
<th>Gola 1 &amp; 2s 18d 19m which take from 3s</th>
</tr>
</thead>
<tbody>
<tr>
<td>2s 18d 19m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bhuja</th>
<th>0 11 41 or 701m</th>
</tr>
</thead>
</table>

As 3d 45m or 225m : 701m :: 1 Jya : x = \[ \frac{701}{225} \] or 3 Jya & 26m

Khandañ 3 Jya = 26 difference 8ms

\[ 4 \text{ Jya} = 34 \]

As 3d 45m or 225m : 26m :: 8m : x = \[ \frac{26 \times 8}{225} \] = 1 minute which added to Khandañ 3 Jya = 26 + 1 = 27m and as Gola is one signifying Meshadi (additive) we have:

<table>
<thead>
<tr>
<th>Madhya</th>
<th>8s 28d 58m Sun's on Sunday at midnight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>0 0 27 as above obtained</td>
</tr>
</tbody>
</table>

Sun's true longitude 8 29 25 Phuta on Sunday at midnight

Take true longitude 8 28 23 Phuta on Saturday at midnight

\[ \therefore \text{ difference} 0 1 2 \text{ or 62m for 24 hrs.} \]

As 24 hrs. : 10 hrs. : 62m : \[ \frac{620}{24} = 25ms \]

To Saturday at midnight Sun 8s 28d 23m

Add 10 hrs. duration Sun 0 0 25

Sunday at 10 o'clock a.m. 8 28 48 Sun's true position
MOON'S MANDOCHA (MOON'S APOGEE) (12)

Rule:—Add together the Savana days, Suddadin as above obtained and 318, from which deduct the quotient obtained by dividing the Rassa by 94 (remainder of which not to be rejected). The result divided by 3232 rejecting the quotient reduce remainder by multiplying by 12, 30 & 60 successively and dividing each product by 3232, for signs, degrees and minutes.

The above remainder which was not rejected divided by 14, the quotient in minutes dedact from the result obtained in signs etc., which last remainder decreased in the minutes by one and deduct for observed correction 4 deg. 20ms the result is the Moon's Mandocha.

To 49333 Savana days
Add 272 Suddadin
do. 318 adjustment brought over at epoch

49923

Take $1 = \frac{135}{94} \text{ Rassa} = 1 \text{ & Rem.} 41$

(12) This is the number of days elapsed (272 days) since the beginning of the solar year to given date of calculation; added to which is the number of solar days (49333 days) elapsed since new epoch, the result is the whole Suddadin since the beginning of Samdittha era, i.e., 49333 + 272 - 49605 days up to required date of calculation. This divided by seven the remainder is three, counting from Friday the day on which the era begins, gives Sunday as the weekday for which the calculation is made, thus proving that the above foregoing calculations are correct.

The above is worked out as follows:

As 3232 days without fraction : 49605 days : : one rev. of 12S : $x = 15$ Rev.

4S 5d 19m

To this is added the adjustment at beginning of epoch of 318 days:

As 3232 days: 318 days : : one rev. of 12S: $x = 1S 5d 25m$

Total 15 Rev. 5S 10d 44m

As the fraction of the Moon's apogee per above is not yet accounted for, the divisor is less and the quotient more than the real quantity and to adjust which Samdittha makes it subtractive by about one day to every 94 years of the rassa and one minute of motion to every 14 years of this remainder. In this instance to about 1\frac{1}{2} days:

As 3232 days: 1\frac{1}{2} day : : 1 rev. of 12S: $x = \frac{11 \times 12 \times 30 \times 60}{3232} = \frac{32400}{3232} \approx 10$

minutes which decreased from above 5S 10d 44m = 5S 10d 34m

Or As 3232 days: 49923 days : : one rev : $x = \frac{49923}{3232} = 15R 5S 10d 44m$

According to Suryasiddhanta:

As $1577917828$ D: $49923$ D: : $488203$ Time of revn : $x = \frac{49923 \times 488203}{1577917828} = \frac{24372558369}{1577917828}$

15 Rev. 5S. 10d. 34m., making a difference of 10 minutes of motion which is the quantity in excess for a period of 135 years for not taking the fraction into account.

As 135 years = 10m in excess

$x$ no. of years = 7m which is the equivalent of a daily motion of the Moon's apsis.

$= \frac{135 \times 7}{10} = \frac{945}{10} = \frac{94}{10} = 94$ years to accumulate to one day.

Since 94 years = 1 day or 7m of motion of Moon's apsis

$x$ No. of years for 1 do do $= \frac{94 \times 1}{7} = \frac{94}{7} = 14$ years for every 1m of motion.
Divide by 3232 \(\frac{49922}{48480} \) (15 Rejected)

\[
\begin{array}{ccc}
\text{Days} & \text{Days} & \text{Rev. Signs} \\
1442 & \frac{3232}{1442} & 1 \text{ or } 12 \text{ : } x = \frac{1442 \times 12}{3232} \\
12 & \text{Signs} & \\
17304 & (5) & \\
16160 & 1144 & \\
30 & \text{degrees} & \\
34320 & 32320 & (10) \\
2000 & 60 & \text{Minutes} \\
120000 & (37) & \\
9696 & 23040 & \\
5s & 10d & 37m \\
\end{array}
\]

Deduct 0 0 3 (Rem. not rejected \(\frac{41}{14}\))

\[
\begin{array}{ccc}
\text{Deduct} & 5s & 10d & 34m \\
0 & 4 & 21 & \text{adjustment} \\
\end{array}
\]

Moon's Apogee midnight 5 6 13 on Sunday
Deduct daily motion 0 0 6

Moon's Apogee midnight 5 6 7 Saturday
MOON'S MEAN LONGITUDE (MADHYA)

RULE:—Put down the Suddadin as above obtained in two places. In the first place, reduce the Suddadin to Avamām (i.e., Multiply the Suddadin by 11, and add the Atā Avamām), the sum divided by 692, the remainder of which is the Avamām of the day under calculation and the quotient added to Suddadin noted down in the second place and to which is also added the Ata-yet-lun, the sum divided by 30, rejecting the quotient, take remainder as tithis. Titthis multiplied by 12, product divided by 30, the result is in Signs—degrees. (13.)

Set the above Avamām of the day under calculation down in two places:—
Multiply the Avamām in the first place by 7, product divided by 173 which quotient add to the Avamām noted down in the second place the sum divided by 60, the result in degrees and minutes add to above result deducting 40 minutes for desantara (difference of time between Lancah and place of calculation) and also 12 minutes for correction from observation. The last remainder added on to Madhya (mean) Sun, the result is the position of mean Moon (in Burmese Tanilâ-madhya or Madima Tsan).

No. 1 272 Suddadin and 306 Atā Avamām
Multiply by 11

2992
Add 306 Avamām

3298 ( 4
2768

\(\frac{60}{692}\) Avamām of the day

(13). This is found on this principle:

As 30 titthis : one tithi : : 12 rasis : \(x = \frac{2}{3}\) rasi or 12 amsas

\[\therefore \text{as} \quad \text{1 tithi :} \quad \frac{1}{692} \text{tithi} : : 12 \text{ amsas : } x = \frac{12 \times 60}{692} = \frac{720}{692} = \frac{7}{173}, \text{hence the}
\]

\[7 \text{ Avamām} \times \frac{1}{173} \text{ ms} = \text{degrees and mins.}
\]

The whole process is arrived at as follows:—

As 692 D : 272 306 703 D : : 703 titthis : \(x = \frac{272}{703} \times \frac{306}{703} = \frac{191522}{692} = \frac{276}{530} \) Lunar days.

Add yet-loon difference between beginning of Solar and Lunar years \(\frac{17}{293} \) Lunar days.

Since beginning of Lunar year up to date of calculation

\[\frac{293}{692} \times \frac{530}{692} = \frac{203286}{12} = \frac{2439432}{30} \]

117S. 15d. 11m. = 9S. 15d. 11m.

From which the deduction of 40m is made for desantara. The rate of daily synodical motion of Moon is taken as 12 degrees or so. The difference of time between Lancah and place of calculation as given on page 27, is \(\frac{3}{10}\) naris.

As 60 naris : \(\frac{3}{10}\) naris : : 12d 11m or 731m : \(x = \frac{33}{10} \times 731 = \frac{8041}{200} = 40\) minutes

Being to the East of the prime meridian, it is subtractive by this quantity (if to the West will be additive).
No. 2
Add
Divide by

272 day Suddadin
17 days yet-lun (lunar dsys)
4 ₡ ₡ ₡ ₡ ₡
30 ) 293 ₡ ₡ ₡ ( 9 Rejected
270

23 ₡ ₡ ₡ tithis
23 tithis
12 Signs

30 ) 276 ( 9
270

6 degrees

No. 1
Multiply by
Divide by

530 Avamañ
7
173 ) 3710 ( 21 quotient

No. 2
Add

530 Avamañ
21
3633

9d 11m

which add to above = 9s 6d (+ 9d 11m) = 9s 15d 11m
or
As 30 deg.: 23 ₡ ₡ ₡ ₡ ₡ ₡ ₡ ₡ (9 deg.: 12 Signs : x = 8223 \times 12 = 16446
692
346 \times 30
1730 = 9s 15d 11m.

Moon’s Sunday midnight
Deduct adjustment, observed correction 0 0 12m}

Desantara
0 0 40

= 52

Moon’s mean position midnight
Add Sun’s position midnight

9s 14d 19m Sunday
8 28 58

Moon’s mean at midnight
Deduct daily motion

6 13 17	error
0 13 11 difference

Moon’s mean at midnight

6 0 6 Saturday

MOON’S TRUE LONGITUDE

A similar method of calculation as the Sun, is resorted to for this; and the same rule applies for referring to their respective Jyas from Khandañ and for taking out equations from Tables for this and the other planets.

From, at midnight Moon’s Apogee 5s 6d 7m on Saturday
Take, at midnight Moon’s mean 6 0 6

Divide by

3)

Gola 3 & 2s 6d 1m which deduct

from 3s

2 6 1

Bhuja

0 23 59 = 1439 ms.

As 3d 45m or 225m : 1439m :: 1 Jya : x = 1439
225 = 6 Jyas and 89 Rem.

6 Jya = 116
7 '' = 134

18m difference
As \(225m: 89m::18m:x = \frac{89 \times 18}{225} = 7m\) which add to the equivalent of 6 Jyas = 116 + 7 = 123m or 2 deg. and 3ms and as gola 3 signifies subtractive:

<table>
<thead>
<tr>
<th>From</th>
<th>6s 6d 6m Moon's madhya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take</td>
<td>0 2 3 as per above Bhujaphala</td>
</tr>
</tbody>
</table>

Moon's true position 5 28 3 on Saturday midnight

From, midnight Moon's Apogee 5s 6d 13m on Sunday
Take, midnight Moon's mean 6 13 17 "

Divide by 3)

<table>
<thead>
<tr>
<th>Gola 3 &amp; 1s 22d 56m which deduct;</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 3s 1 22 56</td>
</tr>
</tbody>
</table>

Bhujap 1 7 4 or 2224m

As \(225m:2224m::1\) Jya : \(x = \frac{2224}{225} = 9\) Jyas and 199m Rem.

9 Jya = 169m | 16m difference
10 \("\) = 185 |

As \(225m:199m::16m:x = \frac{3184}{225} = 14m\) which add on to the equivalent of

9 Jya = 169 + 14 = 183m or 3 deg. & 3m and as Gola 3 signifies subtractive:

<table>
<thead>
<tr>
<th>From</th>
<th>6s 13d 17m</th>
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<tbody>
<tr>
<td>Take</td>
<td>0 3 3</td>
</tr>
</tbody>
</table>

Moon's true longitude 6 10 14 midnight on Sunday

From, midnight True Moon Sunday 6s 10d 14m
Take, midnight True Moon Saturday 5 28 3

Difference of daily motion 0 12 11

As 24 hrs. : 10 hrs. : : 12d 11m : \(x = \frac{731}{144} = 5d 4m\)

To Saturday at midnight 5s 28d 3m Moon's true position
Add 10 hrs. motion 0 5 4

Sunday at 10 a.m. 6 3 7 Moon's true position.
The Accompanying Tables are deduced according to the rules of Suryasiddhanta

<table>
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<tr>
<th>Khandah.</th>
<th>1</th>
<th>2</th>
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The accompanying Tables are deduced according to the rules of Suryasiddhanta—continued.

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Equation of the centre.
Argument mean Anomaly
Equation of the Orbit.
Equation of Sun's Longitude.
Equation of the Orbit.
Equation of Sun's Longitude.
Equation of the Orbit.

| Mars      | 1295| 1376| 1456| 1534| 1611| 1687| 1760| 1832| 1902| 1969|
| Mercury   | 854 | 902 | 949 | 994 | 1036| 1076| 1113| 1148| 1180| 1209|
| Jupiter   | 509 | 535 | 560 | 583 | 605 | 624 | 641 | 656 | 668 | 678 |
| Venus     | 1394| 1484| 1571| 1658| 1743| 1827| 1911| 1993| 2073| 2152|
| Saturn    | 297 | 312 | 325 | 337 | 348 | 357 | 365 | 372 | 377 | 380 |

Parallax of the Orbit.
The Elongation.
Parallax of the Orbit.
The Elongation.
Parallax of the Orbit.

| Mars      | 2398| 2374| 2342| 2302| 2257| 2207| 2154| 2096| 2033| 1969|
| Mercury   | 1260| 1278| 1288| 1293| 1291| 1284| 1271| 1255| 1234| 1209|
| Jupiter   | 633 | 650 | 665 | 677 | 685 | 690 | 691 | 690 | 686 | 678 |
| Venus     | 2710| 2667| 2619| 2564| 2503| 2439| 2372| 2301| 2227| 2152|
| Saturn    | 336 | 348 | 358 | 366 | 373 | 378 | 381 | 382 | 382 | 380 |

Parallax of the Orbit.
The Elongation.
Parallax of the Orbit.
The Elongation.
Parallax of the Orbit.
MARS' MEAN LONGITUDE.

RULE.—To the accumulated Savana days of the given date add 507; the result divided by 687, reject the quotient as revolutions, reducing remainder by the multiplication of 12, 30 and 60 successively and dividing each product by 687, to which result in signs, degrees and minutes add 1 degree and 14 ms for correction from observation. The quotient of the Rassa divided by 751, add as Savana day to above; remainder, divided by 24, add quotient as minutes to above result. This is the mean position of Mars. (14)

To accumulated Savana days i.e., 49333 + 272 = 49605 days
Add adjustment 507 brought over at beginning

Divided by 687 ) 50112 (72 Rev. elapsed
49464

648

12 Signs

7776 (11
7557

219

30 Degrees

6570 (9
6183

(14) As will be seen on page 33 of Notes that the length of the revolution by taking the divisor as a whole number (687 instead 686 days and fraction) is a little too much and consequently the quotient is found to be less than the real quantity.

This is adjusted by taking one Savana day for every 750 years, and one minute of motion for every 34 years over the rassa and its remainder respectively, which figures are obtained as below— :

According to Suryasiddhanta :

\[
\text{As } 1577917828 \text{ D : } 50112 \text{ D : } 2296832 \text{ Time of revn. : } x = \frac{2296832 \times 50112}{1577917828} = \text{72 Rev. 11s 9d 39} \frac{1}{2} \text{m.}
\]

According to Sandiththa without correction :

\[
\text{As } 687 \text{ D : } 50112 \text{ D : } 1 \text{ Rev: } x = \frac{50112}{687} = 72 \text{ 11 9 34}
\]

Making a difference of motion

\[
0 \quad 0 \quad 0 \quad 5\frac{1}{2} \text{ in excess for a period}
\]

of 135 years, for not taking the fraction into account.

\[
\text{As 135 years } \approx 5\frac{1}{2} \text{ minutes.}
\]

\[
\times \text{number of years } = 31\frac{1}{2} \text{ minutes (which is equivalent of Mars' daily motion)}
\]

\[
= 135 \times 125 \times 8 = 750 \text{ years to accumulate to one day.}
\]

Since 750 years = 31\frac{1}{2} \text{m of motion}

\[
\times \text{number of years } = \frac{750 \times 4}{125} = 24 \text{ years.}
\]

The usual adjustment is not made in this and in the remaining planets for desantara, as the difference is so very small that it cannot perceptibly effect the calculation of vic : subtractive:

For Mars 2', Mercury 14', Jupiter 0', Venus 5', Saturn 0'.
For every 571 years take it additive by 1 Savana day and every 24 years of this remainder 1 minute of motion = about 5m additive on 135 years.

To above result
Add correction
Add observed correction

Mars’ mean position
Take Mars’ daily motion

" mean position

( to be continued )
NOTES ON THE HISTORY OF HANTHAWADDY

(continued from the last number)

PART III.—THE THREE EMPIRES OF HANTHAWADDY.

The date given by Phayre for the close of Teiktha Raza's reign is 781 A.D. But it appears that the reign of Punarika and Teiktha Raza represent a period of strife between Buddhist and Hindu influence which lasted until the conquest of Thaton by Anawrata about 1050 A.D. Thenceforward governors were appointed from Pagan, the names of three are given in the History of Syriam; but it is probable that only those three were singled out for mention who rebelled against the Burma rule. The last of these, Tarabya, was successful, but he succumbed to Wareu, the Prince of Martaban who ascended the throne in 1287. Here the early History of Hanthawaddy ends, such little knowledge as we possess has to be gathered from numerous sources and supplemented by conjecture; hence it has been necessary to consider it with some degree of fulness. For the later period we are on firmer ground, it is unnecessary to consider it in detail and indeed the material is so ample that it would be impossible to do so. The province of Dala has always been a bone of contention between Burma and Hanthawaddy; any attack upon Pegu by water has first necessitated the conquest of Dala. If the attack was made by land, the invading army usually has left the Irrawaddy at Hlaing and marched across the Northern portion of the present district. Hence the country side is rich in monuments of Burmese history, walled cities and old fortresses and memories of battle. Dala and Syriam have given titles to innumerable princes and their strongholds there have been the occasion of almost as numerous rebellions. Embassies to Ceylon have set out from Dala, and in later days this place and Syriam have been the ports frequented by adventurers from foreign countries. It was at Syriam that the Barnabite fathers initiated missionary effort and much of the hardest fighting in the 1st and 2nd wars took place within the limits of Hanthawaddy District. All that can be attempted therefore is to sketch in outline a few of the salient features of the local history.

The first incident of more than local importance occurred during the Burman governorship. An embassy was sent from Ceylon about 1181 A.C. and as the result of a dispute arising out of this embassy Dala was invaded by the King of Ceylon. There are the remains of an old monument at Letkaik which Forchhammer thought to commemorate this incident. It is Dala also which is to which the next incident is connected. Narathihapadi, later known as Talokpyemin, was expelled from his kingdom at Pagan in 1284 and took refuge in Dala, of which Kyawswa, his son and subsequent successor was Governor at the time. This is still remembered in oral traditions. About the same time Tarabya the Burman Governor of Pegu threw off his allegiance to Burma and called Wareu the Prince of Martaban to his assistance. He succeeded in expelling the Burmans after a series of engagements between Dala and Henzada. He then thought to overcome Wareu by treachery and having persuaded him to disperse his soldiery made an attack upon him. Wareu discovered his design in time to frustrate it and "calling the guardian spirits of earth and air to witness that he was innocent poured out water from a golden bowl in testimony against Tarabya." He mounted his elephant and wounding Tarabya took him prisoner. A few years later when Tarabya again made an attempt upon him he ordered his execution. In the days when they had formed an alliance each had espoused the other's daughter. Now that Tarabya was sentenced to death his wife and daughter of the king pleaded for him, but finding her father resolved to give Tarabya no further opportunity of showing his treachery she mingled her hair with that of her husband so that both their heads might be cut off at the same time. Wareu was informed about her
action but he did not relent. "Cut the head off," he said "and see if she still cares to take it about with her with their tresses intermingled." After the capture of Tarabya Wareu removed the seat of the kingdom to Martaban, and there is little of importance in the history of Hanthawaddy until the grandson of Wareu retured from Martaban in 1554 A. C. The first Epoch of Talaiing literature originates with Wareu.

With the reestablishment of a dynasty at Pegu commences the history of the first Peguan Empire. The reign of the first monarch or Binya-U was occupied in overcoming the pretensions of the Shans of Martaban, but a succession of able rulers brought about between 1554 and 1551 A. C. the consolidation of Martaban, Hanthawaddy and Bassen in a single empire. The foundations were laid by Binya-Nwe, the son of Binya-U. This prince was appointed by his father ruler of Dagon, and when forced to defend himself against the machinations of his step-mother and half brothers he fortified this town against his father. Binya-U died before open war had been declared and Binya-Nwe succeeded. On coming to the throne he adopted the title of Razadirit. The chronicles of his reign still survive in a volume of over three hundred pages. The foundation of the Danek pagoda is ascribed to him. The town of Hlaing was founded by him as an outpost against the inroads of the Burman while Tabu Myo in the same neighborhood is evidence still surviving of the rebellion of his eldest son. His civil administration was more enduring than his Military power; he organized the "Thirty-two Provinces of Hanthawaddy" which remained the basis of the administration until the advent of the British.

His death however saw a temporary recrudescence of anarchy; one son the Prince of Syriam rebelled, another the Prince of Dagon followed his brother's example and the Burman army occupied Hlaing in preparation for the subjugation of the kingdom, while the outlying provinces including Dala, passed under their sway. Dhamma Raza, the son of Razadirit succeeded to the throne. His brothers however remained for a time in opposition and it is in connection with the troubles of this time that there comes into prominence Shin Saw Bu one of the greatest characters of Peguan history, who married six husbands and in succession became princess of Dala, Queen of Burma, and in her old age by popular election Empress of Pegu. She was sister to Binya Ran and Dhamma Raza and when the former rebelled and fortified Dagon against his brother she was given in marriage to the King of Burma in return for his allegiance. Such was her charm of personality that he crowned her Queen Consort, a position almost if not entirely without precedent in Burman annals. Before however she became Empress of Pegu, there were five rulers in succession to Dhamma Raza and the ordinary accompaniment of war and rebellion in Hlaing, Syriam and Dala. The reign of Binya Waru was an exception, 1426-30. He eschewed warfare, perceiving the damage which had been wrought upon his kingdom, and set himself to the suppression of crime with such effect that even a cat was executed for the murder of a mouse. Shin Saw Bu came to the throne in 1457 A. C. (B. E. 815) but shortly afterwards took up her residence at Dagon where she built a palace the ramparts of which are at present the bunkers on the golf course. The actual work of Government devolved on Dhamma Zedi who had been a monk and who succeeded her in 1464 A. C. (B. E. 822). He was like his predecessor of peaceful inclination and it is probable that many of the "Thirty Seven Pagodas of Angyi" bear witness of the intercourse which existed with Ceylon during the reign of the prince. Shin Saw Bu had extended the glebe islands of the Shwe Dagon Pagoda so far as Danek, but he retracted them considerably, compensating however for the restriction in area by valuable gifts of gold and gems. The Burman power had now declined beneath the Shan usurpers and the last Peguan monarchs were therefore enabled to carry further the consolidation inaugurated by Razadirit. But the local history of Hanthawaddy becomes of less importance when the Burmans cease to make their advance by way of Hlaing and Dala.
The rising dynasty of Toungoo is from henceforth the storm centre of the annals and the jungles of Hanthawaddy form a refuge for exiled princes fighting for lost causes. During the reign of Binya Ren there was still peace but the succession of Takarut Bi, his son, a boy of fifteen who gave up his time to hunting and other light amusements was the signal for the onset of Tabin Shweti and in 1540 A. D. the first Peguan Empire was brought to an end by the defeat of Takarut Bi.

With the accession of Tabin Shweti begins the second Peguan Empire under the Toungoo Dynasty. This endured for two hundred years, a rather shorter period than the empire which it replaced.

The second Peguan Empire.

So far as Hanthawaddy is concerned, it is with commerce rather than with war that this period is connected. But the former names remain; Dala and Syrmat are no longer theatres of war but busy markets where merchants congregate. We hear of “Dala which is a very faire town and hath a faire port into the sea, from whence go many ships to Malacca, Mecca and many other places. It is a very fruitful country.” Just beside Dala is “Ciriom which is a good town and hath a faire port into the sea whither come many ships from Mecca, Malacca, Sumatra and from divers other places. And there the ships stay and discharge and send up their goods in Paroes to Pegu.” There are still wars, however, but they are rather rebellions ferment from the Portuguese against a sovereign power than contests between equal princes. And the defeated subjects are forced to turn to the Portuguese for help.

“Valiant and faithful Commander,” commences one address to the Portuguese leader by a Talaing prince who has incurred defeat “through the grace of the King of the other end of the world, the strong and mighty Lion with a crown of majesty dreadfully roaring! in the House of the Sun, I the unhappy Saw Binya, heretofore a prince, but no longer so, finding myself beseiged in this wretched and unfortunate city, do give thee to understand by the words pronounced out of my mouth, with an assurance no less faithful than true that I now render myself the vassal of the great King of Portugal, sovereign lord of me and my children with an acknowledgment of homage and such tribute as he shall at his pleasure impose upon me.” This two hundred years is divided into three periods. From 1540 until 1599 Burma is yet independent of Pegu; then with the reign of Nyaung Yan Min it becomes subordinate thereto and the Shan Dynasty is driven out. With the conquest of Burma, the hold of the princes is lessened over the south of the country, and the Portuguese are enabled to establish themselves in the person of de Brito, Nga Zinga, as the Burmans still remember him, as masters of the lower province including Toungoo which they ruled from Syrmat. The Burmans and Peguans drive them out and Nga Zinga is executed, but these foreign adventures have proved themselves dangerous neighbours and to this in all probability may be assigned the removal of the Head Quarters of the Kingdom from Pegu to Ava under Tha Lun Min in 1635. Henceforth until 1740 Ava remains the capital although Pegu is the more important member of the empire. During this period Syrmat is the chief city of the southern province. The writings of the early adventurers of these times are full of references to Hanthawaddy (Ansedei or Ansedea) and various places and passages therein, but it is impossible to trace them out in detail.

It does not appear that any information is likely to be made available concerning the internal administration of the First Peguan Empire beyond the fact already mentioned that Hanthawaddy was then organised into Thirty Two Provinces. During the Second Empire some detail is possible. The prominence of Syrmat as a port resulting from the arrival of adventurers from Europe induced Sinbyumya Shin, Branginoco, to appoint a Governor to that town. His duties were to “settle the assessment and levy of revenues among the towns and villages in due proportion so as to provide for the officials.” Fish, cocoanut, sugar and plantains are mentioned among the contributions and there is a special allusion
to "the royal tribute of betel from the Dala gardens," which had to be brought into the betel treasury at Syriam. At the same time Syriam was appointed as a watch post and the people of the locality had to contribute in kind and service to the maintenance of three war boats.

When sixty years later Tha Lun Min removed the Court from Pegu to Ava the importance of Syriam waxed as that of Pegu waned. The Akuwun was transferred from Pegu to Syriam and in addition to his former duties was charged with taking toll from ships arriving there. The reforms of Tha Lun Min form a well known but little studied epoch in the administration both of the upper and the lower provinces. The revenue enquiry held by him in the year 1060 B. E. was a model to the better known enquiries of 1145 and 1164 B. E. In Syriam he appointed officials for the receipt of custom. The other revenues he distributed under 12 heads, which had to be provided by the five districts of the Karens and the people of all the towns and villages of Hanthawaddy. The twelve kinds of revenue comprised a toll of gold, a toll of silver pieces, a toll of rope, tolls of the two varieties of cane, a toll of wood oil, a toll of what, a toll of powder, a toll of paddy, a toll of chillies, a toll of salt and a toll of salt fish.

The Akuwun was charged with keeping record of the revenue and of paying it into the Royal Treasury. The Clerks of the Akuwun had to keep account of the revenue collected both in detail and in abstract, and to make over the lists for the High Clerks of the Royal Court. He organised in fact both fiscal machinery and an accounts department. It is known that manuscripts are in existence which describe in greater detail the reforms of Tha Lun Min but they have not at present been translated.

The third Peguan Empire was but a passing phase; it consisted of the temporary restoration of the local power of Pegu. It receives an added interest in being the occasion of the introduction of Christian missionary effort. It was impossible permanently to rule a rich and distant province from a remote and comparatively barbarous centre, and as the royal line grew weaker the Talangs found an opportunity for asserting themselves. Their attempts to cast off the Burman yoke succeeded in 1740 A. C. and in 1751 they again subjugated the Burman kingdom. The Barnabite fathers landed in Syriam in 1721 A. C. and after the restoration of a dynasty in Pegu in 1740 prospered to such an extent that in 1750 they were enabled to build a large brick church of which the remains still exist. With the arrival of the Burmans, however, they were suspected of entering into correspondence with the French on behalf of the Talangs and the Bishop was executed. The mission in Syriam ceased to exist in 1750 the year after the Bishop's death.

Between the removal of the Peguan Court to Ava in 1632 and the Burman conquest of Pegu in 1757 there are incidental references to administrative methods, but it is at present impossible to assign these even approximately to their proper dates. It seems that except such obvious items as the commission on brokerage and money-changing the greater part of the revenue continued to consist of payments in services and kind. The people of Syriam had to provide the Governor's guard, the boat caulkers had to give their services when required but in some cases the connection between service and occupation seems remote. Thus in Syriam at least the burden of providing oil torches at festivals was laid upon the washermen and barbers, the brokers and money changers had to provide the wood oil, while the people of the boat building quarter had to carry the torches when made. Rights of jurisdiction were held on condition of rendering naval or military service. Besides the regular revenues aids were levied at the yearly festivals and on the accession of a monarch, but these would be remitted in the poorer localities, such as a township which was recruiting after a period of pestilence or war.

J. S. FURNIVALL.
TALAING FOLKLORE

(continued)

XIII.—THE STORY OF THE KING WITH TWO QUEENS.

Long ago there was a king with two queens the elder of whom had four sons. When the younger queen was about to have a child the astrologers were called in and they said: "As for this son of the king, should the king look on him before he is twelve years of age, the king's eyes will be blind."

Then the king said: "Doctors, how may this evil be avoided?"

"Let a hole be dug in the earth and let the child be placed in it and let him be taken out when he has reached twelve years."

So they dug a hole and the boy was born there and remained till he reached twelve years of age. Then he asked his mother, "Where are our parents? Where is our house? Where are our relations?" When his mother had told him all that had happened, he climbed out of the well and she could not stay with him, for he said, "How can the king's eyes become blind?" So when he had climbed out he went to the town. Men chased and tried to stop him but he went up to the house of the king and when the king saw him the king's eyes lost their sight. So the people drove him out of the town.

He wandered away at haphazard and reached in a certain village the house of an old man and an old woman who had an unmarried daughter. This girl spent all her time playing cowries and nobody could win against her. Then the prince questioned the old man and the old woman about her, saying, "How is it that she always wins?" And they said, "Hai, will you defeat her? She takes with her a cat and on the cat's head she seats a lamp and when she throws the shells the cat looks sidelong at them and they turn over." Having learnt this the prince went to the bazaar and bought a squirrel and put it in the pocket of his coat and taught it to jump out when he snapped his finger. When he had trained it he went and played cowries with the girl. As the shells were thrown he snapped his fingers, the squirrel jumped out of his pocket, the cat saw the squirrel and ran away in a fright and the lamp was broken in pieces. So the prince won and thus he won many times. At the last the girl being at the end of her resources staked herself and played: the prince snapped his finger, the squirrel jumped out, the cat ran away and the lamp was broken. The prince won and the girl herself and her house became his and they lived together in it. After some time the prince said to his wife, "My father has lost his sight. I am going to gather the Glaik blossom from the garden of the Takohs yonder."

"O master of the house, do not go. The takohs will devour you and you will not get the flower. The defences of that garden are one line of ants, one line of rats, one line of curly-tailed scorpions, one line of many-legged scorpions and one line of snakes. And outside takohs are on guard unceasingly."

"Fear not," he said "I will go and get the flower." Then he told his wife a story. "Long ago a man went to the forest and found a tiger caught in a trap. 'Set me free,' the tiger called to him, 'O lord of benefits.' "If I set you free, am I safe from you. Will you eat me?"

'I will not eat you. Do but set me free.'

So the man went and released the tiger and the tiger said, 'I have long been without food and now I am going to eat you.'

'It is not fit that you should eat the man who set you free. But let us go and hear the judgment of the Dewatao of the tree in the middle of the clearing ...O Dewatao, I set the tiger free. Is it fit or not that he should eat me?'

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And the Dewatao of the tree replied, 'Lo, men come and go and rest under my shade. My branches they break and sit upon them. Therefore,' said the Dewatao of the tree 'it is fit that the tiger eat thee.'

Then the tiger said, 'Now, I am going to eat you.' But the man said, 'Nay, we will go to the Dewatao of the Bridge...Oh Dewatao, the tiger was caught in a trap and I set him free. Is it fit or not that he should eat me?'

And the Dewatao of the Bridge replied, 'Lo, men cross over upon me and some use me for unworthy purposes. Therefore,' said the Dewatao of the Bridge, 'it is fit that the tiger eat thee.'

'Now,' said the tiger, 'I am going to eat you.'

'Wait a little,' said the man. 'When you have the third judgment in your favour, eat me.' So they went and came to a squirrel and the squirrel when he saw the man fled. The man followed shouting, 'Wait, be our instructor and decide our case.' Hearing his, the squirrel stopped and said, 'Don't you come near. Speak to me from a distance.' Then the man told the circumstances of the case and the squirrel said, 'I myself did not see these things happen. I cannot decide. Show me the place where the tiger was caught. Let us go and see... But how shall we go? I do not trust you two. Let the tiger go first, the man next and I will follow.' When they came to the trap the squirrel asked, 'How was the tiger placed? Show me, tiger-beast—Get into the trap—how you were bound, how you were released...Have you tied him fast? Now tiger can you move?' 'Hardly at all,' said the tiger. 'O man, is he tied fast?' 'As fast as can be,' said the man. 'Tiger,' said the squirrel, 'you have no conscience. Let the man go as he came. I will go as I came. Let the tiger remain in the trap. Thus I give judgment.'

"Thus the old tale told, and so my mind is fixed to go and gather the Glaik flower." His wife now approved and he went. On the outskirts of the garden he met a takoh. Straightway he ran forward and clasped the legs of the takoh and cried, "Eat me, eat me." Then said the takoh, "I will not." "Eat me, eat me," he cried again. "May the thunder strike me if I do," said the takoh. Then the prince unclapsed the takoh's legs and remained with him. When the takoh went to catch men they always ran away but buffaloes and oxen he caught and ate alive. When the prince saw this, "It is not good to eat like this," he said.

"Then how should one eat?"

"Go and get firewood." So the prince cut open the ox and removed the undesirable parts and washed it and put in onions and chillies. When it was nearly cooked he took it off the fire and scraped off the soot and gave it to the takoh to eat. The smell and savour delighted the takoh, so that he ate nearly the whole of an ox. When he had eaten he praised the prince. Afterwards the takoh hunted men no more but only cattle, which were cooked in this manner every day. And because the savour was so pleasing he took two or three carcasses as a present to the great aunt takoh. When she had eaten and found the taste to be surpassing she called the takoh who had brought her the food and said, "Such food have I never eaten. How gave you it its flavour?"

Then said the young takoh, "It is not my doing. One of the sons of men showed me how to cook flesh and I brought some for my aunt."

"How old is he?"

"A little over sixteen."

When she heard this she loved the prince as the son of her bosom and bade the young takoh summon him to her presence, saying, "I will marry him to my own unmarried daughter." So the prince became the husband of the takoh's daughter.

Now in the capital the four sons of the elder queen set out to search for the Glaik flower to rub on the eyes of the king. In their travels they came to the house of the girl who played cowries. They played and lost and in the end staked themselves. They lost again and became her slaves.
One day the young prince who was married to the takoh's daughter called before him the rats who were warders of the garden and said, "O rats, do me a benefit. In one night burrow me a passage from the stairs of my house to the flower garden." But the rats said, "We dare not." Then he said to his wife "I want to go and play in the flower garden." And she went and made supplication to the old takoh her mother and her mother called a young takoh and said, "Carry this youth into the flower garden and let him suffer no scathe. If as much as a finger nail is injured you shall die." The prince took with him a small spear. The young takoh showed him all the other flowers but the Glaik flower he did not show. When the prince said, "Show me the Glaik flower," he replied, "I dare not." "Then I will stab you in the stomach," said the prince. At this, fearing lest the prince should be injured, the takoh bore him to the garden of the Glaik flower and the prince plucked a blossom and stuck it in his headdress and they returned.

After some time the prince said to his wife, "I wish to return to the town of my mother and the land of my father" and his wife went and made supplication to the old takoh. When she had listened to her daughter's words she said, "It is well, my children," and she plucked seven hairs from her head and said, "Look you, my children, in case of war or any other important matter, burn this hair and think of me and I will haste to you." Taking then the hairs the two, man and wife, came away and set out on their journey and reached the house of the girl who played cowries. She cried out, "My husband has come back," and the old people cried, "Our son-in-law has come back," and they all welcomed him joyously. Then the prince saw his elder brothers in the position of slaves in the house and whispered to his wife, "Your slaves are princes and my brothers. Let them go." But she said, "On what terms can I let them go? Will they all agree to be branded on the buttock with the stamp of this ring?" They agreed and they were branded and let go. Then they went to the bazaar to buy the Glaik blossom and when they came back, the young prince asked them, "What mean you to do with this flower?" They said, "We will rub it on our father's eyes." "Will it cure his blindness?" "Surely," they said, "this is the flower that cures blindness." "A blind man lives yonder. Go and rub his eyes." They did so but his blindness remained. Then the young prince touched the blind man's eyes with his flower and his eyes became whole. After this the elder princes followed him everywhere with blandishments. His wife warned him, saying, "Do not go with them. They are plotting to take the Glaik flower from you." But he said, "It is no matter." One day they enticed him to a well and pushed him in and they hooked up his headdress with a long rod and took the flower and threw the rod in the well again. Then the four princes went to the capital and rubbed their father's eyes with the Glaik flower, so that he saw.

The young prince climbed out of the well and went home and his wife, seeing him, said, "Where is your headdress?" and he said, "They have taken it from me". "I told you not to go near them but you would not listen to me." "It is no matter," he said, "they will not benefit. We shall." Then they went to the old man and woman and asked permission to go to the capital. Having received permission, they made them presents and the prince with his wives went to the town of his mother and the land of his father. At one day's distance from the capital the prince said, "I wish to found a town at this place," and after consulting his wives, he burned the hair of the takoh. She came at once and the prince said, "I wish to found a town here in a single night and let there be roads of silver and gold reaching to the palace of the king my father. And let there be halls at intervals where men may have food and drink. Let there be plates of gold, cups of gold and trays of gold." All this the takoh performed and at the head of the road near the palace, she set a writing and returned to her own place. Next day the people told the ministers of the marvel and the ministers informed the king and when they saw the writing they carried it to the king. The king said, "This is no other than my son the
prince. As his power is so great, it is fitting that we go to him in an appropriate manner. "Then the king and the ministers and the four princes went together to the city of the young prince. When they had gone half the distance, attendants came and gave them food and drink. And any who wished for a gold plate might have it and he who desired a silver plate received it according to the order of the young prince. When the king heard this he collected all the plates and went into the prince's town, and with the four elder princes he sat on a dais. Presently the elder wife of the young prince came in as her husband had privily instructed her, and did obeisance to the king. But he said, "Why are you in such a hurry to come in? I have not yet had my fill of looking at your city."

"May it please your majesty, I find my four slaves sitting together with your majesty."

"Hch, these are my sons. How can they be your slaves?"

"May it please your majesty, I have branded them on the buttck. Let them show the brand."

Then the king looked at the brand and compared it with the ring and said, "It is true," whereupon the four princes ran away. Then the young prince went to his father and told him all that had happened. The king made over the palace to the prince and the prince became king in the place of his father from that day.

Note. The story told by the prince to his wife is the well known Çígée Çúéé. The point of it here seems to be that his wife should mind her own business and let him mind his. Otherwise, I have not yet heard of any origins or parallels for the strange incidents of this tale. It seems an old story, partly forgotten, into which alien matters have been imported. Thus the prince has no adventure with the snakes, &c., guarding the Glaih flower. They are really hardly necessary to this story.

J. A. STEWART.
Not far from Khin-mon in the village of Chaung-u there lived a man, Nga Aung Htoo with his wife, Mi Ye. The people of that district were great gamblers and sportsmen and took equal delight in gambling and cock-fighting as in buffalo-fighting and horse-racing; but their favourite pastime was wrestling. Even phongyi enjoyed it and kings favoured it. A clever exponent of the game always obtained a seat in the temple of fame.

Nga Aung Htoo was a lazy man, too dull to succeed in business and too proud to beg for his food. His physical endowments were far more respectable than his mental equipments. So after some vicissitudes in life he eventually found himself a professional wrestler and became well-known as a clever champion. He fed himself and his wife with doves and partridges, for he was also a cunning fowler. One day in March after a good breakfast he went out to a forest on the west to catch birds. It was a day of clouds and thunders and lightning flashes gave unmistakable signs of the approaching storm. Already by three o'clock in the afternoon, the rain had poured down in such profusion that the fowler with all his pluck and readiness of resource found it impracticable to return home. So he was glad to take shelter in an old phongyi-kyuang, first hanging up his cage on a door-post. The phongyi of this kyaung had been a champion wrestler, who by his feats of strength had amassed a considerable sum of money, buried under the steps of the kyaung. Owing to his intense attachment to this treasure he was punished by being reborn as an Ottazaung, watching over it. He was not an Ottazaung of the ordinary type—a mild and handsome creature, in whom gentleness of behaviour and comeliness of features are the predominating traits,—but was a most fierce being with the brawling rowdiness, the dashing courage and the fiery temper of the wrestler that he once was. It happened that at dusk when the rains stopped, the ghost, disguised as a phongyi, entered the kyaung reciting some Pali verses in the style of a saint lost in meditation and with the monotonous sound of his slippers striking—rap, rap, rap,—against the floor. When Nga Aung Htoo became aware of this, he was not a little surprised; for he had thought the kyaung to be deserted. But it was not the time for doubts; reverence to the holy man must be paid first. So down on his knees he went with the agility of an athlete and up to his forehead flew his hands with the practised ease of a devout Buddhist. Thus the phongyi let Nga Aung Htoo crouch down and make him obeisance until he saw the cage when suddenly he felt a thrill of wild excitement pass through his marrow and all the gambling and sporting instincts of his previous existence came back to him in all their intensity. He asked, “Man, say who and what you are.” “I am, Most Venerable Sir! Nga Aung Htoo. Suffer thy disciple to pass just one night in this kyaung.” “Aye, on one condition only I suffer thee. Prepare thee for a wrestling match with me.” Nothing could have pleased Nga Aung Htoo better. It was like letting a captive fish go into the water. So he tuck-ed up his longyi, and in sheer joy clapped his hands on his arms (by folding the arms in front and striking the palm of the right hand on the left arm and the palm of the left hand on the right arm in quick succession) producing sounds as from a bamboo clapper and sprang forward and wrestled with his opponent. Hard blows were given and taken on both sides and many feats of
strength and agility were performed. Both the combatants displayed equal skill and it was hard to judge who would win. But Nga Aung Htoo soon noticed that whenever he succeeded in delivering his most effective strokes he felt as if he were giving blows to a bag of cotton and that he was quite powerless to hurt his opponent. He then began to doubt the personality of the phongyi and as this doubt increased, his courage became less and he began to lose ground. He perspired profusely and in despair made one wild attempt to seize him by the hair. He succeeded in grasping what turned out to be a cap* on the ghost's head. This marked the turning-point in the combat, for immediately Nga Aung Htoo found, much to his relief, that the ghost became weaker and weaker and began to yield his ground. Thereupon he pressed hard upon him and dealt him such blows that the ghost was well-nigh fainting and could just plead in piteous tones for his cap. When Nga Aung Htoo refused, he reiterated the request saying, "The cap will not be of use to you, a layman. What benefit will you get from it? But to us, O, it is everything; it is our all in all. O! do give it me back." This strange cap was in shape like one of the halves of a big citron fruit cut in two; in colour it was like the skin of a land lizard. When the ghost saw that Nga Aung Htoo was decided in his refusal, he offered him a large sum of money in exchange for the cap. This was too tempting for the money-loving fowler. Accordingly the agreement was made and man and ghost together descended the north steps of the kyaung, where Nga Aung Htoo began digging the ground with a knife. As the rains had made it quite soft, he had no difficulty in digging it to a depth of a couple of cubits in a very short time, when lo! to his astonishment three viss of pure silver in a jar! He took these and gave the cap back to the ghost, who disappeared. For the rest of the night Nga Aung Htoo was too excited to sleep but nothing further disturbed him. Early the following morning he shouldered his cage and treasure and returned to his village. When he got home he was met by the abusive language of his wife, who thought that he had been misbehaving himself the whole night. She, however, became quite calm in manners and endearing in speech, when to her astonished gaze he opened out his treasure. Thence-forward husband and wife led a peaceful life and performed many acts of charity.

Not far from their house lived Mi Ye's sister, Mi Ya and her husband Nga Pyaw. When Mi Ya heard all the details of her brother-in-law's adventure, she thought it a very simple matter for a man of any pluck to get three viss of silver. So she desired her husband to turn fowler and play the part played by his brother the evening before. But Nga Pyaw, true to his name, was quite a different man. He was very timid and altogether a weak creature both mentally and physically. He made excuses. Did he ever wrestle or ensnare birds? But it was of no avail. Go he must or he must lose his wife's love. So with many a trembling in his body and many a foreboding in his mind, he set out with his brother's cage in the direction of the dreaded kyaung, where having duly arrived he anxiously awaited the mysterious phongyi. Nor was he disappointed; for at dusk the phongyi appeared and asked the same questions as on the previous occasion. "Whose cage is this?" Nga Pyaw was in such a state that all he could do was to stammer out (his knees knocking against each other and keeping time with his words) "It...is...mine." "Then prepare thyself for a wrestling match with me." To this Nga Pyaw was obliged to agree with fear and reluctance. But the ghost had learnt a lesson from Nga Aung Htoo, and called in the aid of his novice, also a ghost, and they hard beset Nga Pyaw. Moreover, the ghost took especial care of his cap, so that, bad wrestler that he was, Nga Pyaw had not the shadow of a chance to grasp it. But he was kicked and buffeted on all sides by master and novice until he could stand it no longer and took to his heels. The ghosts in the intensity of

* This was not an ordinary cap but was endowed with magical powers and could make the wearer visible or invisible as he liked.
their vengeance chased him and would have caught him had not his extreme terror of his pursuers, whose breath he could actually feel beating on his back, gave supernatural strength to his legs, which went faster than those of the ghosts. Only when he entered the village the ghosts gave up the chase and left Nga Pyaw half-dead at the door of his house. So people said that instead of treasure Nga Pyaw got the ghosts’ kicks and the wife’s curses and the brother’s reprimand for leaving his cage behind at the kyaung. The poor fellow never recovered from his fright and died soon after.

IV.—The Mistaken Ottazaung.

(adapted from the Kavindācovudhamārūjaṁsa kyaun).

There lived a cultivator, named Nga Nu. He was an industrious man and it was his regular habit to get up every morning with the first blush of dawn and at the first cock-crow and work in the field. One morning it happened that as he was ploughing there came up a young maiden, decorated with all manner of radiant gems and beautiful as precious gold, replete with every constituent of being and endowed with the five requisites of beauty. She had a winsome face and a fascinating gait and stood by his side on the plough. She did not enter into conversation and disappeared before she could be detected by any of the people who might be passing by that way. She came again the second morning, again on the third and on the fourth till she became quite friendly with the cultivator. When he let his friends into the secret, they rebuked him, saying “O you son of folly, kinsman of the canine tribe! How you are letting this chance pass! Know for a certainty that when you see in field or forest, at dawn or eventide, a pretty maiden without any companion, richly decked with necklaces, radiating with shining ear-rings and wearing an exquisite dress, she is none other than an Ottazaung, whom you must belabour with the mighty stick in your hand, if you desire to possess her treasure of gold and silver, which will last for a life-time.” Nga Nu being a simpleton thanked them for their advice, which he laid to heart. Punctually at the first cock-crow early in the following morning he was in the field awaiting his mysterious love. It chanced that at that early hour before her parents had time to wake up, a rich young maiden of the village, decorated with all decorations was passing along to meet her lover and overcome with anxiety and fatigue sat down to rest awhile near Nga Nu’s field. The cultivator took her for the Ottazaung and without making any enquiries but impelled by an excessive greed for wealth and zeal to put his friends’ advice into execution rushed upon her and overwhelmed her with the quick strokes of his driving-stick, accompanied by such triumphant exclamations as these, “Are you not a lump of gold?—enough to feed the whole circle of one’s relations! Eh! Now only I have got you. Know me then for a man of furious zeal.” The poor girl thus unexpectedly set upon was near death with fright and thinking that she had fallen into the clutches of a dacoit craved for mercy. But this only made Nga Nu’s stick fall on her back with accelerated velocity, so that mad with pain, her whole body covered with blue stripes she tried to escape by running away towards the village and shouting at the top of her voice and imploring the gods to save her. Her cries woke up the whole village and the villagers caught Nga Nu and took him to the Head villager for judgment. To all the charges of the maiden, Nga Nu pleaded guilty and under the mock-serious circumstances of the outrage was fined thirty rupees.

Maung Tin.
NOTES AND REVIEWS

ETYMOLOGICAL NOTES

1. Talaini.

We are all much indebted to Mr. W. G. Cooper for his recent paper giving us new and interesting information on this subject. He has done good service in drawing attention to the Mon works from which he has quoted, and we may hope that he will extract still further information from such records and in due time will edit and translate some of them. His local enquiries have also elicited some curious facts and testify to the trouble he has taken to get at the bottom of this complex matter. But some of the propositions and conclusions he advances require critical consideration before they can be accepted as proved.

It is interesting to learn, what one does not remember to have seen stated before, that the Mons do use the term "Talaing" but apply it to a particular and somewhat despised class amongst themselves. As that is the case and the name is objectionable to them, one can only agree with Mr. Cooper that in future the proper term "Mon" should be used when speaking or writing of this nation as a whole or of their language, customs, etc. But that does not conclude the whole matter. We have it on record that more than eight centuries ago the Burmese had already begun to use the name သန်း (Tantuin) for the Mon people in general. Any suggested etymology of the name must be consistent with that fundamental fact, which is all that (at present) we have got to start with.

Now the origin of national names, whether they be such as nations apply to themselves or as other neighbouring peoples apply to them, is generally very obscure. It is, as a rule, "lost in the mist of ages," for they are usually very old names indeed. Further, it is difficult to get any clues to the etymology of such names, because they often appear to be quite isolated and as if standing unconnected with other words. Nevertheless, and perhaps even more than other words, they have always had a kind of fascination for the etymologist, both scientific and popular; and nearly every nation under the sun has attempted to account for its national name and at the same time has had to put up with the interpretations put upon it by sometimes uncomplimentary neighbours. The results, however, have as a rule been only more or less plausible guesses. Even scientific etymologists have often had to confess themselves baffled by these names. It would serve no useful purpose to give a string of instances in support of these familiar facts. But I take it that no one nowadays believes, for example, that the Britons owed their name to a mythical Brutus invented ad hoc by mediaeval chroniclers.

I am afraid the traditional derivation of "Talaing" quoted by Mr. Cooper must take its place in this category. It bears upon its face the characteristic marks of what is called "popular etymology." Its very wording proclaims it to be an attempt to combine in one narrative two current explanations of the name, the one which would attach it to Telinga (Talingu, Telugu) and the other which would derive it from the word ကြား, which I prefer to transliterate "ita ilum," meaning "father" and "destroyed," respectively. It is plain that these were competing theories within the knowledge of the author of whichever may have been the older of the two books quoted, and that he tried to bring both views into his account of the matter. Further, we have no real evidence as to when he

* A speaker who took part in the discussion of Mr. Cooper's paper appears also to have tried "to have it both ways". It really can't be done.
wrote, and certainly nothing to make us believe that he represents a tradition that can be assumed to go back uncorrupted to a period prior to the date of the early Burmese inscription in which the name Tanluin first occurs. His account, therefore, though of considerable interest from the point of view of folklore, as adding yet another item to the long list of popular etymologies, cannot claim to be weighed against the definite evidence of the inscription.

The same is obviously true of the views of the venerable monks consulted by Mr. Cooper on the point. While in matters of Buddhist ritual, custom, or doctrine their opinions would be entitled to the most respectful hearing, it is obvious that on a question of etymology they are worth nothing whatever. The utmost that could be properly inferred from them, and I am not sure that even that is quite certain, is that side by side with the tradition embedded in Mon MSS, a similar tradition has been handed down, from some unknown date, by word of mouth and still survives in the memory of certain persons at the present day. There is no certainty that it has been handed down quite independently of the version enshrined in the MSS., and in any case the existence of such traditional stories is no evidence at all that the derivations they support are true. One must not overlook the common phenomenon of the invention of such popular tales for the purpose of explaining words whose real origin and meaning have been obscured by lapse of time.

Why should the Burmese have applied to the whole Mon race a name which was properly applicable only to a particular class in a particular district? They must have had a name for the Mons long before they conquered them and thus came into actual contact with that particular class, even assuming its separate existence at that remote period. Taking the Mon chronicler's explanation of the term "Talaiing" as I find it I read it merely an attempt, made long after Anawra'ta's time, to shift on to the shoulders of a despised class the burden of a name which was unpopular because used by a foreign conqueror. Inference for inference, that interpretation is prima facie as good as any other. It has also what is in our present state of ignorance perhaps a further advantage, in that it does not pretend to account for the origin of the name itself. On that point I can profess no definite opinion of a positive kind. But I am convinced that Tanluin (which is the form we have to account for, if we undertake to suggest an etymology for "Talaiing") cannot by any of the ordinary principles of Mon word-change be derived from ita luim, or rather from the old forms of these two words in the period preceding 1100 A.D. As to what these were, the inscriptions will perhaps some day tell us so far as ita is concerned, luim was written rim about this time,* and I think I have also seen it spelt rim. We are entitled to ask Mr. Cooper, if he wishes us to accept the derivation he quotes and appears to endorse, to give us some corroborative evidence in support of the phonetic changes it involves. It may be true, as stated in the discussion, that philologists are equal to any occasion. But in these latter days they have learnt to be critical, at any rate of one another's methods and conclusions. And before we feel bound to admit that at some date prior to 1100 A.D. two Mon words which were probably sounded something like ita riون were adopted into Burmese under the form Tanlui'n (perhaps pronounced Tanlön), we want to have parallel instances of the change of r to n and i to m, either within the Mon language itself or as between it and Burmese.

I will not dwell upon the somewhat fanciful nature of the narrative itself, nor upon the fact that the interpretation put by it upon the words ita luim is, after all, rather a strained one. I would merely say that the derivation is per se decidedly improbable and is not proved by the evidence adduced.

Finally, we do not even yet know whether the name is of Mon origin at all, nor whether it consists of one word or of two. If it is a Mon word, its

* In an inscription at the Shwesandaw pagoda, Prome.
form suggests that it was built up with the frequently occurring ancient infix *in (very commonly written *an) from some stem *tuin. Such a stem might be purely native, or it might represent Telinga. I do not intend to suggest that either of these alternatives is really the origin of the word: but at least they are more in accordance with the ascertained rules of Mon word-formation in the oldest known period of the language than the *ita tuin derivation. It is by no means impossible that "Taling" should represent Telinga. From some remarks made in the discussion of the paper it appears that there is still a certain amount of confusion in the minds of some people about the relations of the Mons with Indian races. So far as any genuine relationship is concerned, there is only the distant though very real linguistic connexion with the uncivilized Munda tribes of the interior of India and with the Khasis in Assam. That connexion must go back to very ancient times, before the Mons arrived in Lower Burma, and there can have been no subsequent intercourse between them and these other races. There is no reason whatever to doubt that the Mons came overland, nor is there any ground for supposing that any of these other races ever crossed the sea at all. In the case of the Telugus the matter is quite different. There is no trace of common origin, racial or linguistic, between them and the Mons, but there are very strong reasons for believing that the Mons in a great measure owe their civilization to direct intercourse with Indian traders, priests, etc. who came across the sea from that part of the East coast of India where the Telugu language now prevails.

II. Mon and Ramaṇādesa.

I now come to the real national name of the Mon people. I believe that at the present day it is usually spelt *Mon, but in writings of comparatively recent date, such as the Pegu chronicles (Rajawan) edited by Schmidt, the form *Man* is to be found (e.g. op. cit., C IV 1), and Haswell gives both. Apparently this *Mon* is really the older form, for as we pursue the name further back into mediaeval records we find it written *Rman*. The * which here appears before the initial of the root seems to have been a prefix of some kind. At any rate it occurs in other words (of which I have given one already in discussing the origin of Taling, and may now add *min, modern *min, "to hear"); and in modern Mon it is as a rule dropped. The form *Rman, which occurs repeatedly in the Kalyāṇi inscription of Pegu (late 15th century A.D.), must have been pronounced with some short indeterminate vowel between the *K* and the *m*. It is quite usual in the early Mon inscriptions to find two or even three consonants piled up together at the beginning of a word in such a way that they could not possibly have been pronounced as they stand. One must supply a short vowel, for which the Mon alphabet neither found a symbol in its Indian prototype nor troubled to invent one. Therefore we may take it that *Rman was pronounced something like *Rēmān with the vowel of the first syllable pretty much like the final *a in the English word "Africa," and with the stress on the last syllable.

In the Kalyāṇi inscription the Mon version always speaks of *Rōk Rman when the Pali version has *Ramaṇādesa, the meaning in both cases being "the Mon country" as constituted at that time, including the three provinces of Bassein, Pegu and Martaban. From this it plainly follows that the theory mentioned in a note on p. 3 of Vol. III, Part I, of this Journal, that *Mon is derived from *Brahmin or *Brahma, is entirely untenable.† For it is evident from

* Of course this is merely a literal transcription: I am not concerned with the modern pronunciation of the word but with its past history.
† It is curious that the Burmese set up a similar, and equally unfounded, claim with reference to the origin of their national names.
what has been said that Mon and Ramaṇa- are one and the same word, the
latter being merely a scholarly form: artificially coined for use in a Pali context
and based upon an older phase of the former, which was the genuine native
ethnic name.

But why, it may be asked, should the form selected for scholarly purposes
have been Ramaṇa- and not (for example) Ramana-? With regard to the
quantity of the first syllable, it may be replied that scholars in constructing a
"classical" form of a local name do not always consider themselves tied
down by strict phonetic principles: other ideas come into play, and it may
well be that the familiar Indian proper name Ṛma and other derivatives
from the same root (which in Sanskrit have pleasing associations) were present
in the mind of the first inventors of the term Ramaṇādēsa. The use of a palatal
instead of a dental nasal cannot, however, be explained in that way. But I
think it can be accounted for by the following considerations. In the 1st
century inscriptions many Mon words end in ṛ, but in the 15th century that
final had become obsolete and in the great majority of cases changed into n
Ramaṇa- may have been invented during the period when ṛ was still in use
as a final in the Mon language and the ethnic name at that time may have
been Rmaṇ. On the principles of Pali spelling and word-structure the ṛ had
to be doubled and an a added on. Hence the form as we find it in the name
Ramaṇādēsa.

It may be objected that this is all very conjectural, and so it is, but there
is some slight corroborative evidence. In an 11th century inscription, much
battered and weathered, I believe I can decipher a still earlier form than
Rmaṇ, viz. Rmeṇ, and if this should eventually be confirmed it will suffice
to prove the existence of Rmaṇ. For such a form will be an inevitable inter-
mediate between Rmeṇ and Rmaṇ, and some actual cases of a like change can
be given, e.g. the successive forms seṇ, srṇ, and srṇ, "silver." It would also
appear to follow from this evidence, if we are entitled to rely upon it, that the
form Ramaṇa- dates from the period between the 11th and 15th centuries.

That the old feeling that the final ṛ in Mon was originally an ṛ still lingered
on to a much later date, would seem to be indicated by the form Māṇ-
abhaṇa, "the Mon language," which occurs in Schmidt's Rajawal (A II 2); and
even at the present day the spelling Māṇ, for Mān, is occasionally used, e.g. in
the title of an elementary schoolbook published as recently as 1898 and men-

What the original meaning of the word may have been, I am in no position
to suggest. I doubt if it will ever be possible to determine it with certainty.
Somewhere or other I have seen a statement that some Mons explain their na-
tional name as meaning "first," in the sense that they are the first of mankind,
whether from the point of view of antiquity or of superiority I do not happen
to recollect. Nor do I remember how the derivation was arrived at, whether
they attempted to connect it with their word for "one" or with some other word.
Anyhow, it is fairly safe to put all such suggestions on one side as being highly
improbable in themselves and utterly unsupported by anything that can fairly
be called evidence. When one does not know the original meaning of a word,
it is best to admit the fact. That at any rate leaves the way open for further
enquiry, instead of blocking it by a purely fanciful explanation.

C. O. Blagden.

(To be continued.)
THE ORIGIN OF THE ĀHOMS (1)

In the Journal of the RAS. for April, 1913, there is an article by Colonel Gurdon on "The Origin of the Āhoms." It tells of a "metal plaque." On one face were the words "Letters patent... A.D. 1408," on one side "Be faithful," and the place is given as "Timasa" (which you say is identified as Chieng-Mai). There are two things in particular which are puzzling: the place and the date. In passing, I may say that a similar "plaque" was sent by the Emperor to a king of "Nanchao" marked "Nanchao, 705-805." So while the place is the place to which the plaque was sent, the date was not necessarily the date of issue.

Now, coming to your "Timasa." Nan-chao, even while still practically independent in local affairs, certainly acknowledged the Emperor as over-lord. He also received a plaque of this kind. Now, during the time mentioned above there was a sub-kingdom down on the Cambodiа River northward including at least the Hsiphsawng-Panna, and southward extending probably to Ving-Chang. Ving-Chang or Kieng Tsen may have been its capital. Westward, it included at times what was at other times a part of the "Province of Chieng-Mai." During the same time as mentioned above, a Nan-chao king sent down to the sub-kingdom on the Cambodiа two of his nephews to take over charge in his name. They took with them, among other things, a somdeo (sum-loo), as mentioned in the article. The sum-loo was kept in a box and taken out once a year in order that "respects" might be paid to it. In the same connexion there are, in the record, a few Shan words that I cannot make out, as they are now obsolete here. Possibly they tell of one of these "plaques." The two things seem to go together. As Nan-chao was at least nominally under China at that time, the sub-kingdom also was. What could be more natural than that the nephews should be provided with a similar "plaque"—a Mongol—Chinese recognition of their kingship?

Now, as to the somdeo (sum-loo): I can hardly think that it was a "god" or image at all, unless it was an image of the Emperor. (Where images of the Emperor ever handed round in that way?) As sum may be the Shan word meaning "seal" or "stamp" (to make an impression), and as loo (deo) may mean "the only," I am inclined to think that the name refers to a seal or stamp for stamping official letters. Whether it was in the form of a "cylinder" or not is not significant, neither the "diamond or some other precious stone" that may have been set in one end of it.

Again, as to the date: the Mongol dynasty of China apparently did control Chieng-Mai during the reign of Kublai Khan, but Mr. E. H. Parker states that the "Comforters" (Conciliators or Pacificators) were "withdrawn" in 1342. The date you give (1408) is sixty-six years later. If "Timasa" meant the sub-kingdom on the Cambodia, this would give no trouble, but it does if Timasa meant Chieng-Mai. What is the evidence that Timasa was Chieng Mai? Moreover, the date on the "plaque" given to the Nan-Chao king does not indicate the date of issue. The century (705-805) included two whole reigns and part of another. But the "plaque" (Plate A) gives manifestly the date of issue (1408). This is curious, but there is something here more curious still: Could there have been a "Comforter" in Chieng-Mai after they were withdrawn, or were they withdrawn from Burma only and given "privilege leave" in Chieng-Mai for another cycle? There is something even more curious than that. Why did the prince of Chieng-Mai send the "plaque" to his kinsman a thousand miles to the northward? Did he think that his northern friend had more need of the good advice, "Be faithful," than he had himself, or did Chieng-Mai actually control the Mao kingdom (with its nominal apanage, Assam) at this time?
In Shan writings, in so far as I have been able to gather, there is no indication either of Mongol-Chinese in Chiang-Mai, or of Chiang-Mai in the Mao kingdom, at the time referred to. The whole thing is a "Chinese puzzle." Now it may be that you can solve the puzzle.

W. W. COCHRANE.

Reply.

It will be convenient if I proceed to discuss your letter paragraph by paragraph.

Paragraph 1. I possess evidence to show that both the place (Timasa) and date (A.D. 1408) are correct. As regards the Nan-chao plaque, I may remark that the date given, 705-805, i.e., covering a century, is quite unusual in Chinese official documents. As a rule, such records are dated from the particular year in which they are issued.

In the year A.D. 1406, during the reign of Emperor Yung Lo of the Ming dynasty (A.D. 1403-23), Tonquin had become once more a dependency of the Chinese Empire, and the Shan Chief of Timasa, which was contiguous to Tonquin, would naturally hasten to submit to Chinese suzerainty and to accept his appointment of Conciliator or Pacificator from the Chinese Emperor. The date mentioned on the plaque is the "fifth year of the reign of Emperor Yung Lo," corresponding to 1403 + 5 = A.D. 1408.

Paragraph 2. Geographical names are somewhat loosely applied in Chinese records. States may have boundaries varying from decade to decade from century to century, and the best-known localities are fixed upon for purposes of identification. For instance, Ving-chang or Kieng Tsen, which the Burmans call KyainTHINGyi, has been a wilderness for several decades past, while its neighbours, Kengtung and Chiang-Mai, are better known to the outside world. In the circumstances mentioned by you, I am rather inclined to identify Timasa with your "sub-kingdom on the Cambodia River," but I suppose the Chinese annalists fixed upon Chiang-Mai as being the most convenient geographical expression and the best-known designation.

The sondeo (sum-loo), entrusted by the Nan-chao king to his two nephews on their mission to the sub-kingdom on the Cambodia River, cannot be identified with the plaque of A.D. 1408. The date is so carefully and correctly inscribed that there can be no possible mistake about its identity. I am afraid that we must look elsewhere for the missing Nan-chao plaque.

Paragraph 3. The word sondeo is an Assamese corruption of the Shan word sum-lu, which is again a Shan corruption of the Chinese word (as pronounced in the Cantonese dialect) sum-lok. In Yunnanese the word is pronounced as sin-lu. In Chinese sum means "confidence," and lok "a record," so sum-lok signifies "a record inspiring confidence," or, in other words, a credential or letters patent. In the Assamese from the second syllable dev, which is derived from the Sanskrit word deva, means "a god." Images of the Emperor were never handed round to be adored by the officials of the empire; but, at the time of each Chinese New Year, it was customary for all Chinese mandarins to kneel and bow down before the seats of their office, which were the token and credential of their authority and influence. Chinese official seals were kept in cylindrical cases or boxes called Pao-ya, which might be decorated with gems on the outside, and such boxes were wrapped up in a piece of yellow silk, yellow being the Imperial colour. According to the description given in the JRAS, p. 228, April 1913, the sondeo evidently refers to the official seal which, in accordance with Chinese custom, was raised to the dignity of a fetish. It would be well if further efforts were made to trace this sondeo in Calcutta, where it is reported to have been sold.
Paragraph 4. The withdrawal of "Comforters" in A.D. 1342, as stated by Mr. Parker, refers to Burma only. "Comforters" were invariably indigenous chiefs or princes; and a Comforter, Conciliator, or Pacificator simply meant a "Premier Chief or Prince," who was charged with the duty of upholding Chinese suzerainty.

As stated above, I am inclined to think that Timasa meant the sub-kingdom on the Cambodia.

Do you think that the date on the plaque given to the Nan-chao king, namely 705—805, is quite correct? According to the Chinese Annals, I-mou-sün, king of Nan-chao, defeated the Tibetans with great slaughter in A.D. 704, and for this service he received from the Emperor of China a gold seal, duly dated, as king of Nan-chao. I-mou-sün died in A.D. 808. It would be in keeping with Chinese history if your dates could be read as A.D. 705—805, which covers the single reign of I-mou-sün.

You wish to know why the prince of Chiang-Mai sent the Chinese plaque to his kinsman a thousand miles to the northward. The explanation is simple. It is stated (JRAS., p. 287, April, 1913) that the Ahoms invaded Assam in A.D. 1228, that they kept up communication with their Shan relations in Chiang-Mai after they had settled in Assam, and that they obtained the metal plaque from them. During the two centuries following the occupation of Assam the Ahoms found their position insecure, as they were menaced by the Muslim conquest of Northern India. If there was any evidence or credential to show that the Ahom Chief of Assam was under the protection of the Chinese Emperor, he would secure immunity from attack on the side of Bengal. So the plaque of A.D. 1403 must have played the part of a veritable talisman in nursing the young Ahom kingdom into maturity and strength. The historical circumstances would appear to show that, at that period, Chiang-Mai exercised control over the Miao kingdom as well as Assam. My own experience of the Burmese and Talaing Annals indicates that native historians are loath to admit the subjection of their country to foreigners, and the Shan writers do not form an exception to the rule. They will never admit that Chiang-Mai was subject to China, or that the Miao kingdom was subordinate to Chiang-Mai.

There is sufficient evidence to support the identification of Timasa with Chiang-Mai. It is stated, in the Huang Ch'ao Wen Hsien T'ung K'ao, that Pa-pai-hsi-fu-kuo (or the kingdom of 500 women, one woman being in charge of each village) is situated to the south-west of the Shan state of Meng-ken, and that its ancient name is Ching-mai (Chiang-Mai). At the beginning of the Mongol dynasty (A.D. 1280-1368) it was frequently attacked by the Chinese. Communications were, however, difficult. Subsequently the state rendered its submission, and a "Comforter" was appointed. In the 24th year of the reign of Hung Wu, an Emperor of the Ming dynasty (A.D. 1392), two "Comforters" were appointed to the state of Pa-pai-hsi-fu-kuo, namely, one to Che-na and the other to Ta-tien. In the 5th year of the reign of Yung Lo, an emperor of the same dynasty (A.D. 1403), the state remained neutral. A military contingent was demanded from it, and it sent tribute to China.

It is further stated, in Kang-chien-ho-p'ien, Yü-p'ili-tai-t'ung-chien, and Kang-chien-i-chih-lu, that in the 3rd regnal year of Emperor Yung Lo (A.D. 1406) a Chinese general named Mu Ch'eng demanded the sub-mission of Pa-pai-ta-tien, which is also called Pa-pai-hsi-fu-kuo. During the early days of the Ming dynasty (A.D. 1368-1644) two "Comforters" were appointed to that state. It is mentioned in the Yünnan T'ung Chih, or Gazetteer of Yünnan, that in A.D. 1408 a Hsin-fu or metal plaque was granted by the Emperor to the "Comforter" of Pa-pai-ta-tien, or Timasa.

Taw Sein Ko.
Your letter of the 28th instant gives the information I required. There may have been a mistake in the date of the Nan-chao plaque. I am not a Chinese scholar, and had to rely entirely on the date given by Professor Parker. If such documents are customarily dated from the exact year of issue, a mistake is presumable.

That Chiang-Mai was at least nominally under the Chinese during the Mongol-Chinese dynasty there is no sufficient reason to doubt, and that state may still have recognized such overlordship at the beginning of the fifteenth century, though the Shan records here say nothing about it. That the Chinese had at least nominal control of the sub-kingdom on the Cambodia at that time there can be no doubt whatever. If the so-called "province of Chiang-Mai" extended eastward to the Cambodia at that date, identifying Timasa with Chiang-Mai would have been quite natural, though the Cambodia River region in particular may have been meant. Line fences were often set over, and set back again or torn down altogether, according to the power and ambition of the various squabbling Shan princes.

I did not intend to identify the Nan-chao plaque, or the one given to the nephews, with the one found in Assam; I meant merely to say that I regarded it as one of the same kind, i.e., as a "letters patent" and not as a "god." This you show clearly to have been the case from your history of the word somdeo, from the Chinese sun-lok, corrupted in Shan into sun-loo, and further corrupted by the Ahoms into som-deo. Several words spelt here with an ı are spelt with a d in Ahom (as dao for liao, a sword). The deo is not, therefore, to be confounded with the Sanskrit deva. In the Ahom and Kham-ti Shan writings of Assam a "god" is uniformly represented by the word ḫī (or pi, according to taste in transcription), as it is here. If the "Comforters" were always indigenous chiefs (and Shans, over this way), it helps to account for the frisky intermeddling of Shans in Burman affairs during the Mongol-Chinese dynasty. It also helps to explain the meaning of Mr. Parker's statement that they were "withdrawn" in 1342.

The statement (JRAS, p. 287, April, 1913) is itself a Chinese puzzle. What is meant by "The Ahoms invaded Assam in A.D. 1228," that they "kept up communication with their Shan relations in Chiang-Mai after they had settled in Assam," and that they "obtained the metal plaque from them?" At that time the general-in-chief (Hso-ka-pha) of the Mao Shan king (Hso-hkan-hpa) conquered Assam, and the same king had already conquered Chiang-Mai. He held both under tribute till he died, after a long and eventful reign. This seems to be as certain as anything in the Shan records. If communication was kept up, it was, in the first instance, through the Mao (or Pawng) kingdom of what is now Eastern Burma. Hso-hkan-hpa was followed on the Mao throne by weaklings. That Chiang-Mai between 1270 and 1408 may have retaliated and conquered the Northern Shans, including the Mao apanage (the Ahoms of Assam), is possible, but the Shan records here make no mention of such a pleasant social visit.

The Ahoms were menaced by the Muslim conquest of Northern India, and had several armed conflicts with the Muslims, but during that period they seem never to have received any aid from China; if they received such aid they were ungrateful, for they make no mention of it in their records. Still, I am inclined to think that the relation between the Chinese and all of the Shans from Chiang-Mai to the valley of the Brahmaputra was much closer than the latter acknowledge or than has ever been conceded. While practically independent of China, there still seems to have been a certain recognition of Chinese suzerainty. That Chinese "letters patent" was not fooling-round up there in Assam for nothing.
I happen to know a scholarly missionary (the Rev. W. Clifton Dodd, D.D.) of the American Presbyterian Mission of Northern Siam, working among the Laos. I may do well to write to him to see what light he may be able and willing to give on the whole matter. I hear that he, or one of his associates, has collected a large number of historical manuscripts.

W. W. COCHRANE.
THE HOUSE THAT JACK BUILT:
BURMESE AND TALAING PARALLELS.

BURMESE.

TALAING.
Translation

Tree, tree, why are you crooked?
The heron perched on me.
Heron, heron, why did you perch?
To watch a fish.
Fish, fish, why did you rise?
Because the buffalo waded.
Buffalo, buffalo, why did you wade?
Because the herd beat me.
Herd, herd why did you beat?
Because I was hungry for rice.
Rice, rice why weren't you boiling?
Because the fire didn't blaze.
Fire, fire why didn't you blaze?
Because the firewood was damp.
Firewood, firewood why were you damp?
Because the rain rained.
Rain, rain why did you fall?
Because the frog called.
Frog, frog why did you call?
Because I was thirsty.
Little blackguard frog in the well under the banyan tree is there not enough to drink?

Notes.

タングク pronounced ngok.
タウ to wade not equivalent to the Burmese ကွဲး
ノン keeper. Haswell gives only ကျောင်း elephant keeper.
タノン but pronounced kanom and so written by Haswell.
カーティーク pronounced tdeak and so written in Haswell.
ルン a term of abuse.

It is curious that in both versions the first two lines and the last are the only ones that contain rhymes. Again, the interrogative particles ၀ or ကြဴ in Burmese and အိ in Talaing are always omitted.

J. A. STEWART.
THE BODHISATTVA MAITREYA IN BURMA

In reading over a back number of this Journal (Vol. II June 1912 page 101), I noticed an article referring to the cult of the Bodhisattva Maitreya in Burma. The author mentions that the cult of this Bodhisattva is "practically unknown in Burma," and that references to it are therefore of interest. Three months ago I was at Kalewa on the Chindwin River. There is a high hill standing behind the little town. A boatman told me a legend concerning it, which, he said, stated that a treasure lay hidden in it against the advent of Maitreya. The money would then be found, and be used for religious purposes.

C. M. ENRIQUEZ, CAPT.
A PREDICTION

A taboung ((isset()) is a prediction with a sarcastic meaning of something which is expected to take place in the future. It is generally put in the form of a verse. The accompanying taboung is supposed to have arisen in the time of the Kings of Burma and has been sent to us by "Old Grandfather" (setQuery()). It may be translated thus:—

We loved our lads who kept their hair
In tresses waving in the air.
But now behold! they've cut it short,
With changing Fashion thus they sport.

The original meaning was sarcastic, implying that the proper Burmese fashion was to have the hair long, being knotted and kept in position by a fillet. But fashionable young men and those who lately left the priesthood led the world of fashion by cutting their hair short. And young ladies to show their approval sung:—

We loved our lads who kept their hair
In tresses waving in the air.
But now behold! they've cut it short,
With changing Fashion thus they sport.

Later, with the conquest of Lower Burma by the English a new meaning was acquired. Wise people and leaders of society comparing the English "Roundhead" with the long-haired Burman judged the former to be more elegant. And so it was sung:—

We loved our lads who kept their hair
In tresses waving in the air.
But now behold! they've cut it short,
With changing Fashion thus they sport.

But some maintain that the taboung is applicable most to prisoners, whose release from prison and also from the burden of long hair is celebrated by their wives and daughters by singing this doggerel:—

We loved our lads who kept their hair
In tresses waving in the air.
But now behold! they've cut it short,
With changing Fashion thus they sport.

It is still susceptible of one more meaning. As in times of Burmese supremacy in fashion a foreigner used to pass for a Burman by tying a pasoh round his waist and his hair into a knot, so now also any foreigner loves to pass for an Englishman, a veritable Londoner, if he only has the "soldier crop" and wears trousers and a hat.

But this change in fashion in cutting the hair short loses much of its oddity by being favoured by our boys in English schools. But let them not make themselves ridiculous by not following either one fashion or the other. For some schoolboys neither cut their hair short nor tie it into the Burmese knot, but roll it up from behind the head and as they use a curved hair comb made of tortoise shell to keep it in position in the style of the islanders of Ceylon, it is difficult to say whether they are boys or girls!

EDITOR.
PSALMS OF THE EARLY BUDDHISTS (THE BRETHREN)

Psalms of the Brethren is a translation from the Pali of Theragatha. It is a companion volume to the Psalms of the Sisters, which appeared sometime ago. The text forms the best extant anthology we have of Pali poetry. The verses are full of poetry, being ecstatic utterances of arahants, enjoying the bliss of Nirvana and hence giving full expression to their emotions. In grandeur and perfection of form, these utterances have been compared to "the call of distant lion's roar, Resounding from the hollow of the hills." We can therefore sympathize with Mrs. Rhys Davids, the translator, when she confesses that "the English rendering mocks the glowing poetry of the original" p. 218. This is true of many another passage where only a true poet can hope to do full justice to the sentiments expressed. But Mrs. Rhys Davids has done her best and though her verses may not breathe the spirit of genuine poetry, they are faithful and straightforward and on the whole convey the spirit of the original and acquire some value thereby. What is of more credit to her is the way in which she has sprinkled foot-notes. These bear the fillip of scholarship and are treated in a way to commend themselves to both scholar and general reader alike.

Another proof of the translator's scholarship is shown by the abundant use made of the Pali commentary of Dhammapala, which is the only way of preserving the Pali tradition. We have no faith whatever in a work translated from the Pali without the help of the commentary. A modern scholar may have very high attainments but if he ignores the Pali tradition preserved for so many years in the commentary, he is only reading his modern thoughts into the ancient tradition. What we want to know about a passage is how the ancient Buddhists have understood it and not how a modern scholar can twist it according to the aberrations of his thoughts. Who shall pose himself as a greater scholar than Buddhaghosa or Dhammapala, the very pillars of the Buddhist literature? We congratulate Mrs. Rhys Davids on her success in following the ancient tradition.

M. T.
HINDU DRAMATURGY

The Dasarupa is a work on the canons of Hindu dramatic composition, now published for the first time with an English translation in the Columbia University Indo-Iranian Series. It was composed by Dhanamjaya in the last quarter of the tenth century A.D. Dr. Haas, the translator, has done his work in a very thorough-going manner and has treated the subject from every conceivable point. He has discussed, for instance, the authorship and date, the scope and importance, the style and method of treatment, the metres and metrical considerations of the Dasarupa, telling us as much about the commentary, the previous editions and the present edition of the text, etc. The result is a book which is overburdened with so many details that despite its great merits, there is the danger of its defeating its own object. We fear we may not see the wood for the trees.

M. T.
THE BUDDHIST LEGEND OF JIMUTAVĀHANA

The Legend of Nāgananda is interesting as a Buddhist drama based on a Sanskrit work, Katha-sarit-sagara. It is a close dramatization of the legend of Jimutavahana which occurs in the 22nd and 90th chapters of the Sanskrit work. Like most Indian dramas, the authorship is not decidedly known, but it is certain that the drama was produced under the patronage of King Harsha, whose name is connected with much that is interesting in Indian dramatic literature. Some even go so far as to attribute the authorship to the accomplished king but this is not probable. It is more probable that the author was a poet under the King’s patronage, and that he has allowed his name to be superseded by that of the King to derive popularity for his play. Whoever he may have been the author has made a unique distinction in addressing the benediction to the Buddha. The whole religious atmosphere is Buddhistic and the principles inculcated are Buddhistic. The virtue par excellence is self-renunciation, as exemplified by the sacrifice of Jimutavahana in the cause of the Serpents. There are, however, traces of Hindu beliefs, which are put in, it would seem, as a sort of compromise between Hinduism and Buddhism. Witness the worship paid by Jimutavahana to the Goddess Gauri towards the end of the play. This again is another proof of the spirit of religious toleration prevailing in King Harsha’s time.

We recommend the present translation made by Mr. Hale-Wortham as a faithful rendering of the original. The Legend of Jimutavahana precedes that of Nāgananda and both are preceded by a succinct introduction.

M. T.
DISCOURSES OF GOTAMA THE BUDDHA (IN 2 VOLUMES)

BY BHIKKHU SILĀÇĀRA

This is a translation from the Pali of Majjhima Nikāya. This Nikāya has the advantage over others of being neither too long nor too short. In point of doctrine and ethics it stands on a high level. Altogether it is one of the most important and characteristic of the Buddha's sayings.

Bhikkhu Silācāra is greatly to be praised, for his pains in translating it into English. He has translated the first fifty. Although snatches of these discourses have been from time to time translated by various writers, we have not had a systematic translation before this. The translation has done the experiment of curtailing all the repetitions and stock phrases in the original. This we think is harmless unless carried to excess. We must, however, always remember that these repetitions and stock phrases were meant to be committed to memory at a time when printing was not known in India and they were thus indispensable as aids to memory. As such they are justifiable. But now that they are put in black and white, they may appear to offend the eye besides being a mere waste of printed space. One is thus justified in cutting them short with discretion.

The translator has disarmed criticism by the announcement on the title page that his work has been "freely rendered and abridged." Otherwise one would be tempted to ask why there are so many quaint phrases and expressions. One question we must ask—On what grounds of abridgment has lie left untranslated the Simile in the original at the end of Chapter V the Anāgāna sutta?

M. T.
PROCEEDINGS
OF THE
BURMA RESEARCH SOCIETY

The annual meeting of the Burma Research Society was held at Rangoon College on Tuesday, the 3rd February, 1914, at 5-30 p.m. Sir Henry Hartnell presided and the following were present: Mr. M. Hunter, Mr. G. F. Arnold, U May Oung (vice presidents), Mrs. E. M. Powell-Brown, Miss Morris, Mr. Justice Parlett, the Hon. U Hpay, the Rev. J. F. Smith, Dr. T. F. Pedley, Dr. G. R. T. Ross, Messrs. J. T. Best, A. E. Bellars, A. C. J. Baldwin, A. P. Morris, G. H. Luce, Ne Dun, Maung Set, Maung Thein Kin, Maung Kin, Maung San U, Hla Tun Pru, Aung Gyee, Kin Maung, Win Pe, Maung Ba, Po Tun, Maung Tin (Hon. Editor), A. D. Keith (Hon. Secretary).

Before the business of the meeting was proceeded with the Hon'ble U Hpay, on behalf of the Society and himself, offered the president hearty congratulations on the high and well-deserved honour which had recently been conferred upon him. Sir Henry, who was very warmly received, expressed his thanks in a brief speech.

The first business on the agenda paper was the reading of the report for the year, which ran as follows. During 1913 five members resigned and five were elected. The number of members therefore remains the same as at the end of 1912, namely, 245. The editor of the Journal, U May Oung, resigned his post at the end of the year. Professor Maung Tin has been acting in his place. There was no other change in the officers of the society. The Society met twice during the year, committee meetings being held before each of the meetings of the Society. The sub-committee met at intervals during the year. A suggestion made by Mr. Carey and other members that the Society should undertake the publishing of a revised edition of Stevenson's revision of Judson's Dictionary has been considered by the sub-committee. In view of the fact that it is understood that the A. B. M. Press is bringing out a revision of Stevenson's Dictionary and in view also of the fact that such an undertaking would be a matter of great expense and difficulty the sub-committee is of opinion that the proposal is for the present, at least, premature.

The report was passed. In putting it to the vote the president remarked that the Society had not done very much during the year. After its inception at which great interest had been shown a period of stagnation was only to be expected. More articles were wanted for the Journal. During the year only one number of the Journal had been published but the second number—they had, it would be remembered, arranged to publish two numbers a year—was now ready and would be in the hands of members within a few days. Members could help the Society also by attending the general meetings and taking part in the discussions.

A short discussion took place over the project of publishing a revised edition of Judson's Dictionary. It was felt, however, that the matter should be left in the hands of the sub-committee.

An abstract of the accounts for the year was then read. This showed a balance in hand on the 1st January, 1914 of Rs. 5,061-15-0. The president explained that, although this balance appeared large, it must be remembered that only one number of the Journal had been issued last year. The sub-committee, moreover, were considering the possibility of certain publications, which if finally approved and agreed to by the Society would reduce the balance considerably.

The accounts were duly passed.
The next business was the election of officers and the following gentlemen were elected: President, Sir H. S. Hartnoll; vice-presidents, Mr. M. Hunter, Mr. G. F. Arnold and U May Oung; editor, Professor Maung Tin; Hon. Treasurer, Maung Set; Hon. Secretary, A. D. Keith; committee, Hon. Mr. R. E. V. Arbuthnot, Hon’ble U Hpay, Bishop Cardot, U Htoon Myat, Mr. W. G. Wedderspoon, Hon. Mr. J. G. Rutledge, Rev. J. F. Smith, Rev. W. C. B. Pusser, Mr. J. T. Best, Mr. J. W. Darwood, U Ne Dun, Dr. Ross, U Kin, Captain Ba Ket, U Shwe Zan Aung, Mr. R. F. Greer.

The Hon. Secretary then read Mr. J. Stuart’s paper “Why is Burma sparsely peopled?” The writer pointed out the curious fact that the tract of country which included Burma, Siam, and French Indo-China, although apparently, a fertile tract never seemed to have had a population which at any time pressed at all hardly upon the food supply. Round this tract were countries like India and China in which the population has always been too great for the available food supply. Millions in these countries must have gone from birth to the grave without ever having known what it felt like to get enough to eat; yet a similar condition of things never prevailed in Burma. What was the explanation? Bad government and despotism could not explain it. Such misfortunes were just as common in India and China. Wars— petty, local wars—could not explain it. Wars were just as prevalent and just as destructive in India. The writer felt himself absolutely unable to offer any explanation. He would only make a suggestion. It might be possible that Buddhism, despite its many excellencies, was not so effective an agent in promoting the numerical growth of a nation. Buddhism regarded life as a misfortune and marriage, so far from being looked upon as sacerdotal or sacramental, was regarded as a concession to human weakness. Buddhists had not the strong religious inducement which the Indians or Chinese had to continue their line. Natural affection no doubt was as strong in Burma as anywhere in the world, yet it might be possible, however less in accordance with modern views such an idea might be, that the sacerdotal or sacramental view of marriage had a greater effect than the secular view of marriage in promoting the growth of population. Take, for example, the Jews. Despite persecutions and expulsions the Jews were to-day more numerous than they had ever been.

U May Oung said that he had expected to be given an explanation, not to be asked for one. Mr. Stuart’s suggestion that Buddhism discouraged population would not explain another mystery—the scant population of North America before the English arrived. Mrs. Powell-Brown had suggested to him that one cause of scanty population might be the hard life led by the average Burmese woman. In India the zenana system made life easier for a woman; in China the binding of the feet prevented her from doing such hard work as her sister in Burma. Personally he himself did not think that along the waterways, where life was easy, the population in Burma had been less than that of other countries. There was reason to believe that wherever food had not been sparse the population had been quite as large as if not larger than the population of corresponding areas in other countries.

Dr. Ross remarked that theories like Mr. Stuart’s should only be put forward in the last resort when every other explanation had failed. Such a theory could only hold good if two countries being exactly the same in every other respect, religion were the only distinction. One reason for the greater proportionate population of India and China was the fact that in those countries the fertile areas were continuous with one another whereas the Irrawaddy Valley was a comparatively narrow strip. There were no great sweeps of fertile soil in Burma. The fertile strips were separated by mountain ranges. The writer of the paper seemed to have taken “density of population” in two senses, one as constituting a population which pressed hard on the food supply and, secondly, in the sense of vast numbers. Now a population might press on the food supply without being very large. It all depended on the extent
of the supply. The great cause of depopulation is not the presence of despots but the absence of any central control. Man will trade under almost any laws as long as they can be sure that these laws will be enforced. Burma never had any authority sufficiently strong or sufficiently central to ensure the enforcement of the laws.

Dr. Pedley was of opinion that Buddhism had nothing to do with depopulation. Sanitation and hygiene, as the writer said, may have been as bad in India as in Burma. They could scarcely have been worse. Burmese methods of midwifery must always have been a source of depopulation as they are at the present day. Dr. Pedley thought that instead of speculating vaguely over depopulation in the past it would be better if the Society were to assist in preventing depopulation in the present.

Professor Maung Tin considered that the population of Burma may have been depleted by the migrations of the Talaings into Siam. Great migrations took place under Anawrata and Alompra. Moreover the Burmese treatment of prisoners of war—the wholesale massacres which invariably followed a victory were not conducive to the growth of population.

Mr. Ba Dun added a further cause—climatic conditions. Great parts of the world had dried up. Burma also suffered from periods of drought. Moreover, there was never a kingdom in Burma which was really united. Dynasties in India and China lasted a long time. In Burma there were incessant wars—wars, moreover, of much more recent date than those in India. Depopulation had apparently ceased in Burma nowadays, for at the last census Burma had increased her population at a rate four times greater than that of England.
LIST OF PUBLICATIONS

RECEIVED SINCE DECEMBER 1912, Vol. II, Part II.

Imperial Gazetteer of India, (Ed. 1881) 9 Vols.
Imperial Gazetteer of India (Ed. 1885-87) 13 Vols.
Nepal and India, by Wm. Digby.
Chronological Tables of Ancient History, by Rev. A. C. Jennings.

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Société Asiatique—Liste des Members, (1912-13, 1913-14).

Journal Asiatique, X Series Nos. 1—3, 1912.
—— XI Series No. 1 and 2, 1913.

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Journal of the Punjab Historical Society, Vols. I and II.


Journal of the Siam Society, Vols. 5 and 7.
Psalms of the Early Buddhists—The Brethren, by Mrs. Rhys. David.
THE LINGUISTIC SURVEY OF BURMA*

BY

C. MORGAN WEBB, I.C.S.

THE NEED FOR A SURVEY.

When it was decided to effect a linguistic survey of India there were many reasons operating to necessitate the exclusion of Burma from the survey. At that time, administrative control over the more remote districts of Upper Burma had been but recently established, and Government was concerned rather with its primary and essential functions, than with secondary enterprises of the nature of a linguistic survey. Moreover, most of the languages spoken in Burma were then almost unknown. There was comparatively little preliminary knowledge upon which a successful survey could be based, and much pioneer and exploration work had to be performed before a detailed survey could be considered possible. And perhaps more potent than all other reasons, the magnitude of the task of effecting a survey of the languages of India was so appalling, that it was necessary to reduce the work to more reasonable dimensions by cutting away any portion that could safely be deferred for future consideration. Burma was therefore excluded from the linguistic survey for reasons of expediency only. Now that the original work has been practically completed, it is opportune to examine the question of the exclusion of Burma afresh, and to enquire whether the conditions determining such exclusion still hold good. It is important to note that the question of the differential treatment of India and Burma does not arise. Burma was excluded, not because its need for a linguistic survey was less imperative than for the remaining provinces, but because local and temporary reasons suggested a postponement. If conditions have changed, if the reasons prompting exclusion no longer operate, then the only logical course will be to extend the survey to Burma and to complete the magnificent work already accomplished, by making it a comprehensive record of every language and dialect, spoken within each province of the Indian Empire. The present note is an attempt to examine whether the time has now come when the temporary exclusion of Burma from the scope of the linguistic survey should cease. The initial paragraphs of the introduction, and of chapter 1, of the Burma census report for 1911 indicate that the conditions of the province as regards administrative control over remote areas have materially changed since the linguistic survey of India was commenced. And in the short period elapsing since that report was written, the creation of the new district of Putoa has further reduced the areas exempt from administrative supervision. The only two important areas now entirely outside the administration of the province are, (i) the unadministered Chin areas in Northern Arakan and the Pakokku Chin Hills, (ii) the Kachin and Naga areas between the Putoa district and the Assamese border. The absence of administration in these two areas is not an insuperable obstacle to an effective linguistic survey within their limits. Nor can it now be stated that "most of the dialects belonging to the Burma group are all but unknown and only the classical language of the Burmese literature as it is spoken by educated Burmans has been made available to philologists" (Sir George Grierson, page 379, Volume III, Part 3 Linguistic Survey of India). Even though the linguistic survey of India was not extended to Burma, the existence of dialects of the Mon Khmer and Tai families, and of the Burma, Kachin and Kuki Chin groups of the Tibeto-Burman family in Assam, has led to an investigation more or less detailed of the langu-

* Read at the Ordinary Meeting held on June 26th 1914.
ages spoken in Burma. Volume II of the linguistic survey is devoted to a consideration of the Mon Khmer and Tai families, part 2 of Volume III includes a brief analysis of the Kachin groups, and part 3 of Volume III comprises the results of the survey with regard to the Kuki Chin and Burma groups of the Tibeto-Burman languages. Moreover, in addition to these records, classifying and tabulating what was then known of some of the languages spoken in Burma, there exists the valuable work of Major H. R. Davis on the frontier dialects of the province. In this connection I may quote the following from the Burma census report for 1911: "The most important contribution to the knowledge of the languages spoken in Burma since the completion of the linguistic survey is to be found in the work on Yûn-nan by Major H. R. Davies to which reference has been previously made. The comparative vocabularies furnished, and the information given in appendix VIII of the volume, supplement the work of the linguistic survey, and bring the date for extension of that work to include the Burmese portion of the Indian Empire appreciably nearer." Mention must also be made of the valuable linguistic and philological studies made by members of the Burma Research Society and published in the Society's Journal. The following statement gives a rough list of some the contributions to which I refer. They indicate that the need for a linguistic survey of the province is so great, that important steps to this end are being taken by enthusiastic members of a quasi-public society. They certainly demonstrate that the survey can no longer be postponed merely for lack of initial knowledge: Elementary Studies in Lahco, Ahka (Gaw) and Wa languages, by the Rev. C. B. Antisdel, M. A., B. D.; Notes on Talaiing Epigraphy, by C. O. Blagden; The International Phonetic Association, by R. Grant Brown, I. C. S.; "Guide to the Study of Shan," review by the Rev. W. W. Cochrane; A Contribution to Burmese Philology, by J. A. Stewart, I. C. S.; Note on "Encouragement of Oriental Learning"; Notes on Burmese Prosody; Note on Burmese Spelling, by M. O.; Burmese Philology, by C. Doroiselle; Talaiing Nissantas, by C. Durand; Note to above, by Professor Maung Tin; Some Place Names, by J. S. Furaiwall, I. C. S. Nor can it be suggested now that the extension of the linguistic survey to Burma would jeopardise the success of the general survey of India itself. That work is now on the point of completion. Indeed, the precise contrary may now be stated, that the exclusion, or rather the partial and ineffective treatment, of the groups and families of languages spoken in Burma seriously prejudices the value of the survey as an authoritative work of reference. Volume II and parts 2 and 3 of Volume III are not worthy of their position in the existing series of volumes. They are neither complete, nor correct, nor up-to-date. They have not been considered suitable for distribution in Burma, although they purport to deal with the groups and families of languages spoken principally within the province. Until these volumes have been superseded by a record, complete in all respects for the eight groups of languages indigenous to Burma, the linguistic survey of India will not be an accomplished fact.

LANGUAGE AS A CLUE TO THE ORIGIN OF THE BURMESE.

Hitherto this note has been concerned with a purely negative aspect of the question, with a consideration of the absence of the reasons which dictated the exclusion of Burma from the original scheme of survey. But the positive reasons are still more conclusive. The following quotations from chapter 9 of the census report of 1911 are most pertinent:

"For the first time the Hpons have made an impression on the census records. They form a small tribe located on the Irrawaddy in the vicinity of the upper defile in the Myitkyina district. Linguistically their importance is quite disproportionate to their numbers. It is probable that they originated in one of the later waves of the Tibeto-Burman invasion, which spent its force before it
emerged into the central basin of the Irrawaddy Valley. Unable to complete their migration, and amalgamate with the cognate tribes which preceded them, their progress was arrested by the incursions of Shan tribes. Arriving from the east the Shans appeared on their flank and intervened between them and their southern objective. For many generations they have been surrounded by Shans, and the characteristics suggesting identity of origin with the Burmese race have been almost completely submerged. A close and intimate study of the Hpon language would solve numerous interesting problems concerning the origin and early migrations of the Tibeto-Burmeses. A commencement has already been made by Major Davies in his work on Yunnan, and he has arrived at the following conclusions: 'An interesting fact in connection with the Tibeto-Burman languages is the very close connection that exists between the speech of the Marus, Zis, La-shis A-ch'angs and Pongs on the one hand and the Burmese on the other. This is not the general likeness that the languages of the Lo-los and other Tibeto-Burman tribes have to Burmese but is sufficiently close to warrant the belief that at some not very distant period these races spoke one language.' So important are the issues involved, and so rapidly are the original characteristics of the tribe and the language disappearing, that an immediate and thorough examination of the structure of the language and the legends and traditions of the people would be of great practical value in determining issues of a wide and far-reaching nature.'

Also: "A group of hybrid dialects spoken in the extreme north of the province and tentatively classed as Kachin-Burma hybrids is, linguistically and ethnographically, of far greater importance than their insignificant numbers would suggest. Although the extension of census limits has brought a much larger number of the members of the corresponding tribes into the range of observation, the number of speakers of the tribal dialects show a marked decrease. It is only possible to speak with certainty of those portions of the tribes within the administrative area of the province, but judging from the result it is clear that the dialects are rapidly being submerged. The necessity for a complete study of their vocabularies and structure before they are finally lost is seen from the following opinion of Major Davies as to the origin of the Burmese race: 'This fact may I think throw some light on the disputed point as to how the Burmese reached their present country. For beginning with the Pongs who live on the Irrawaddy just north of Bhamo we have a regular line of Zis, Ma-rus, and La-chis leading up to the eastern branch of the Irrawaddy. Above the confluence, the eastern branch is in fact entirely inhabited for a considerable distance by Ma-rus and La-chis, while on the western branch these tribes do not, I believe, exist. The inference is that the Burmese came down the eastern branch of the Irrawaddy and that these tribes are stragglers left behind in the southerly migration of the main body of the race.' It is probable that the only existing clue to the much discussed question of the origin of the Burmese race lies hidden in the dialects just mentioned. They are rapidly disappearing. Before the next census it is probable that if any members of these tribes survive they will be speaking languages largely corrupted by Shan and Kachin. If a scientific study of the structure and vocabulary of these dying forms of speech is not shortly attempted, the loss will be irreparable."

THE MON KHMER FORMS OF SPEECH.

But it is possible to explore into periods of time far more remote than the formation of the Burmese race. As regards the Mon Khmer forms of speech Sir George Grierson writes: "Of what language this original substratum consisted, we are not yet in a position to say. Whatever it was, it covered a wide
area, larger than the area covered by many families of languages in India at the present day. Languages with this common substratum are now spoken not only in the modern province of Assam, in Burma, Siam, Cambodia and Anam, but also over the whole of Central India as far west as the Berars. It is a far cry from Cochin China to Nimar, and yet, even at the present day, the coincidences between the language of the Korkus of the latter district and the Anamese of Cochin China are strikingly obvious to any student of language who turns his attention to them. Still further food for reflection is given by the undoubted fact that, on the other side, the Munda languages show clear traces of connection with the speeches of the aborigines of Australia. Also: "It may be gathered from the paper quoted below that his opinion is that most probably the substratum is a Munda one, and that a population akin to the Indian Munda races originally extended as far east as further India. This was before the beginnings of those invasions from the north which resulted first in the Mon Khmer and afterwards in the Tibeto-Burman and Tai settlements in that region." The key to those obscure problems is in all probability to be found in a study of the Talaing, the Wa and the Palaung languages of this province, and a comparison of the results with the remaining languages of this family. The following quotation from the Indian census report for 1911 (paragraph 406) indicates the magnitude of the problem, the limitations of its solution to the area covered by the linguistic survey, and the imperative necessity of the extension of the survey to Burma to confirm and verify the conclusion already attained: "He (Pater Schmidt) has finally settled the affiliation of the Munda languages. He has clearly shown that the basis of the Munda and of the Mon Khmer languages is identical and he groups them together as a single family of languages, which he names the Austro-Asiatic. There is another family, which he calls the Austro-Asiatic, including Indonesian, Melanesian and Polynesian. Finally, he combines the Austro-Asiatic and Austro-Asiatic into one great family which he calls the Austric. These striking conclusions, which have been fully accepted by Sir George Grierson so far as India is concerned, result in the most widely spread speech-family of which the existence has yet been proved. It extends from Easter Island off the coast of South America in the east, to Madagascar in the west, and from New Zealand in the South to the Punjab in the north."

THE SIAMESE-CHINESE FAMILY.

Although the problems to be solved are not so far reaching as those involved in the Mon Khmer forms of speech, yet the local interest in a survey of the languages of this family is intense. The Tai (or Shan) and the Sinitic (or Karen) groups of languages form with Chinese the three main constituents of this family. Although there is a wealth of material accumulated in detailed studies of the various dialects of the two groups, there has never been a comprehensive philological analysis to determine the mutual relations existing between them. The Karen group is so exclusively confined to this province that it was excluded from the lists of the linguistic survey of India and failed to find inclusion in the comprehensive study of the North Eastern Frontier by Major Davies. A critical comparison of the structure of the Sinitic languages with Chinese may possibly lead to a solution of the much discussed question of the origin of the Karen race. Though the same interest is not to be found in a survey of the Shan dialects, yet their present unscientific classification, partly geographical, partly racial, is urgently in need of modification. The Shan forms of speech are the most widely spread of any in the Indo-Chinese Peninsula. They extend from Assam to the Chinese province of Kwangsi and from Bangkok to the interior of Yunnan. It is highly essential that the analysis of the Tai dialects spoken in Assam which occupies the greater portion of Volume II of the Linguistic Survey should be supplemented by a similar analysis of those spoken in Burma.
THE LINGUISTIC SURVEY OF BURMA

THE KUKI-CHIN GROUP.

No group of languages could be more in need of survey than those of the Chin group districts of Burma. Over a large portion of this area the forms of speech change from village to village, the divergence at a distance of twenty miles being so great as to render two persons dwelling that distance apart mutually unintelligible to each other. The analysis of the Chin dialects of Assam occupies practically the whole of part 3, Volume III, of the Linguistic Survey. The necessity for a similar survey in Burma is indicated by the following quotation from the report on the Census of India 1911 (paragraph 417): "Our knowledge of these dialects is still so slight, and the census record of them so imperfect, that it is not worth while dwelling on those distinctions. It may be hoped that the attention which has now been directed to the subject may lead to a more accurate record of the Chin dialects in 1921. It is in fact highly desirable that at least a preliminary survey should be undertaken of all dialects spoken in Burma."

THE KACHIN GROUP.

The fact that there were 1,920 Kachins in Assam led to a cursory examination of two dialects of this group in the course of the linguistic survey of India. The large number of Kachins in the border districts of Burma (162,368 at the Census of 1911) and the recent formation of the Putao district in an area largely populated by Kachins (as yet un-enumerated) are good reasons for expanding this inadequate examination into a comprehensive survey.

LINGUISTIC IMPORTANCE OF BURMA.

It has been impossible to touch more than briefly on the necessity for a survey of the numerous families and groups of languages to be found in Burma. I have not mentioned the necessity for an authoritative survey of the premier language of the province, with a determination of its relations to its principal dialects, Arakanese and Taoyan, and its connections with the cognate languages of Intha, Taungyo, Danu and Kadu. But even in a brief statement of the nature of this note, it is apparent that Burma is of supreme linguistic importance. It contains the key to many problems connected with the inter-relations of the Tibetan, the Chinese and the Anstronesian forms of speech. Major Davies writes that "It is safe to assert that in hardly any other part of the world is there such a large variety of languages and dialects as are to be heard in the country which lies between Assam and the eastern border of Yun-nan and in the Indo-Chinese countries to the south of this region." A detailed investigation of the divergencies and the resemblances of this complex variety is both from an administrative and from a scientific point of view a matter of extreme urgency.

METHODS OF SURVEY.

In suggesting the methods by which a linguistic survey should be conducted, it is necessary for me to state that there is, to the best of my belief, no complete set of the volumes of the Linguistic Survey of India to be obtained in the Province. The set in the Bernard Free Library which I have consulted in making this note is incomplete in several respects. In particular, Volume I, which describes the method followed in in India, is absent. I am therefore dependent on some rough notes I made when on leave in England. It must be understood that this second portion of this note is incomplete and tentative,
merely a few suggestions which must be supplemented considerably when defi-
nite action is taken.

A linguistic survey falls into three stages as follows:

(i) the preparation of a rough list or survey of every language and dialect
spoken in the province;

(ii) the systematic collection of records of every language and dialect
contained in the first preliminary list;

(iii) the examination and comparison of the records so collected by
philological experts, and the classification of each distinctive form of
speech into its proper group, class, sub-family and family.

The first list should be prepared from returns supplied by local officers,
missionaries, merchants or any other persons who would be likely to give infor-
mation. The duplication of the same languages under different local names does
not matter at this stage. Indeed, it should rather be welcomed. The object is to
get the widest and most comprehensive list of the languages and dialects spoken
that can possibly be made. The list should be prepared in two forms, geogra-
phical and linguistic. In the first list should be a record of each language and
dialect spoken in each district or state and the estimated number of speakers.
Separate type should be used to show (i) indigenous forms of speech, (ii) those
spoken by non-domiciled immigrants. The second, or linguistic list, should be
prepared from the first on the system of a reversing index. It should contain
every language and dialect, arranged as far as is known, according to its family
and group, with a record of each local area in which it was spoken. These lists
were from the basis of subsequent scientific inquiry and analysis. Their pre-
paration would need local knowledge, but no acquaintance with philology would
be necessary. They would merely represent the opinion of an ordinarily intelli-
gent person as to the languages spoken in the district with which he was familiar.
They would be names, and without subsequent scientific enquiry could be con-
idered as names only.

The second stage would have to be prepared by linguistic experts. It would
involve, for each dialect in the first list, the collection of records of (i) one or more
legends of the people whose language was being recorded, with the necessary
translation; (ii) translations of standard set English pieces into the vernacular;
and (iii) supplementary notes on grammar and syntax. The records would be both
literary and phonographic. The literary records would include both the ver-
acular script, and an accurate transliteration into Roman script. One of the
standard set pieces for the Linguistic Survey of India was the Parable of the
Prodigal Son, specially chosen because it gave the greatest possible variety of
grammatical inflection in the minimum space. It would, of course, be adopted
for the survey of Burma.

The third stage would comprise the examination and comparison of the
records so collected by philological experts and the allotment of each dialect to
its place in the classified scale of languages as a result of such examination.

FEASIBILITY OF SURVEY.

In considering the possibility of effecting such a survey in Burma it is neces-
sary to consider only the question of stages (i) and (ii). As for the third stage,
although it is highly probable that the philological experts whom we have in
Burma would be called upon to assist, it is certain that it may have to be con-
ducted largely with extra-provincial supervision and assistance. I shall there-
fore only consider the possibility of conducting stages (i) and (ii), or rather stage
(ii) since the first stage is purely routine and mechanical. In my opinion the
the success of this stage is greatly enhanced by the existence of the Burma
Research Society. I have already alluded to its labours above in paragraph 4.
From the statement attached to that paragraph it is clear that the Society is
already, on its own initiative, undertaking tasks very much on the lines the
survey would proceed. But it has not the resources to carry out unaided the gigantic task which is herein suggested. Speaking from a purely personal point of view, as a member of the Society, I think that it would be pleased to place its resources at the disposal of Government and take an active share in a task which would involve so high a degree of research. It certainly would be of great value in advising in the selection of the investigators for the second stage of the enquiry, as well as in supplying lists for the first stage. The co-operation of the Society would ensure that the investigations would not degenerate into a formal routine, reluctantly performed by an official in addition to his own duties, selected because he happened to be the only officer available on the spot.

Of course in many instances the local officer would be the most capable investigator available. The following statement compiled with the help of the latest Civil List (1st January 1914) indicates that there would be numerous and enthusiastic officers to be relied on for valuable service.

<table>
<thead>
<tr>
<th>Group</th>
<th>Language or dialect</th>
<th>Number of officers who have passed text examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuki Chin</td>
<td>Siyin</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Chinbok</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Baungshe</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Haka</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Tashon</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Khami</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Chin</td>
<td>13</td>
</tr>
<tr>
<td>Kachin</td>
<td>Chingpaw</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>Tsi</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Maru</td>
<td>24</td>
</tr>
<tr>
<td>Lolo</td>
<td>Lisu</td>
<td>2</td>
</tr>
<tr>
<td>Burma</td>
<td>Burmese</td>
<td>2*</td>
</tr>
<tr>
<td>Sinitic</td>
<td>Pwo-Karen</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Sgau-Karen</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Taungthu</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Karenie</td>
<td>4</td>
</tr>
<tr>
<td>Tai</td>
<td>Shan</td>
<td>(23^\ddagger)</td>
</tr>
<tr>
<td></td>
<td>Siamese</td>
<td>4</td>
</tr>
<tr>
<td>Malay</td>
<td>Malay</td>
<td>10</td>
</tr>
<tr>
<td>Mon-Khmer</td>
<td>Talaing</td>
<td>4</td>
</tr>
<tr>
<td>Palaung-Wa</td>
<td>Palaung</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Wa</td>
<td>3</td>
</tr>
</tbody>
</table>

* Higher Proficiency.  † Higher Standard.  ‡ Lower Standard.
But though this list is sufficiently comprehensive to show that the second stage of the survey is possible, the assistance of non-official investigators would be needed in many directions; and I would suggest that the Burma Research Society could give valuable assistance, both in advice as to the selection of such investigators, and in assisting the supervision of the work they would be called upon to perform.

Finally, if I may be pardoned for what I feel to be extreme presumption on my part, may I suggest, that the most powerful argument for the urgency of the linguistic survey of Burma is the fact that the services of Sir George Grierson are now available. He has brought the linguistic survey of India as originally planned to a successful conclusion, and I cannot refrain from expressing my opinion as to the great advantage to Burma of having the final stage of the operations conducted under his supervision. Were I to omit this consideration, I feel that I should not be doing justice to my subject, nor making a true presentation of its relevant facts. Without any further apologies, I would submit that from whatever point of view the proposal is examined, whether from consideration of the administrative and scientific advantages to be attained, or of its continuity with, and its completion of, the Linguistic Survey of India as already carried out, or of the possibility of carrying through its various stages to a complete success, the case for a linguistic survey of Burma is overwhelming.
THE KALOK DANCE OF THE TALAINGS

The kalok dance is a family common occurrence in Talaing villages and yet I am not sure that the thing itself or the beliefs of the people connected therewith are at all generally understood by the outsider. I do not remember to have seen any adequate account of the cult. I propose in this paper to give a general idea of the kalok and describe an actual dance as witnessed in a Talaing village on the Meklaung river, in Siam. As the dance and the beliefs behind it are quite distinct from anything found amongst the Siamese, there need be little fear of introducing matter that has been added on the foreign soil. As far as I know the only people in Central Siam who have anything like the kalok dance are the Cambodians, the somewhat removed kinsfolk of the Talaings.

Before attempting any description of the dance itself it may be as well to make some observations on the subject of the kalok generally. The word ကလီစစ္ (k lok) is often used as a synonym of စစ္ (dewatau) the Talaing form of the Indian deva or devātā. Dewatau, however, is mostly used only of benevolent spirits as the မိုးစစ္ (bhuma iujuiw) ကြင်စစ္ (rukha iujuiw) ကြွဲစစ္ (akasa iujuiw) the guardian spirits of the earth, the trees and the air and Talaings generally hesitate to say that any kalok could be called dewatau. The latter might in fact be used as the equivalent of our English word ‘angel.’ It is perhaps even wrong to have translated ‘devil’ by ကြွဲစစ္ (kalokma) as Christian writers have done. It would be more in accordance with Talaing usage to translate စစ္ (dewataumi). Kalok again is used of the pretas and bhūtas or spirits of the dead. The kaloks which are said to haunt graveyards are such. The word is also used of the rākshasas who disturbed the early settlers in the coast towns, and who are apparently to be taken as the aboriginal inhabitants of the country. Sometimes as in the case of the rākshasas who opposed the first Buddhist Missionaries to Thaton they are called kalokdāk ကြွဲတ္း “water demons.” The Sanskrit rākṣasa is represented in ရေများ (rakui) or ကြွဲများ (lakui) ‘ogre’ or ‘demon’ popularly pictured as having long eyetheeth and reported to eat human flesh.

Kalok, however, is used by the Talaings in quite another sense. It is popularly used in the sense of ‘sept’ or ‘clan,’ and indicates a division or subdivision of families who are not known by a common surname amongst the Chinese or bound to obey a common chief, but who are banded together by having a common house spirit, ကြွဲများ (kalok sāi) A person is said to be of the same kalok as another just as one would speak of two different individuals belonging to one clan.

The altar or shrine of the kalok spirit is kept in the house of the recognised head of the group of families. This is usually the eldest of a family of brothers whose children and grandchildren are growing up around them. The requisites for the kalok shrine called ကြွဲတ္းကျော (apok kalok) consist of articles of clothing and adornment kept in a basket hung on the post at the south east corner of a house of the Talaing pattern. This post is called တိုးစော (dayuśh kharam), which in the absence of any thing better I translate “sacred post.” The articles vary for different kaloks. These kaloks are sometimes known in Talaing villages in Siam by the names of well-known districts in Burma, from which it would seem as if these kaloks pointed to regular tribes or clans of wider extent than those which obtain nowadays. It may be remarked in passing that the Talaings may be described as clannish in the ordinary sense. Perhaps the clannish spirit is more evident amongst them in Siam than in Burma.
A point of some importance in connection with the kaloks is that marriage is not permissible within the clan. A man must seek his wife from a different kalok than this own. The Talaings are thus exogamists in principle. If as we suppose, the kaloks were originally of much wider extent, it would be exogamy out and out in the olden days. The reason that exogamy does not show more prominently at the present day is, that there is a practice of hiring off to form new kaloks. When it becomes inconvenient for families on account of distance otherwise to repair when need arises to the house which is the head of the kalok, and it is desired to form a new group, those who wish to make the new departure must come to the original shrine and get exact copies of all the articles. The same colours and patterns must be used and the kalok śāl must be treated in the same way as before; it is the same kalok.

At a marriage in a Talaing village on the Menam, I saw a custom which seemed to me to point back to the exogamic practice. When the bridegroom and his friends came to the bride’s house they found the garden gate guarded and were not permitted to enter the enclosure until they could give a satisfactory account of themselves, nowadays it is a piece of mere fun and an occasion of getting a few coins from the party, but it stuck me that the practice of mounting guard, ṇēkō (maṅkan) might have its origin in a time when each kalok had its own separate enclosure and exogamic rules were more strictly enforced.

Another point of interest is that the kalok follows only the male line. Women are not counted in the succession. A woman when she marries goes over to her husband’s kalok and children follow their father’s line. The women are said to be ṇōōōō (lumā) which appears to mean that they cannot transmit the kalok to their progeny. A curious ceremony has to be performed under certain circumstances on their account. The women and her husband must come when desired to the house which is the head of the kalok with an offering consisting of uncooked rice, both common and sticky kinds, cocouanut, sugarcane, plantain and other food stuffs. Before entering, however, they must go round the house three times keeping the house on their left. This in Talaing is ṇōōōōōōōōōōōō (badak suinp wā) “making the dakṣina three times.” This going round the house has to be done in a particular way, however. They must bring a fish ṇōōōōōōōō (ka kanan) “the banded snakehead,” of the size of one’s wrist, with a cord fastened to its gills and must draw it round the house to imitate leading a buffalo. On each round when the ṇōōōōōōō (dayuṅ khararmi) is reached a stop is made and apparently a question asked. In Siam it is something like dī ma ni dawk. On the third round it is understood that satisfaction has been given and the fish is afterwards taken up into the house and cooked. Offerings are made and the food eaten. This is no doubt the rites referred to in the Burma Census Report 1911, Part I page 149 in section 132 headed “Totenism.”

It is apparently the deference due to the kalok śāl which is reason for some rather stringent rules, bringing about a state of things which results in apparent callousness on certain occasions. A woman in pregnancy is not permitted to enter the inner apartment of a house other than her own on any account whatever. She may go up and sit on the verandah or even enter the outer room, but she must on no account lie down in any part of the house, not even in the open space at the top of the stair. If a woman is about to be confined, unless she is a member of the family by marriage or otherwise she is not allowed to remain. If the people of the house are relatives they build a lean-to shed for her use during confinement.

Similarly when a person is brought home suffering from an accident of any kind, all bleeding must be stopped and the wounds properly dressed before the sufferer can be taken up into the house. Rules for both these cases are found
in the book Lokasamutti and I have seen instances of them being carried into effect in villages in Burma, just as they are followed to the letter in Talaing villages in Siam.

In the building of a house even, the requirements of the kalok must not be forgotten. The ridge pole ought to run east and west and the stair should have five steps only and have one support longer than the other. The house generally faces the north but the stair may be placed in any convenient direction except the south. The houses at Zingyaik as described by Mr. Cooper in Vol. III, Part I page 7 of the Society's Journal correspond to the directions laid down in the book Lokasiddhi. The same placing of the houses may be seen in any Talaing village in Siam. They are in fact on the Mon pattern evidently.

It is time, however, to turn to the description of the dance. Certain points in the cult will emerge as we proceed. I am going to describe an actual dance which I took the trouble to see through to the end. The dance began about nine o'clock in the morning and lasted till five in the evening and things were kept going all the time except for a short interval for dinner between one and two. I have a list which I will here give of thirty-two different items in the programme some taking longer and some shorter time.

Kalok Dance at Kwain Lamun (potter's Village) on the Meklawng, Siam.
1. Doi dances and makes an offering.
2. The Kalok requisites brought out.
   (i) Examination
   (ii) Pouring of water
3. The first dance by the women the second queens.
4. Caging the kalok.
5. Doi walks the woods.
6. Cutting the Plantain tree Plei antarii (releasing the misery).
7. Ceremonial bathing of the sept.
   (i) Bathing the offspring.
   (ii) Bathing the stem.
8. The second dance. The chief queen.
9. Dancing the kalok.
10. The kalok becomes a monk.
11. Lighting the candle of witness.
12. Doi dances to put the kaloks on an equal footing.
13. Two women dance in character of men.
15. Another dance by two women.
16. " one woman.
17. Biting the fish.
18. Playing the young Indian Prince.
19. Eating the fish.
   Interval for dinner.
20. Kalok eats sticky rice and juggery.
21. The Tavoyan kalok.
22. The Karen kaloks.
23. Dance for the householder
24. Fighting the game cocks and catching the elephant.
25. The kalok of the north.
26. Eating the Tortoise.
27. Dance of the kalok hii.
28. Returning the cords.
29. Breaking the coconuts.
30. Playing the bau ju.
31. Floating the canoe.
32. Gathering the offspring and examining the candle.

The kalok dance is usually the result of a vow or promise made when a
member of the family is sick and an appeal is made to the kalok. Briefly the appeal is in these words: ကြီးများအားဖြင့် ကြီးများကို ဖျင်စည်သူတို့ကို စိတ်ပေးဦး ကြီးများ (kalok tala sii kuiv blay yai ni ai leh kuiv puii weh gruii pa mip suh arak ca kwii). “Oh spirit lord of our house, give relief from the sickness, and I will institute a dance in your honour. We will laugh and play, and make rejoicing in drinking and eating.” In the case before us the patient had died, but the promise was held binding.

The dance is called ကြီးများအား (lehan) “a dance in a pavilion” or ကြီးများကို (leh kalok) “dancing the kalok.” ကြီးကွ or ကြီး is the equivalent of the Pali mañlapaṁ, Bur. ကြီး. The kanä is of oblong shape with the roof coming down on four sides. At the dance I am describing the centre of the roof was raised a little. The doorway is toward the west and is partly in the roof, the latter being somewhat low. The door of bamboo and leaf is opened upward and being supported by two bamboo poles gives the appearance of a vestibule or porch. There are no walls and entrance may be made anywhere. The actors in the various scenes, however, enter and leave by the door. In the centre is a raised platform for the dancers with a canopy. Just behind that and much higher is a rack of bamboo framework which is used to place the various offerings after the regular dancing has commenced. The musicians are seated on mats on the right of the platform. The vestments are kept in a basket on the left. The women folks with their children also sit there on mats ready to hand things and render any assistance.

The presiding genius of the day’s doings is the ကြောင် (doâ) or medium representing the kalok and knowing all the requirements. In this case the doâ was an elderly female. She introduced all the business and started the dancers and was on duty the whole day. A male doâ from another village happened to be passing and coming forward entered the kanä and sat down on the platform beside the presiding doâ, remaining there and partly assisting for some time. He afterwards begged leave to go on his way, making the excuse that he had to attend to some business of his own. There seems thus a fraternity recognised amongst the doâs.

Another important personage is ဗုဒ္ဓဘာ (acâ bâit) the leader of the orchestra. He shares with the doâ a knowledge of all the requisites for the dance. He has to understand the changes necessary in the character of the music as the dance proceeds. He seemed to play on any instrument as need arose. He takes his designation from ဗျဒါ (Sans. ācārya) ‘teacher’ and ဗုဒ္ဓ (bâit) “a musical instrument.” The instruments are ဗုဒ္ဓသား (bâit kon cah) an arrangement of ten gongs in almost circular frame standing upright; ဗုဒ္ဓသား a low box with ends gradually rising from the centre and having a graduated series of bamboo slats fastened to two parallel cords along its length; four drums သီ (pham) of different sizes; a clarinet ဝါ (haw); and small cymbals ဗုဒ္ဓသား Bamboo clappers ကွန် (kaâ) are used, but these are played by any one apparently.

As soon as I heard the music begin I stepped from my boat and made my way to the place. The doâ was dancing in front of the booth with a sword in each hand. She afterwards took up a little offering in plantain leaf and carrying it forth threw it away. This apparently was the opening ceremony.

The next item was the bringing forth from the house of the အပြားကလ္ကလ္ or kalok requisites. The old woman of the house addressing the doâ said “See, they are all new; look and see that everything is there.” On a brass tray were a number of fresh clean garments neatly folded and on the top of all was a gold ring set with rubies. On the top of these were now placed a large candle
and a garland of flowers. The families were called in and the males, men and boys, came forward and held up the tray whilst the doi poured underneath first water, then the liquid from a cocoanut and afterwards some spirits, repeating some words the while. It was impossible to hear the words for the music and noise, no one seems interested in what is said. Then a collection of foods was held up and water dropped all round from a cup formed of plantain leaf. An old woman afterwards distributed the catables amongst the boys.

Preparations were now made for the actual dancing of the kalok. The trays and dishes containing cakes, plantains, coccanuts and other articles for use during the day had hitherto lain on the dancing platform. These were now put on the rack behind ready to be taken down when needed.

For the first dance a woman entered and was dressed up in old fashioned garments kept for the purpose. These consist of the old style gaun or skirt open up one side still to be seen in Burma when old women are dressed for special occasions, and scarves for throwing over the shoulders. For the dance the gaun is fastened with a band at the waist and scarves are loosely thrown over the shoulders. These garments are put on over the ordinary clothing, and are always in the pattern brought over by their forebears from Burma. This woman was taking the part of జాచియ్దుదు (gana kyāk dot) "the second queen." At first she postured and made slow movements with hands and arms in imitation of the doi. Then she became more lively in movements and seemed quite excited. This is the stage when it is said, జాచియ్దుదు (kalok lup) "a spirit has taken possession." The doi now stops her own movements and hands the woman first two bunches of leaves, then two shields and lastly two swords. These the woman brandishes as she dances and then hands back to the doi. She continues to dance with free hands and the doi has leisure to rest or make preparations for the next matter in hand.

The next item was the caging of the kalok, the brass tray on which the kalok vestments had been presented was now placed in a garment slung from a pole in the way in which a baby is cradled. The tray contained the looking glass, the comb and the tail of false hair. This I was told was caging the kalok జాచియ్దుదు (kruī kalok), who had been brought from the house and was now to be here all the time of the dancing.

The doi then strutted forth with sword and horn to walk the forest. The forest is represented by a branch of the Eugenia tree, జాచియ్దుదు జాచియ్దుదు (knāukren), the Burmese జాచియ్దు stuck in the ground outside the shed opposite the door. She first kneeled before the tree and placed a small offering of food on plantain leaf. All round the offering she poured water by simply allowing it to drop from the small end of the horn which was perforated. She then rose and went round the tree three times keeping it on her left (daksina cf. page 94) plucking a leaf and putting it into her horn each round.

The cutting of the plantain tree was the next item. A young plantain entire with root part and crown of leaves was brought into the booth carried in a horizontal position with the leaf end first. All the males pertaining to the kalok had to bear a hand in carrying it in, whilst the doi held it at the leaf end walking first. It was laid on the dancing platform and one of the men proceeded to shave the head or root part which just extended over the platform, the shavings dropping into a brass tray below. The doi then put some powdered saffron on the head and pouring water over it rubbed with her hand as in bathing. All the males put forth a hand in turn and helped. Next the doi took some parched rice and throwing it down the males all took it up in handfuls and threw it toward the plantain stalk. The doi then made little incisions in the stem with a sword cutting toward the top every time until she reached the leaves, when she turned and made an incision in the direction of the head. One of the men was now instructed to cut the stalk into pieces at the places marked by the doi.
This plantain stem was to represent the dead on whose account the dance was made and the rite is termed $\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (pleñ antaräi) "releasing the misery."

The rite which followed next was rather interesting and was apparently an essential part of the procedure. This was the ceremonial bathing of the sept. First there was the "bathing of the offspring $\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (baluip kon cau). A jar of water was placed by the eugenia branch outside, and the old woman who was giving the feast sat down beside it with a dipper. All the members of the different families first men and boys and then women and girls came in turn and held out their hands whilst the old woman poured water to wash them. As each completed his or her hand washing the doñ stood by and slipped a ring of cord on the right hand. Some of the little boys had it slipped over their heads and wore it on their necks whilst the others wore it on the wrist. This was to distinguish them throughout the day as members of the sept. Then the old woman had water poured over her body and had a bath in the usual eastern way. This was called $\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (baluip bo' kalok) "bathing the stem of the kalok."

Whilst the bathing was going on two women stood at the entrance to the booth holding a silk scarf stretched between them, apparently as a screen. The old woman having changed into dry garments was robed as the chief queen $\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (gana kyäk jöok).

For the dance of the chief queen the doñ arranges foods——cakes and plantains——in two little bowls and a plantain leaf. A candle is lighted and stuck in the latter and water poured round the leaf. Then she transfers the candle to one of the bowls and pours water round the whole three. Having done this she blows out the candle and folding up the leaf places it under a corner of the mat which covers the platform. The two dishes were placed near on the mat. She then takes a folded yellow cloth with a large candle and a garland of flowers and waves them before the old women three times, the articles being circled round the rack each time. The old woman is then made to swing a basket containing the articles together with a plantain leaf and bamboo stick holding by the supporting cord $\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (juk palai) a cloth hanging from the roof by which the dancers support themselves in falling before the doñ at the end of a dance. The old woman then takes the basket on her palm with the end of the supporting cord underneath, moving it about and swaying the body. She afterwards dances in the usual way with leaves and shields and swords. The music becomes lively and the old woman responds to it.

The old woman again puts off her queenly robe and is attired in the kalok garments. Offerings are again prepared by the doñ. The outstanding feature of this item is the raising of two brass trays, a big and a little one, each in turn three times, the doñ transferring the looking glass and comb from the one to the other as she hands them to the woman. Then the dance as before. The old woman is not, however, finished yet by any means. The doñ takes a bowl with lighted candles and passing them over the rack gives them to the old woman who stands up to take them and sways about. Then she receives in turn the tray and the betal box in the same way. This is followed by another dance in which a spear is added to the other weapons.

The old woman again changes and dresses for the part of the kalok becoming a monk. There is not much in the part that resembles monkhood at all. She first holds on by the supporting cord, then swings the swing——$\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (lahuai jun ja). The jun ja is a brass tray hung in a cloth. She takes from the doñ a water basin and removing the monkish robe——$\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (räm til) takes to weapons and dances with swords.

The candle of witness $\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (pnun tuin) or $\text{c}^{2}\text{d}^{2}\text{a}^{3}\text{\kappa}^{\nu}$ (pnun saksi) was now lighted. A tray with cocoaanut, plantains, cakes and spirits was taken
and little candles lighted on its edge. A large candle was made ready by sticking it into a small chatty filled with cleaned rice. The doñ wave the tray before the old woman, who still retained her place on the platform, lighted the large candle and passed the tray over to the musicians, who divided its contents amongst themselves. The lighted candle was then placed on the rack and guarded from the wind by a casing of plantanging stalk laced with rattan.

The kaloks or ghosts of the ancestors of the sept were now said to be all present and the next item was a dance by the doñ to put all on an equal footing. This is called kook ek kook ghee (leh pñi kalok gamluin) and apparently means that the ghosts are all given an equal opportunity of taking possession of the dancers and so showing their continued interest in the living. One woman dancing later hopped and skipped out into the open and going up to the old lady who was giving the feast hugged and kissed her. This was an indication that the ghost was that of the dead husband. Another was recognized by some of the men as an uncle. Some of these single dances are done quite gracefully. It is not all a swaying of the body and wretching of the limbs as in the ordinary Burmese and Siamese dancing. There is hopping and skipping and moving about and sometimes the skipping is very graceful. When coupled with the lively music I can quite understand spectators entering into some kind of enjoyment of it. And yet there is little evidence of people being there for mere enjoyment. The doñ’s movements when dancing with the spear on this occasion were specially good. She held it up with her two hands its point being towards the rack with candle and offering. With one hand she held the shaft and with the other the blade covered with a cloth. She changed it from side to side by passing it over her head.

The next dance was by two women in the character of men. They simply fastened a loin cloth male fashion over their own garments. This caused one of the men sitting by to remark that whilst the kalok followed only the male line, it always fell to the women to do the dancing.

Several dances now took place in which one, two or three women engaged. The doñ always commenced by preparing a little offering and pouring out spirits, and sometimes smelling the offerings. The doñ postured and made movements which the women imitated as best they could. The doñ seemed to exercise some kind of magnetic influence. I saw a woman, one of three, who seemed fascinated. Then she took her gaze away from the doñ and looked as if she would shake herself free, but she again turned to the doñ and soon was in a tremor; finally springing to her feet she began to dance. Some remained cool and collected and never gave way to the frenzy, others again after dancing in a frenzied state for a while went out and brought in others. These they sought to excite by moving their arms about and causing them to hop and skip. Some became excited like the other dancers and danced away till the excitement wore out. Others again were unmoved and just fell out again when they were left free. Sometimes there were eight, nine, or ten dancing all at once, though never more than three started the dance. On finishing dancers always danced into the booth and ended by grasping the supporting cord and falling down before the doñ. One woman sprang up again and danced madly until an old dame sought to quiet her, and managed only by forcing her to her knees before the doñ and holding her down for a little. This excitement is one of the strangest things about the dance. The dancers most susceptible to it seem held in thrall for the time being, yet the doñ shows no sign of exerting any power over them.

A curious thing in the day’s proceedings is the biting of the fish. A fish with a stick through its length, having been roasted on the coals, was brought to the doñ, who having smelled it examined it and called for some one to bite it. The men were all called afterwards and each was told to take a bite of the fish in turn. Some simply broke off a piece with the teeth and threw it down. It did not seem necessary to eat it.
In the next turn ဝိမ်စိမ်း (wei smi nh blai gal) playing the young Indian Prince two little fishes are used. The doi herself dances in the character of the prince wearing a loin cloth male fashion over her own dress. One of the men of the sept comes forward to the platform and kneeling on the ground holds up a basin containing offering before the doi, who after throwing a folded cloth over the man's arms takes two little fishes from the basin and sticks them on the points of her two swords. She flourishes them and then taking off the fishes puts them down again. She then takes a sword in one hand and a comb of plantains in the other and having flourished these puts them down and afterwards dances. Next she goes out as the prince to meet his lover, and having found her in the forest, the two pledge faith by pouring water, and return home, that is, enter the booth. Here there is more pouring of water with sprinkling of the body, manipulation of the large and small tray as in a former item, the kalok things returned to the cage and the woman playing the princess dances in the usual way.

The doi next performs the ceremony of eating the fish. She prepares a tray with cakes, etc., and a bigger fish. The music begins and she postures seated and again holds the two little fishes. She smells the fishes, then the cakes and things on the tray. Next she stands up and dances flourishing the swords and the music quickens. She afterwards removes everything from the tray except the fishes, veils her face and head, and going through the ceremony of eating the fish behind her veil, finishes dancing.

In the next item, ကလောက်ကျော် (kalok ca kmle nh kuiw kaw) “the kalok eats sticky rice with jaggery,” a woman dances in the usual way and then coming down from the platform with a tray in her hand goes about stuffing the children's mouths with the rice dipped in jaggery. ပြူး (phyuim kon cau nh) “she feeds her grandchildren.” She is an ancestor interested in her progeny.

There was nothing out of the usual about the Tavoyan kalok, but with the Karen kaloks it was different. As the Karens are jungle people this dance could not take place in the pavilion. So three women having dressed in the character fared forth to the woods one carrying a small basket of the Karen pattern, another water in a joint of bamboo, and the third carrying two swords. The first woman whose basket was filled with little cakes and other edibles went round feeding the people, the doi coming out to help by dividing out and refilling the basket. Silver bracelets were now brought and clasped on the wrists of the dancers, one of whom was now greatly exited and it was with difficulty the bracelets were put on at all. This was the longest drawn out of all the dances, eight or nine dancing all at one time. This and the next were the most exciting performances of the day.

The next was a dance on behalf of the old dame who gave the feast. Two women commencing in the usual way by and by dance out bearing trays, and distribute cakes among the people. One of them being herself greatly excited brings others in and soon there are nine or ten all dancing at once.

In fighting the game cocks two women holding cloths knotted to represent cocks commence in the usual way and afterwards dance out into the open. Here a man bribed with promises of drinks comes into the arena and capers about. Bottles filled with country spirit were handed about and always as he stopped to take a drink the two women came at him trying to catch him. This was အိကချင် (bak cii) “hunting the elephant.” She eventually caught him by throwing their scarves over his head and leading him to the eugenia tree.

The rite of eating the tortoise is a reminder of one of the peculiar traditions of the Talangs. It was reported that this particular tortoise was not sufficiently cooked, but it was ordered out just as it was. It was brought in a plate shell and all and placed before the doi. Two women sat in front in the dancer's place. The doi poured water and poked at the flesh and smelled it. The tortoise was then raised up and formally offered to the kalok shii. It was them taken back to

* The Karens are noted for their ungrudging hospitality and this may allude to it.
the house and would be eaten later, I understand. One of the women now carried two combs of plantains on a stick over her shoulder, whilst the other carried two swords and the doá grasped the spear. The two women then danced in the usual way.

There is a reference to the tortoise tradition in the Census Report at the section on Totemism cited above. 'Turtle,' however, is wrongly used for 'tortoise' somewhat to the confusion of meaning. If a Talaing sees a tortoise and it is not possible or convenient for him to take it home and deal with it properly, he must say, "It smells" or "It is rotten" and pass on. If, however, one does reach home, it must be cooked and an offering made to the kalok before any one partakes of it. The offering should consist of the head of the tortoise and the head or top part of the rice in the pot. Sickness and death are believed to follow any infringement of the rule. So too one Talaing may not ask another Talaing for a tortoise, when he has a use for one; he must simply go and take it if he judges it well to do so.

In the dance of the kalok sîi the old woman of the house again took the part. She dressed for it in a putso glik (glik). It was somewhat scant in width, but it was put on in the usual way with the free end drawn round the shoulders. The doá prepared a basin of parched rice with candles burning. This basin was afterwards overturned and the rice spilled out. This was called ose bakan (pa bakan kamlei) "performing the overturning of the sticky rice." The two old dames then sat down to a game of gane' eane'we (weí gane'). The game' Bur.

Sîi were little pieces of plantain fruit. These the two simply threw to one another.

It was getting near the end now and all were called in to give up their cords, the doá taking them back.

The remaining items were performed outside the booth. Breaking the coconuts and playing the Bau ju been gardian spirit of the village seemed pretty much mixed up. Two women danced and the two coconuts being laid near, one of the women by and by took up one smashing it on the other as it lay on a plank. The little boys rushed in to seize the pieces, but the woman took up the remaining whole one and raising it up brought it down with a smash on the plank. The boys then scrambled for the fragments.

Floating the canoe was the last item really. A model of a canoe was made on the spot of plantain stalk and placed with other things in a tray. A youth stood by with a bamboo pole, a sun hat and a jacket. Whether this was intended to symbolise the desire of these exiles to return to the land of their fathers I do not know, but that was about the way they put it to me.

Examining the candle does not appear to be any real part of the rites, but it seems to be expected, and the prospects for the year are held to be indicated by the way in which the candle burns down on the grains of rice. The leader of the orchestra it was who read the signs. The pot of uncooked rice in which the candle had burned was handed down to him. He looked at it earnestly for sometime and then said that it would be a fairly good year. Any work or business undertaken to the east, the west, or the north would be successful, but toward the south it would not be so. As far as I could see this was said because the grains of rice around had been evenly scorched when the candle burned low except in one direction indicating the south. A little stick marked the west.

A good deal of country spirits was used during the day and a great many cocoanuts were opened for the water they contained. As it is held that the frenzied dancers represent the ancestral ghosts whatever was asked for was at once handed to them. I was assured that whatever they ate or drank made no difference to the dancers; it was the ghost that was benefited. The women therefore could not become intoxicated. Some both drank themselves and forced it on their male friends.

R. HALLIDAY.
HINTS ON THE STUDY OF THE BURMESE LANGUAGE

I.

Burmese is an important member of the Turanian family of languages, Southern Division; it is Radical or Monosyllabic, with a tendency to advance towards Terminational or Agglutinative forms. It has produced a considerable literature and is the recognized medium of communication throughout the province of Burma. It has no inflections, no declension and conjugation; it makes no formal distinction of the various parts of speech; in fact, it possesses no word for what we are accustomed to call 'grammar' (Pali, saddā ဝါ). The Burmese language exhibits no terminal distinction at all. The plural is formed by placing ṣa; or ᵃ (which means 'many') after the substantive; the past and perfect tenses are formed by placing ᶇ and ᶎ (which means 'finished') after the verb. ᶋ ᶎ or ᶎ ᶎ is used to form the future. The root or its offshoot is never obscured: every root is a word. One of the most characteristic features of the Burmese language is that it never admits closed syllables. A non-English speaking Burman finds it impossible to pronounce school, or any other word ending in a consonant School, as pronounced by him, becomes ᵃ. The pronoun of the first person is not a pronoun at all; it means 'male servant or female servant ᵃ ᵃ ᵃ, ᵃ ᵃ ᵃ ᵃ ᵃ, ᵃ ᵃ ᵃ ᵃ ᵃ, etc. A pronoun may be left out in conversation, e.g., ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ ᵃ. There are many words which have become obsolete, but some of these archaic words are still used by modern writers as an embellishment. The history of the Burmese language consists in the gradual increase of Pali and Sanskrit words, which crept into the language since the introduction of Buddhism into Burma; and these imported words have changed the whole native aspect of the language. The Burmese language may, therefore, be classified as follows:—

I. Archaic Words (ဝင်စားဝင်)
II. Pure Burmese
III. Pali or Sanskrit Derivatives.

I. Some of the archaic words are shown below:

| ᵃ | ᵃ |
| ᵃ | ᵃ |
| ᵃ | ᵃ |
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| ᵃ | ᵃ |
| ᵃ | ᵃ |

A complete Burmese-English vocabulary of the so-called Porāṇa Katha is I understand, being compiled by our indefatigable and learned Editor (Professor Maung Tin, M.A.)

II. The following are some of the pure Burmese words which are used at the present time:

| ᵃ | ᵃ |
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Pure Burmese words are mostly monosyllabic, and their significations are distinguished by means of different intonations or modulations. For instance,
HINTS ON THE STUDY OF THE BURMESE LANGUAGE

to put on
\(\text{to be comely}
\) to tighten
\(\text{to kick}
\) to make a division
\(\text{to be blind}
\)

There are many equivocal words, i.e., differing in origin and becoming
identical in form, e.g.,
\(\text{to pull off}
\) to join
\(\text{to learn}
\) a picture
\(\text{thou, you}
\) to be wide open
\(\text{a kind of plant}
\) sulphur
\(\text{to be clear}
\) to make a division
\(\text{a stage}
\) evil spirit
\(\text{to be hot}
\) dust
\(\text{to bulge in the middle}
\) insect
\(\text{a writing}
\) to roast
\(\text{to be shrill}
\)

There are also many words expressive of immaterial conception which are
derived by metaphor from words expressive of sensible ideas, e.g.,
\(\text{to be distressed in mind}
\) hot
\(\text{to be disturbed in mind}
\) dirty (as water)
\(\text{to build castles in the air}
\) to play.
\(\text{to be uneasy in mind}
\) dirty (as cloth)
\(\text{to draw back from a purpose}
\) to shrink
\(\text{to be much annoyed by hearing}
\) bitter.
\(\text{to love to hear}
\) sweet
\(\text{to be in the decline}
\) to be shallow and to swell up
\(\text{as a shoal}
\)
\(\text{to be spread as reputation}
\) brightness and
\(\text{to overspread}
\)

These words may be called "offshoots of roots." All roots are expressive
of sensuous impressions only. The late Professor Max Müller has rightly said
“No advance was possible in the intellectual life of man without metaphor.”
Cases of metaphor, both radical and poetical, are numerous in the Burmese
language. There is a constant change in every language, but no man can either
produce or prevent it. The growth of language comprises two processes, viz.,
(1) Dialectic Regeneration and (2) Phonetic change. The following extracts from
inscriptions collected and published by the Local Government will indicate that
the Burmese language has undergone much phonetic change:—

SAKA ERA 420 (1058 A.D.)

SAKA ERA 537 (1145 A.D.)

SAKA ERA 611 (1249 A.D.)
HINTS ON THE STUDY OF THE BURMESE LANGUAGE

SAKA ERA 749 (1387 A.D.)

These inscriptions will doubtless enable us to trace, step by step, the gradual changes of form and meaning from ancient to modern Burmese; and they shew
clarify that the Burmese language was gradually, by the combined efforts of succeeding generations, brought to that perfection that we find in the works of Shin Silavamsa, Shin Rathasara, Myawadi Mingyi, U Ponnaya, etc. Before a systematic study of Burmese can be undertaken on a sound philological basis, we must, first of all, possess a list of roots. Chinese has been reduced to about 450 roots, and I dare say we want a smaller number for Burmese. It is to be hoped that in the near future a new Max Müller will publish a complete list of roots in Burmese arranged alphabetically with English translation.

III. The following are some of the Pali and Sanskrit derivatives found in the Burmese language:

<table>
<thead>
<tr>
<th>Sanskrit</th>
<th>Burmese</th>
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<tbody>
<tr>
<td>ႏႆႇႇ-</td>
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</table>

Some Pali words are retained without any change, e.g.,

<table>
<thead>
<tr>
<th>Pali</th>
<th>Burmese</th>
</tr>
</thead>
<tbody>
<tr>
<td>俸俸俸俸-</td>
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<td>俸俸俸俸-</td>
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<td>俸俸俸俸-</td>
<td>俸俸俸俸-</td>
</tr>
</tbody>
</table>

Burmese authors have a passion for deriving all Burmese words from Pali. For instance: they derive 俸俸俸俸- (俸俸俸俸), a pure Burmese word, which means a 'literary work' or 'treatise,' from the Pali word 俸俸俸俸, which has the same meaning, and accordingly spell it 俸俸俸俸-; 俸俸俸俸- (俸俸俸俸), which is doubtless a pure Burmese word, from Pali 俸俸俸俸 and spell it 俸俸俸俸-; and 俸俸俸俸 (俸俸俸俸), which is an English word (bank), from Pali 俸俸俸俸 and spell it 俸俸俸俸-.

It may be argued that it is impossible to imagine a Turanian language derived from an Aryan, or an Aryan from a Semitic language. In answer to this, it should be pointed out that no nation was ever so completely isolated as not to admit the importation of foreign words. Thus Turkish belongs to the Turanian family of languages; it has now a large number of religious and political terms of Persian, i.e., Semitic, origin, since the Turks, accepted a Semitic religion after it had passed through a Persian channel. The Burmese language is likewise now overgrown with Aryan words, Pali and Sanskrit; and the presence of these foreign words is attributable to literary and religious influence. No one can, therefore, thoroughly master Burmese without a competent knowledge of Pali and a little Sanskrit.

MAUNG Hpay.
BURMESE ASTRONOMY  
(continued)

BY
THOS. P. de SILVA

MARS' AND OTHER PLANETS' TRUE LONGITUDES (PHUTA)

The mean Sun is the Madhya of Mercury and Venus and the Sighra of Mars, Jupiter and Saturn (15).
First place its Sighra, in the middle its Madhya, and last its Manda. This is tabulated for better illustration as follows:—

<table>
<thead>
<tr>
<th>Operation</th>
<th>For Mercury and Venus</th>
<th>For Mars, Jupiter and Saturn</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Sighra</td>
<td>Mercury and Venus</td>
<td>Sun</td>
</tr>
<tr>
<td>II Madhya</td>
<td>Sun</td>
<td>Mars, Jupiter and Saturn</td>
</tr>
<tr>
<td>III Manda</td>
<td>Apsis</td>
<td>Apsis</td>
</tr>
</tbody>
</table>

In the first and second equations the Bhuja-phala is to be taken half its value and the other two, their full quantity.
In using the Jya when it is not subtractable from the next Jya, deduct the next Jya from the foregoing Jya. The result of equation is subtractive from corresponding Jya.

When Khandarn is zero (0) multiply by first Jya.
For first and last equations use:—
When gola 1 and 2 Karakat Jya.
3 and 0 Makara Jya.
and in the two middle equations use Manda Jya.
When gola 0 and 1 Meshadi additive; 2 and 3 Tuladi subtractive.

RULE:—FIRST EQUATION. From Sighra (in the first) deduct the Madhya (of the middle). With the difference, find out the Bhuja-phala (as shewn on page 33 Part 1) using Karakat or Makara jya according to the Gola and taking half the value of the result, additive or subtractive, apply to the madhya of the planet (in the middle place) whichever is the signification of the Gola.

(15) The text of the Suryasiddhanta is:
"In respect of Mars etc, first, Sighra operation or operation of finding the first equation; second, Manda operation; third, Manda operation and fourth, Sighra operation, are to be employed successively."
This is in Burmese termed "Lai-jet-thai" or "Lai-phan-sin" i.e., four times operated upon or equated.
In order to find the true place of the Sun and Moon, a single process called Manda or operation of finding the first equation is employed and applied to their mean places.
But in the case of Mars etc., from the mean place of the planet the equation of the conjunction has to be calculated and the half of it to be applied to the mean place; from the position thus obtained the equation of the apsis has to be calculated and the half of it to be applied to the longitude as already once equated; from this result once more the equation of the apsis has to be found and its result to be applied to the original mean place of the planet; and finally it has to be calculated from, and to be applied to this last place the whole equation of the conjunction.
SECOND EQUATION. From Manda (in the last place) deduct the result of the first equation. With the difference reduce to Bhuja-phala (as shewn on page 33 Part I) using Manda Jya and taking half of the result, apply it as additive or subtractive to first equation, whichever is indicated by the Gola.

THIRD EQUATION. From the Manda (in the last place) deduct the second equation. Reduce the difference to Bhuja-phala (as shewn on page 33 Part I) using Manda Jya and apply the result whichever the Gola indicates, additive or subtractive to the Madhya (in the middle place).

FOURTH EQUATION. From the Sighra (in the first place) deduct the third equation. The difference is reduced to Bhuja-phala, making use of the Karakat or Makara Jya according to Gola. Apply the result as indicated by the Gola, additive or subtractive, to the third equation.

For Rahu, deduct its madhya from 12 signs, the difference is the true place. Add or deduct 6 signs, the result is the true place of Kethu.

MARS' TRUE LONGITUDE.

<table>
<thead>
<tr>
<th></th>
<th>I Sun</th>
<th>8s 28d 58m</th>
</tr>
</thead>
<tbody>
<tr>
<td>II Mars</td>
<td>11 10 53</td>
<td></td>
</tr>
<tr>
<td>III Apsis</td>
<td>4 11 3</td>
<td></td>
</tr>
</tbody>
</table>

From Sun 8s 28d 58m
Take Mars 11 10 53

\[
\begin{align*}
3 & \quad 9 \quad 18 \quad 5
\end{align*}
\]

Gola 3 and 0s 18d 5m deduct from 3 signs = 2s 11d 55m or 4315 Minutes Bhuja.

As 225m : 4315m : : 1 Jya : x = 19 Jyas and 40m remainder.
Gola 3, use Makara : 19 Jya = 1611
\[
20 \quad " \quad " = 1687 \quad \{ = 76 \text{m vivara}
\]

As 225m : 40m : : 76m : x = 13m which with the equivalent of 19 Jya
\[
1611 = 1624 \text{m or at } \frac{1}{2} = 13 \text{d 32m and as Gola 3 signifies subtractive,}
\]

From Mars' Madhya 11s 10d 53m
Take Bhuja-phala 0 13 32 = 10s 27d 21m, 1st equation

\[
\begin{align*}
\text{From Apsis} & \quad 4s 11d 3m \\
\text{Take 1st equation} & \quad 10 \quad 27 \quad 21
\end{align*}
\]

\[
\begin{align*}
3 & \quad 5 \quad 13 \quad 42
\end{align*}
\]

Gola 1 and 2s 13d 42m deduct from 3 Signs = 0s 16d 18m or 978 minutes Bhuja.

As 225m : 978m : : 1 Jya : x = 4 Jyas and 78m remainder
Manda : 4 Jya = 184m
\[
5 \quad " \quad " = 227 \quad \{ = 43 \text{m vivara}
\]

As 225m : 78m : : 43m : x = 15m which with the equivalent of 4 Jya
\[
184 = 199 \text{m or at } \frac{1}{2} = 1 \text{d 39m and as Gola 1 signifies additive,}
\]
To last equation 10s 27d 21m
Add Bhuja-phala 0 1 39 = 10s 29d 0m, 2nd equation

From Apsis 4s 11d 3m
Take 2nd equation 10 29 0

3 ) 5 12 3

Gola 1 and 2s 12d 3m deduct from 3 signs = 0s 17d 57m or 1077 minutes Bhuja.

As 225m : 1077m : : 1 Jya : x = 4 Jyas and 177m remainder
Manda : 4 Jya = 184$rac{227}{5}$ = 43m vivara

As 225m : 177m : : 43m : x = 33m which with the equivalent of 4 Jya
= 184 = 217m or 3d 37m and as Gola 1 signifies additive,
To Mars' Madhya 11s 10d 53m
Add Bhuja-phala 0 3 37 = 11s 14d 30m, 3rd equation

From Sun 8s 28d 58m
Take 3rd equation 11 14 30

3 ) 9 14 28

Gola 3 and 0s 14d 28m deduct from 3 signs = 2s 15d 32m or 4532 minutes Bhuja.

As 225m : 4532m : : 1 Jya : x = 20 Jyas and 32m remainder,
Gola 3, use Makara : 20 Jya = 1687$rac{1760}{21}$ = 73m vivara

As 225m : 32m : : 73m : : x = 10m which with the equivalent of 20 Jya
= 1687 = 1697m or 28d 17m and as Gola 3 signifies subtractive,

From 3rd equation 11s 14d 30m
Take Bhuja-phala 0 28 17

Mars' true position Sunday midnight 10 16 13 = 4th equation

Saturday at midnight mean position

\[
\begin{align*}
\text{Sun} & : 8s 27d 59m \\
\text{Mars} & : 11 10 22 \\
\text{Apsis} & : 4 11 3
\end{align*}
\]

From Sun 8s 27d 59m
Take Mars 11 10 22

3 ) 9 17 37

Gola 3 and 0s 17d 37m deduct from 3 signs = 2s 12d 23m or 4343 minutes Bhuja.

As 225m : 4343m : : 1 Jya : x = 19 Jyas and 58m remainder
Gola 3, use Makara : 19 Jyas = 1611$rac{1687}{20}$ = 76m vivara

As 225m : 68m : : 76m : : x = 22m which with the equivalent of 19 Jya
= 1611 = 1633 or at $\frac{1}{2}$ = 13d 36m and as Gola 3 signifies subtractive,
From Mars' Madhya 11s 10d 22m
Take Bhuja-phala 0 13 36 = 10s 26d 46m, 1st equation.
From Apsis 4s 11d 3m
Take 1st equation 10 26 46

3 ) 5 14 17

Gola 1 and 2s 14d 17m deduct from 3 signs = 0s 15d 43m or 943 minutes Bhuja.

As 225m : 943 : : 1 Jya : x = 4 Jyas and 43m remainder
Manda : 4
" = 184
5 " = 227

As 225m : 43m : : 43m : x = 8m which with the equivalent of 4 Jya = 184 = 192m or at ½ = 1d 36m and as Gola 1 signifies additive,
To 1st equation 10s 26d 46m
Add Bhuja-phala 0s 1d 36m = 10s 28d 22m, 2nd equation.

From Apsis 4s 11d 3m
Take 2nd equation 10 28 22

3 ) 5 12 41

Gola 1 and 2s 12d 41m deduct from 3 signs = 0s 17d 19m or 1039 minutes Bhuja.

As 225m : 1039m : : 1 Jya : x = 4 Jyas and 139m remainder
Manda : 4 Jya = 184m
5 " = 227 = 43m vivara

As 225m : 139m : : 43m : x = 26m which with the equivalent of 4 Jya = 184 = 210m or 3d 30m and as Gola 1 signifies additive,
To Mars' Madhya 11s 10d 22m
Add Bhuja-phala 0 3 30 = 11s 13d 52m, 3rd equation

From Sun 8s 27d 59m
Take 3rd equation 11 13 52

3 ) 9 14 7

Gola 3 and 0s 14d 7m deduct from 3 signs = 2s 15d 53m or 4553 minutes Bhuja.

As 225m : 4553m : : 1 Jya : x = 20 Jyas and 53m remainder
Gola 3, use Makara : 20 Jyas = 1687m
21 " = 1760 = 73m vivara

As 225m : 53m : : 73m : x = 17m which with the equivalent of 20 Jya = 1687 = 1704m or 28d 24m and as Gola 3 signifies subtractive,
From 3rd equation 11s 13d 52m
Take Bhuja-phala 0 28 24

Mars' true position Saturday midnight 10 15 28 = 4th equation

Mars' true position at midnight on Sunday ditto ditto Saturday 10 15 28

Daily motion 0 0 45

As 24 hrs: 10 hrs: 45m: x = 28m which added
to position at midnight on Saturday = 10s 15d 28m

at 10 a.m. on Sunday, the 11th January 1874 10 15 56
MERCURY'S MEAN LONGITUDE.

RULE. Multiply the accumulated Savana days by 100 from which product deduct 2225, the remainder divided by 8797, the quotient is the elapsed number of revolutions (to be rejected). Reduce the remainder to Signs, Degrees and Minutes by the multiplication of 12, 30 and 60 successively and dividing each product by 8797. From the result deduct 4 degrees and 2 ms. for correction from observation.

To correct the above, add the quotient of the Rassa divided by 809, to Savana days—remainder of this multiplied by 10, the product divided by 33—add the quotient to the minutes; the result is the mean place of Mercury (16).

\[
\begin{align*}
\text{Multiply by} & \quad 100 \\
\text{Deduction adjustment} & \quad 2225 \quad \text{brought over at beginning of epoch} \\
\text{Divide by 8797} & \quad 4958275 \quad (563 \text{ Revolutions}) \\
& \quad 4952711 \\
\text{Correction:} & \quad 5564 \\
& \quad 12 \text{ Signs} \\
& \quad 66768 \quad (7) \\
& \quad 61579 \\
& \quad 5189 \quad \text{As 809 years} = 1 \text{ day} \\
& \quad 135 " \quad = 0 \\
& \quad 30 \text{ Degrees} \\
& \quad 155670 \quad \text{and as 33} " \quad = 10 \text{m} \\
& \quad 149549 \quad 135 " \quad = 41 \text{m}
\end{align*}
\]

(16) The multiplication of 100 and the division by 8797 = 87 days in a revolution and the fraction converted to decimal i.e., \(\frac{87}{30} \approx 87.97\). The decimal point could be still extended to more than two places; so it is a little in excess of the real quantity, as a divisor. To correct this difference it is found that every 809 years of the rassa=one Savana day and the remainder of which \(\frac{10}{38}\) times for one minute of motion, additive.

These adjustments are obtained as below:

According to Suryasiddhanta:

\[
\begin{align*}
\text{As } 1577917828 \text{ D} : 4958275 \text{ D} : \quad 17937060 \text{ Time of revn : } x &= \\
49582\frac{2}{5} \times 17937060 &= \frac{88936761715}{1577917828} \\
1577917828 &= 1577917828 \\
\text{According to Samdittha without correction:} & \quad \text{563R } 7\text{s} 18\text{d} 23\text{m} \\
\text{As } 87.97 \text{ D} : 49582.75 \text{ D} : \quad 1 \text{ Rev. : } x &= \frac{49582.75}{87.97} \\
\text{Making a difference of motion of} & \quad 563 \quad 7 \quad 17 \quad 42 \\
\text{in excess for a period of 135 years, for not taking the fraction into account.} \\
\therefore \text{ as 135 years } &= 41 \text{m of motion} \\
\text{x no. of years } &= 4d \frac{51}{2} \text{m or } 245\frac{1}{2} \text{m (which is equivalent of Mercury's daily motion)} \\
& \quad = \frac{135 \times 491}{41 \times 2} \\
& \quad = 66285 \\
& \quad = 809 \text{ years} \\
\text{Since, as 809 years } &= 245\frac{1}{2} \text{ minutes of motion} \\
\therefore \text{x no. of years } &= 10 \text{ ditto} \\
& \quad = \frac{809 \times 10 \times 2}{491} \\
& \quad = 33 \text{ years}
\end{align*}
\]
BURMESE ASTRONOMY

6121
60 Minutes

367260 (42
369474

As per above calculation 7s 17d 42m
Add correction 0 0 41 = 7s 18d 23m
Deduct for correction from observation = 0 4 2
Mercury's at midnight on Sunday mean place = 7 14 21
Deduct daily motion 4 6
Mercury's at midnight on Saturday mean place 7 10 15

MERCURY'S TRUE LONGITUDE.

Sunday at midnight mean position

\{ I Mercury 7s 14d 21m II Sun 8 28 58 III Apsis 7 23 28 \}

From mean Mercury 7s 14d 21m
Take mean Sun 8 28 58

3 ) 10 15 23

Gola 3 and 1s 15d 23m deduct from 3 signs = 1s 14d 37m or

2677 minutes Bhuja.

As 225m : 2677m : : 1 Jya : x = 11 Jyas and 202m remainder
Gola 3, use Makara : 11 Jya = 645 \| = 54m vivara
12 " = 699 \| = 48m which with the equivalent of
11 Jya = 645 = 693 or at \( \frac{1}{2} \) = 5d 46 and as Gola 3, signifies subtractive,
From Sun 8s 28d 58m
Take Bhuja-phala 0 5 46 = 8s 23d 12m, 1st equation

From Apsis 7s 23d 28m
Deduct 1st equation 8 23 12

3 ) 11 0 16

Gola 3 and 2s 0d 16m deduct from 3 signs = 0s 29d 44m or =

1784 minutes Bhuja

As 225m : 1784m : : 1 Jya : x = 7 Jyas and 209m remainder
Manda : 7 Jya = 123 \| = 15m vivara
8 " = 138 \| 8 Jya = 15m : x = 14m which with the equivalent of
7 Jya = 123 = 137m or at \( \frac{1}{3} \) = 1d 8m and as Gola 3 signifies subtractive,
From 1st equation 8s 23d 12m
Take Bhuja-phala 0 1 8 = 8s 22d 4m, 2nd equation
From Apsis  7s 23d 28m  
Deduct 2nd equation  8 22 4  

\[3 \) 11 1 24 \]

Gola 3 and  2s 1d 24m deduct from 3 signs = 0s 28d 36m or 1716 minutes Bhuja,

As 225m : 1716m : 
Manda : 7 Jya = 123m | = 15m vivara  
8 " ' = 138 " = 54m vivara  
As 225m : 141m : 15m : x = 9m which with the equivalent of 7 Jya = 123 = 132 or 2d 12m and as Gola 3 signifies subtractive,  
From Sun  8s 28d 58m  
Deduct Bhuja-phala 0 2 12 = 8s 26d 46m, 3rd equation  

From Mercury  7s 14d 21m  
Take 3rd equation  8 26 46  

\[3 \) 10 17 35 \]

Gola 3 and  1s 17d 35m deduct from 3 signs = 1s 12d 25m or 2545 minutes Bhuja,

As 225m : 2545m : 1 Jya : x = 11 Jyas and 70m remainder  
Gola 3 use Makara : 11 Jya = 645m \} = 54m vivara  
12 " ' = 699 " = 17m which with the equivalent of 11 Jya = 645 = 662m or 11d 2m and as Gola 3 signifies subtractive,  
From 3rd equation  8s 26d 46m  
Deduct Bhuja-phala 0 11 2  

Mercury's true place on Sunday midnight 8 15 44 = 4th equation

Saturday at midnight mean position | I Mercury  7s 10d 15m  
| II Sun  8 27 59  
| III Apsis  7 23 28

From Mercury mean  7s 10d 15m  
Take Sun  8 27 59  

\[3 \) 10 12 16 \]

Gola 3 and  1s 12d 16m deduct from 3 signs = 1s 17d 44m or 2864 minutes Bhuja,

As 225m : 2864m : 1 Jya : x = 12 Jyas and 164m remainder  
Gola 3 use Makara : 12 Jya = 699 \} = 53m vivara  
13 " ' = 752 " = 39m which with the equivalent of 12 Jya = 699 = 738m or at \( \frac{1}{2} \) = 6d 9m and as Gola 3 signifies subtractive,  
From Sun  8s 27d 59m  
Take Bhuja-phala 0 6 9 = 8s 21d 50m, 1st equation  

From Apsis  7s 23d 28m  
Take 1st equation  8 21 50  

\[3 \) 11 1 38 \]

Gola 3 and  2s 1d 38m deduct from 3 signs = 0s 28d 22m = 1702 minutes Bhuja,
As 225m : 1702m : : 1 Jya : x = 7 Jyas and 127m remainder
Manda : 7 Jya = 123
8 " = 138 = 15m vivara

As 225m : 127m : : 15m : x = 8m which with the equivalent of
7 Jya = 123 = 131m or at ½ = 1d 5m and as Gola 3 signifies subtractive,

From 1st equation 8s 21d 50m
Deduct Bhuja-phala 0 1 5 = 8s 20d 45m, 2nd equation

From Apsis 7s 23d 28m
Take 2nd equation 8 20 45

3 ) 11 2 43

Gola 3 and 2s 2d 43m deduct from 3 signs = 0s 27d 17m = 1637 minutes Bhuja,

As 225m : 1637m : : 1 Jya : x = 7 Jyas and 62m remainder
Manda : 7 Jya = 123
8 " = 138 = 15m vivara

As 225m : 62m : : 15m : x = 4m which with the equivalent of
7 Jya = 123 = 127m or 2d 7m and as Gola 3 signifies subtractive,

From Sun 8s 27d 59m
Take Bhuja-phala 0 2 7 = 8s 25d 52m, 3rd equation

From Mercury 7 10 15
Take 3rd equation 8 25 52

3 ) 10 14 23

Gola 3 and 1s 14d 23m deduct from 3 signs = 1s 15d 137m or 2737 minutes Bhuja,

As 225m : 2737m : : 1 Jya : x = 12 Jyas and 37m remainder
Gola 3 use Makara 12 Jyas = 699
13 " = 752 = 53m vivara

As 225m : 37m : : 53m : x = 9m which with the equivalent of
12 Jya = 699 = 708 or 11d 48m and as Gola 3 signifies subtractive,

From 3rd equation 8s 25d 52m
Take Bhuja-phala 0 11 48

Mercury’s true position at midnight on Saturday 8 14 4, 4th equation

Mercury’s true position at midnight on Sunday ditto ditto Saturday 8 14 4

Daily motion
0 1 40

As 24 hrs : 10 hrs: 100m : x =
to position at midnight on Saturday

41 which added

at 10 a.m. on Sunday, the 11th January 1874 8 14 45
JUPITER’S MEAN LONGITUDE.

RULE.—Multiply the accumulated Savana days by 3, from which product deduct 366; the remainder divided by 12997, the quotient is the number of revolutions (to be rejected). — Reduce the remainder to signs, degrees and minutes by the multiplication of 12, 30 and 60 successively and dividing each product by 12997.—From the result deduct 3 degrees for observed correction.

For correction, add one Savana day for every 933 years of the Rassa, remainder of which, for every 186 years one minute of motion.

The result is the mean position of Jupiter. (17)

To

Multiply by

49605 accumulated Savana days

3

148815

Deduct adjustment

366 brought over at beginning of epoch


Divide by 12997 ) 148449 ( 11 Revolutions

142967

5482

12 Signs

Correction :

65784 ( 5 As 933 years = 1 day

64985

135 " = 0

799 And as 186 " = 1 minute

30 Degrees

135 " = 43 seconds

23970 ( 1

12997

(17) The multiplication of 3 and the division by 12997 is = 4332\frac{1}{3} days in a revolution of Jupiter, which is a little in excess of its quantity, as the correct amount reduced to eleven decimal places is 4332.32065231481 whereas the other value reduced is 4332.3. The difference is accounted for by taking one day in every 933 years and one minute of motion for every 186 years, which adjustments are arrived at as follows:

According to Suryasiddhanta :

As $1577917828$ D : ( 49605 — 366 ) D : : 364220 Times of rev : $x = \frac{3}{49483 \times 364220} = \frac{18022698260}{1577917828} = 11$ Rev. 5S 1d 5m 37\frac{3}{4}$

According to Samdittha without correction :

As per calculation in Texts

Making a difference of motion

in excess for the unaccounted fraction :

$\therefore$ As 135 years = ’72\frac{1}{2}’ or 43\frac{3}{4}$

$\times$ no. of years = 5m or 300", (equivalent of Jupiter’s daily motion)

$= \frac{135 \times 300 \times 5}{217 \times 5} = \frac{202500}{1085} = 933$ years

Since, as 933 years = 5m of motion $\therefore \frac{933}{5} = 186$ years.
10973
60 minutes
658380 (51)
64985
8530

As per above calculation 5s 1d 51m
Add correction 0 0 0 (42) = 5s 1d 51m
Deduct for correction from observation 0 3 0

Jupiter’s at midnight on Sunday mean place 4 28 51
Deduct daily motion 0 0 4

Jupiter’s at midnight on Saturday mean place 4 28 47

JUPITER’S TRUE LONGITUDE.

Sunday at midnight mean position

\[
\begin{align*}
\text{I} & \quad \text{Sun} & 8s & 28d & 58m \\
\text{II} & \quad \text{Jupiter} & 4 & 28 & 51 \\
\text{III} & \quad \text{Apsis} & 5 & 20 & 22 \\
\end{align*}
\]

From Sun 8s 28d 58m
Deduct Jupiter .4 28 51

3 ) 4 0 7

Gola 1 and 1s 0d 7m deduct from 3 signs = 1s 29d 53m or
3593 minutes Bhuja.

As 225m : 3593m :: 1 Jya : x = 15 Jyas and 218m remainder.
Gola 1 use Karki : 15 Jya = 633 \(\text{or } 16\) " = 650 \(= 17m \text{ vivara}

As 225m : 218m :: 17m : x = 16m which with the equivalent of 15
Jya = 633 = 649m or at \(\frac{1}{2}\) = 5d 24m and as Gola 1 signifies additive,
To Madhya 4s 28d 51m
Add Bhuja-phala 5 24 = 5s 4d 15m, 1st equation.

From Apsis 5s 20d 22m
Take 1st equation 5 4 15

3 ) 0 16 7

Gola 0 and 0s 16d 7m (no deduction) = 967m Bhuja

As 225m : 967m :: 1 Jya : x = 4 Jyas and 67m remainder
Manda : 4 Jya = 81
\(\text{or } 5\) " = 100 \(= 19m \text{ vivara}

As 225m : 67m :: 19m : x = 6m which with the equivalent of 4
Jya = 81 = 87m or at \(\frac{1}{2}\) = 44m and as Gola 0 signifies additive,
To 1st equation 5s 4d 15m
Add Bhuja-phala 0 0 44 = 5s 4d 59m, 2nd equation.
From Apsis 5s 20d 22m
Take 2nd equation 5 4 59

3 ) 0 15 23

Gola 0 and 0s 15d 23m (no deduction) = 923m Bhuja
As 225m : 923m : : 1 Jya : x = 4 Jyas and 23m remainder
Manda : : 4 Jya = 81
5 " = 100 = 19m vivara

As 225m : 23m : : 19m : x = 2m which with the equivalent of 4
Jya = 81 = 83m or 1d 23m and as Gola 0 signifies additive,
To Jupiter Madhya
Add Bhuja-phala
From Sun
Take 3rd equation

Gola 1 and 0s 28d 44m deduct from 3 signs = 2s 1d 16m or 3676
minutes Bhuja.

As 225m : 3676m : : 1 Jya : x = 16 Jyas and 76m remainder
Gola 1 use Karki : 16 Jya = 650
17 " = 665 = 15m vivara
As 225m : 76m : : 15m : x = 5m which with the equivalent of 16
Jya = 650 = 655m or 10d 55m and as Gola 1 signifies additive,
To the 3rd equation
Add Bhuja-phala
Jupiter’s true position at midnight on Sunday

Saturday at midnight mean position

From Sun
Take Jupiter

Gola 1 and 0s 29d 12m deduct from 3 signs = 2s 0d 48m or 3648
minutes Bhuja-phala

As 225m : 3648m : : 1 Jya : x = 16 Jyas and 48m remainder
Gola 1 use Karki : 16 Jya = 650
17 " = 665 = 15m vivara
As 225m : 48m : : 15m : x = 3m which with the equivalent of 16
Jya = 650 = 653m or at 1/2 = 5d 25m and as Gola 1 signifies additive,
To Jupiter Madhya
Add Bhuja-phala
From Apsis
Take 1st equation

Gola 0 and 0s 16d 10m (no deduction) = 970m Bhuja

As 225m : 970m : : 1 Jya : x = 4 Jyas and 70m remainder
Manda : : 4 Jya = 81
5 " = 100 = 19m vivara
As 225m : 70m : : 19m : x = 6m which with the equivalent of 4 Jya = 81 =
87m or at 1/2 = 0d 43m, and as Gola 0 signifies additive,
To 1st equation: 5\ s\ 4d\ 12m
Add Bhuja-phala: 0\ 0\ 43 = 5\ s\ 4d\ 55m, 2nd equation.

From Apsis: 5\ s\ 20d\ 22m
Take 2nd equation: 5\ 4\ 55

\[\begin{array}{c}
3 \) \\
0 \ 15 \ 27 \\
\end{array}\]

Gola 0 and 0s 15d 27m (no deduction) = 927m Bhuja
As 225m : 927m : 1 Jya : x = 4 Jyas and 27m remainder.
Manda : 4 Jya = 81 \{ 19m vivara
5 \'' \ = 100 \}
As 225m : 27m : 19m : x = 2m which with the equivalent of 4
Jya = 81 = 83m or 1d 23m and as Gola 0 signifies additive,
To Jupiter Madhya: 4s 28d 47m
Add Bhuja-phala: 0 \ 1 \ 23 = 5s 0d 10m, 3rd equation.

From Sun: 8s 27d 59m
Take 3rd equation: 5 \ 0 \ 10

\[\begin{array}{c}
3 \) \\
3 \ 27 \ 49 \\
\end{array}\]

Gola 1 and 0s 27d 49m deduct from 3 signs = 2s 2d 11m or
3731 minutes Bhuja.

As 225m : 3731m : 1 Jya : x = 16 Jyas and 131m remainder
Gola 1 use Karki : 16 Jya = 650 \{ 15m vivara
17 \'' \ = 665 \}
As 225m : 131m : 15m : x = 8m which with the equivalent of
16 Jya = 650 = 658m or 10d 58m and as Gola 1 signifies additive,
To the 3rd equation: 5s 0d 10m
Add Bhuja-phala: 0 \ 10 \ 58

Jupiter's true position at midnight on Saturday: 5 \ 11 \ 8, 4th equation.

Jupiter's true position at midnight on Sunday:
\begin{array}{c}
do. \\
do. \\
Saturday \ 5 \ 11 \ 8 \\
\end{array}

Daily motion:
0 \ 0 \ 1

As 24 hrs : 10 hrs : 1m : x = 25sec which
added to position at midnight on Saturday: 5s 11d 8m 0

at 10 a.m. on Sunday, the 11th January 1874: 5 \ 11 \ 8 \ 25

(to be continued)
Burmese petroleum well.

A view of some of the machinery wells, Yenangyat.

Lowering a miner in diving apparatus.
THE PETROLEUM WELLS OF YENANGYAT

BY

L. AUBERT, B.A., B.Sc.
Superintendent of Land Records

In certain localities in Upper Burma, a kind of petroleum or naphtha of a dingy green colour, somewhat of the consistency of treacle, and odorous is extracted from wells dug into the ground. This petroleum is used in its crude state by the natives for burning, and also sometimes as a cure for certain skin diseases. The most important centres of extraction are Yenangyaung, Singu and Yenangyat along the river Irrawaddy.

All that is known of the first discovery of this petroleum is of the usual Burmese mythical character, but, what is certain is that the earth-oil wells of Yenangyaung were for a long time a lucrative source of revenue to the Burmese Kings. In the time of King Mindon (1852-1878), as much as six lakhs of rupees (£40,000) were paid yearly as royalty into the Treasury.

The sinking of a well by the Burmese is done at the present day exactly in the same manner as that described by Capt. Cox, of the East India Company, who visited the oil-wells in 1797. (1) The tool used for digging is called “tawwin” which consists of a chisel-shaped iron shoe fixed to a club-shaped wooden handle. The miner grasps his tawwin about the middle, rests the upper notched end of the handle against his shoulder, and drives the point with the whole weight of his body. The hard strata are broken through by dropping a pointed lump of iron, weighing about 60 viss, (220lbs) from the mouth of the shaft. The shaft is sunk in a square form and lined, as the miner proceeds, with staves of acacia wood (Burm: sha) about 6 feet long and about 6 inches or a foot broad, rudely jointed and pinned at right angles to each other to form a square frame. When the miner has dug from 4 to 6 feet of the shaft, a series of these square frames piled on each other are lowered in and regularly added to at the top, the whole gradually sinking as he deepens the shaft, and protecting him against the falling in of the sides. The miners are lowered by a rope which ends in two slings through which they pass their legs. No light can be taken down the shaft on account of the explosive gases, and the fumes moreover render breathing impossible. Miners sometimes wear a sort of diver’s apparatus consisting of an air-tight jacket to which is adapted a tin helmet with a pane of glass in front to enable them to see. When lowered, air is pumped in through a pipe attached to the helmet. With this apparatus, miners can now remain below two hours and sometimes more; but, it took the people formerly years to dig a pit well only 150 feet deep.

The machinery used in lowering the miner, as also in drawing up the loosened earth and fragments of rock and, afterwards, the oil, is an axle crossing the centre of the well. This axle is supported by two rude forked stanchions, with a revolving barrel on its centre, like the nave of a wheel, in which is a score for the draw-rope. A pit well of this kind, when in full working order, supplies on an average 50 viss, nearly 23 gallons, of crude petroleum a day. (2)

Messrs: Finlay, Fleming & Co., also styled the Burma Oil Company, who started boring in 1887, have now secured the majority of the leases. The system adopted is the American or cable system, and their out-put at Yenangyat averages 4½ million gallons of crude oil annually.

1. His detailed report will be found in Volume VI of the Asiatic Researches, 1799.
2. A gallon of crude petroleum weighs 2 22 viss or 8 18 lbs.
A modern machinery well.

Views of the petroleum refinery, Yenangyat.
BURMESE PROVERBS

The fact that the Burmese are fond of moralizing gives a tinge of morality to their proverbs. To draw a moral from anything they have heard is quite natural to them. They find a rich mine of legend and myth, folk-lore and superstition, religion and ethics in the Jātakas or Buddhist Birth Stories. It is all one to them whether these stories were given to them from India or whether they were the products of their own minds. They never seem so much as to trouble themselves about such a trivial thing as that. They are satisfied that the stories are about the Buddha and are, on that account, worthy of their closest study and deepest reverence. They thus come to look upon them as their own by right of their religion. And thus it is that the whole nation is soaked and leavened through and through with these superb tales. The morals they yield serve as sermons and lectures by the clergy; they are quoted when the father gives the son a schooling and when the mother coaxes the daughter; they give relief to the afflicted and consolation to the dying; and they form a medium for the courtship of lovers. The greatest names in Burmese poetry vied with one another in basing their master-pieces on them. In short, they discover the genius, wit and spirit of the nation. And they are nothing if they are not proverbs.

It must not, however, be supposed that the Jātakas are the only source of Burmese proverbs. There are other sources such as the commentary on the Dhammapada, historical accounts and various other incidents in superstition and legend. Still such proverbs as are of this nature do not exhaust the fine collection of Burmese proverbs. Just as in literature we may note the genius of the people branching in two different lines, one where it reflects acquired knowledge in its own light—like the Pyo, where we generally have a Jātaka in Burmese poetical garb—and the other where it is creative—like the various songs which are original productions—so besides these proverbs, which are tales distilled into morals, there are others, which are the outcome of the nation's wit, poetry and genius. These are of various kinds; some reveal a true insight into human nature and others recall certain superstitious ideas; some savour of religion and others are humourously sarcastic.

A characteristic feature of Burmese proverbs is that most of them, especially those that have a morality of their own, have stories to illustrate their meaning. These stories possess great merits, being as entertaining in themselves as illustrative of the proverbs to which they give birth. Even those proverbs of which the meaning is obvious and which do not require tales to illustrate them have definite explanatory notes. A selection is given below. They have been adapted or freely translated from the various collections made of them in Burmese.

1. စောင်း မြင် စိုး ပေး တယ်
   Talk too many words, and you become a slave.

   Once an old cultivator carrying some vegetables rolled up in his loin cloth stopped at a toddy-shop and was drinking some toddy. A number of young men of evil repute, on seeing him entered the shop with the intention of swindling him. When they had made themselves drunk they hit upon a curious plan and made a vow that each of them was desired to relate something which he saw with his own eyes and whoever denied the truth of his statement or disbelieved what he related must become their slave for life. They also got the old man to join them and bound him with a sacred oath. One of them began:
   "Sirs, when I was still in my mother's womb, my mother had an intense desire for a thi fruit. There being nobody to get the fruit for her, I myself went to the tree and being unable to climb it took hold of my two legs and threw them up the tree just as I might throw a stick. When I got there I went from branch to branch plucking many fruits and not being able to come down went home and
brought a ladder by which I descended and went home and gave the fruits to my mother. The fruits were of the size of a big earthen jar and my mother ate sixty of them at one sitting. They were also distributed among young and old alike and still so many were left that they filled the house up to the roof besides forming a pile at the gate. This pile measured 160 cubits in height. Whoever does not believe it, let him say so.” The old man said nothing.

A second began:—“Sirs, own house is so very high that when my mother gave birth to a child, he happened to fall slipping through an opening in the floor and he fell and fell until he became 120 years of age, a decrepit old man with grey hair and broken tooth. And he found himself in the middle storey only. Whoever disbelieves it, let him speak out.” The old man kept silent.

A third began:—“The ring I used to wear when I was young was bought from the Akanîțha Brahmans. By virtue of its powers I could fly in the sky and dive through the earth; I could get a celestial nymph in a moment if I wanted one and become without a moment’s delay a Universal monarch, should I be so inclined. The man who wears it becomes a nat; were he to look upwards he could see the various heavenly mansions; downwards all the places of suffering. To make it secure from theft I kept it in Nirvâna. Whoever is in doubt about it, let him say so.” The old man again kept his silence.

A fourth began:—“Sirs, when I was a child, I had a very sharp knife. Once I cut with it the whole forest of the Himalayas in a second and when I threw it into the ocean it cut into pieces all the living creatures in the water and brought them to my house. I distributed them to all the inhabitants of the Four Continents and still had a huge remainder. I gave the knife to the King of Avîci Hell who asked for it and I have been missing it up to the present. Does any body doubt it?” The old man replied:—“Well sirs, considering the extent of your country, I suppose we should believe all you have said. But pray listen to me: Once upon a time I was a cultivator. In my plantation there was a big cotton tree, 120 cubits in height. It was beautiful with leaves and branches. It had five main branches. Four of them did not bear fruit but the fifth pointing eastward bore a fruit of the size of a big earthen jar. The fruit had six compartments lengthwise, which developed into six opened bolls. One day I shaved and bathed and dressed and went to look at the plantation. I saw the bolls and stretched out my hand to pluck them. As soon as I touched them, they changed into four slaves of fine physique and willing submissiveness. After a time they deserted me. All my enquiries were in vain. But I see them now in front of me. You four are my slaves. You are named Nanda, you Sumana, you Vaṭṭamana and you Maṅgala.” So saying he caught them by their top-knot. They wanted to deny that they were his slaves. But they thought of their oath. And they dared not disbelieve what he said, because of their oath. So they kept silent. Thereupon the old man took them to the court where it was decided that they should become his slaves for life.

2. _WIDGET_movie.xml

Every time a young thamin is born, the tiger eats it up.

Once a cultivator reared a female thamin in a forest. One day she gave birth to a young one. A tiger ate it up. The cultivator came and looked and knew its sad fate and went home. A second time the thamin gave birth to a young one. The tiger ate up that too. The cultivator came and looked and knew its sad fate and went away, muttering to himself, “Every time a young thamin is born the tiger eats it up.”

3. _WIDGET_movie.xml

The dain daung must destroy the enthusiasm of writing.

Once there lived in Pagan an eccentric man. He was called Truthful because whatever he said became true. It was his habit to walk along the street muttering to himself “Under this tree is buried silver, under that buried gold; near such and such a hillock is silver, near such a shrine are gold, silver, emerald and other precious stones.” People would follow him with the intention of writing
down on paper the names of the places he referred to. And whenever Truthful caught them writing he would run away shouting dain daung, dain daung.

4. စပေါ်မှု့ခက်စစ်

To roast a leg of pork from the opposite bank of the river.

Once upon a time a boat-owner was stopping at a ferry and said to his boatman, "Look here, man, this is winter being the month of Pyatho. If you can stay in the water the whole night without any clothes on, I will give you all that is mine in this boat whether with life or without life." "Alright sir; and if I fail to do so, I will be your slave for life." The agreement was duly made. Accordingly the boat-man took off all his clothes and jumped into the water and stayed there all night. And in the morning he demanded his prize. The boat-owner unwilling to abide by the agreement said that it would be unfair seeing that the boat-man sustained himself with the warmth from a fire burning on the further bank of the river. A quarrel ensued and they went to Court. The Judge said to the boat-owner "Get a leg of pork and roast it here by means of the fire which is burning on the further bank and when the day has passed let me know the result." So the boat-owner bought a leg of pork and roasted it the whole day and when the day declined the Judge said, "Well, have you succeeded in roasting the leg of pork?" He answered "No, my Lord, the fire is too far away to send its warmth here." The Judge gave his judgment, "In the same way the fire did not send its warmth to the boat-man. You have lost your case and all your belongings in the boat are his."

MAUNG TIN.
NOTES AND REVIEWS

PHILOLOGICAL NOTES

I. A note on Talaiing Nissayas and Vocabulary

The study of Talaiing or the Mon language on a sound scientific and practical basis is, without doubt still in its infancy. By a practical study, Mr. Duroiselle means not only a very good knowledge of the colloquial, but also the ability to read the literary language fluently, and he considers this latter accomplishment to be the more important. The fallacy of this is very evident, for in the vocabulary given by him, he has shown over and over again that he is weak in his knowledge of the colloquial, and that it has been through this that he has failed to detect so many errors. Take the very first word in his vocabulary and here under ဗိဗိ (acen tamla), which has been wrongly pronounced (acen tamla) the word ကြာ etc is given as an example; a deeper knowledge of the subject would have shown that ကြာ (la we-erng) was a mistake in copying and should have been ကြာ (la me-erng).

Take again the second word in the vocabulary ဗိဗိ the latter half ဗိ has been wrongly read as 'asim' instead of 'asoi,' this error being due to the Burmese vowel sign being used by the copyist through carelessness, instead of the same Talaiing vowel sign.

It would be needless to take any more examples as the vocabulary abounds in errors, but it only shows that a thorough knowledge of the colloquial is just as important as being able to read fluently, and correctly.

Mr. Duroiselle then goes on to say 'what makes these works so difficult to read, is the large amount of new words one meets with.' Is it to be wondered at that no one understands these words when they have been wrongly copied. We are also told that of these words not a few are unknown to the majority of lay Talaiings. What experience has Mr. Duroiselle had for making such a statement? What facilities or opportunities have these Mon priests been given for anyone to ascertain the extent of their knowledge? For the Burmans we have the Patamabyan and other examinations but there are no similar tests for the Mon or Talaiing priests. There are many Mon priests who cannot speak a word of Burmese and there are others who have a slight knowledge of Burmese but dare not enter any of these Government Examinations. To such a Mon Patamabyan (or as some would prefer to call it a Talaiing Patamabyan) would appeal if we are to enlist their sympathies and get them to help us with manuscripts or in explaining many of the difficulties of their mother tongue. As regards examiners and candidates for such an examination there would not be much difficulty because when U Nah Auk, the builder of most of those splendid kyoungs, at Kawhnat (near Moulmein) was alive, he used to encourage the Mon priests to hold examinations in the Pali Scriptures and offer them suitable rewards. If somewhat similar examinations are held again there will not be much difficulty in selecting the best men to assist us.

The examination held for Government Officers in Talaiing should be altered into a Lower standard and Higher Standard if Government officers are to take more interest in the language. At present the standard required is such that there are not many who would care to go through all the drudgery of studying this language.

But I have wandered from the main issue. As I have already shown above many of the so called new words are nothing more than wrongly copied words
and as Mr. Duroiselle admits that the text used by him for compiling his vocabulary is corrupt it is clear that the time has not yet arrived for the issue of a dictionary cut of such corrupt manuscripts. What is most important is that the manuscripts in the Bernard Free Library should be compared with other copies of the same and any differences recorded. Words wrongly copied should be corrected and the various shades of meaning noted. Learned Mon priests should be consulted and then these Talaing manuscripts should be printed. From these there will then be no difficulty in fixing the meanings of words. To issue a dictionary out the imperfect material at hand will only be a case of going further and faring worse for the dictionary will not be of much use to any one. If a dictionary is so urgently needed Haswell's dictionary if it were revised and corrected would answer the requirements of many who were interested in the study of Talaing. What we want now are correct printed manuscripts or texts as a basis to work on and then the dictionary can follow in due course.

This should be pronounced aen tomla. The expression ཡོད་ཤིག་ is wrong and should be corrected to ཡོད་ཤིག་

This too has been wrongly pronounced, it should be aloy a soi. The word ཡོད་ is a mistake in writing and should be ཡོད་ One frequently comes across the Burmese superscript ိ, i, being used for the Talaing equivalent ိ, by persons acquainted with Burmese. To a Talaing scholar these little discrepancies present no difficulty because he knows what the word should be, ཡོད་ has nothing to do with ཡོད་

The words ཡོད་ are also very often used in the sense of Government, B. ཡོད། ཡོད།—correctly written this should be ཡོད་ེ། ཡེ། ཡེ། ཡོད་ེ། ཡེ། and ཡོད་ = B. ཡོད། ཡེ། ཡེ། ཡེ།

Throughout. The expression ཡོད་ = 'throughout the five Lents' = B. ཡོད་ ཡེ། ཡེ། During five lents would be ཡོད། ཡེ། The B. ཡོད། ཡེ། is therefore wrong.

(otta bheer), is often used in the sense of a past existence. It is sometimes used as a blessing—Bhawe bhawe, ཡོད་ ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། or 'may you through every existence.'

Is not made up of two words ཡོད་ and ཡོད་. In Mon grammars it is shown as one word and is the same as ཡོད། = B. ཡོད་ ཡེ། ཡེ། ཡེ། ཡེ། however, while ཡོད་ at the end of ཡོད་ ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། has the force of, if, B. ཡོད། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། that is, if however he sat down = B. ཡོད། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། ཡེ། 

The word ཡོད་ has nothing to do with ཡོད། or ཡོད། = time. The passage "in the exact measure of my intellect . . . . . . shall I" etc., may be altered to 'if however my intellect . . . . . . . . I shall' etc.

(ah feter) is the proper pronunciation. The expression ཡོད་ is probably a mistake for ཡོད།

This is a mistake for ཡོད་ ཡོད། or ཡོད། ཡོད། ཡོད། ཡོད། ཡོད། — (Kat gán kit) and not (kat gún ke). Here ཡོད། = to learn, study and ཡོད། ཡོད། = to take. It is equivalent to the B. ཡོད། ཡོད། ཡོད།

—to rise up or get up and descend. The Pali and Talaing do not agree. I have not seen the word being used in the sense of to be born nor has any example been given to ascertain what word was intended.
NOTES AND REVIEWS

Should be pronounced Katōv deer doh.

Is pronounced ka nōp siōm.

(Ka sōp) is to consider. It also implies that the thought has not as yet been expressed in words. P. န်ခရာ. The word ဓမာ is to consult, talk over, discuss. P. ဓမာ This shows that in the original translation the translator was not careful to give the correct Talaing equivalent, cf. the expressions ။ also ၄ိုးဘူးနေ and ဗုဒ္ဓမာစားနေစားနေ.

The word ဓမာ here is not the Pali ဓမာ but means a case, an instance, service. Here ဓမာ = a case of death. Cf. ဓမားဘူး ဓမားဘူး ဓမားမိုး = B. ထုတ်မိုး ထုတ်မိုး = lit 'with these cases of death being troublesome I cannot work or eat.'

Is a mistake for ၌ြွန်း or ၌ြွန်း. The word ဓမာ is to be listless.

(Kala smaw tāuer) should be ၌ြွန်း. (Krop) near, near at hand while ဓမာ = to be near.

Near is right. It is also used with reference to a person about to die or near death.

The correct form is ဓမာ or ဓမာ or ဓမာ. The use of the form ဓမာ is nothing more than carelessness on the part of the palm leaf writer to shift his style and write ဓမာ in full.

= pronounced Kali-erńg thurng.

—to wait upon, to look after. ဓမာ = to work, to do and ဓမာ = to pick up, take with the hand, hence an attendant. ဓမာ may be taken to be the same as B. ဓမာ.

—is not to tear out but is used in the same sense as Burmese ဓမာ = to roll over and over. It is often applied to describe the process of separating paddy husks from rice when pounded paddy is put into a fanning machine (B. ဓမာ). Hence ဓမာ = to roll over and over and take out, that is, to separate.

—is a mistake for ဓမာ = to consult with.

means purple colour and ဓမာ is a purple flower. The correct word for jasmin is ဓမာ.

This expression as far as I know is never used for medicine, ဓမာ and ဓမာ should not be combined. The word may probably be ဓမာ = a medicinal root.

The expression imasmiṅ Kule = ဓမာ only, the word ဓမာ being afterwards added.

—should be ga နောင်; in conversation it is called ga ဟင်း.

The superscript (−) in ဓမာ is the final စ and not စ. It should be pronounced gajaw and not gajam.

—(ga-reń patėm) = to petition B. ဓမာ The noun form is ဓမာ. The P. အယစ်, to inform would be ဓမာ.
—The P. katheti= only, the words being added by the translator.

—It is only when combined with as in that it has the meaning to learn.

—Means a wish, desire, P. icchati. It is a mistake for . See also above.

—This is not the word for heart but is used more with reference to the liver. According to Mon doctors the human body is divided up into 32 principal parts and the term used by them for heart is while or simply refers to the liver.

—This is the principal lower garment of a man (Burman or Talaing). It is the B. . The correct word to tear away from, separate is or the final letter being wrongly read for .

—See above.

—This correctly written should be but some writers contract the into . The word to be attached to, adjoining, (is frequently used with reference to a beehive being attached to a branch) and or =edge or end. Hence =adjoining or near the edge. Here the word (=P. atavi) has been omitted and Mr. Duroiselle has taken the word to mean a forest. The expression = adjoining the edge of the forest, or, near the edge of the forest.

—Should be pronounced ca non hta bah and not ca nah thabah. The above form is a contraction for .

—I have not seen this word used in the sense =to release' but I have found to be the same as =to be bright. To release is so that has probably been wrongly copied for or , cf Hasw: .

1. —(ca mot) true; cf, . The P. niyama=.

—This is a mistake in copying for .

—(Com nob), an insect, P. pāna. There is something wrong about this.

The word for insect is or . The word is used with reference to a cell or pod of fruit as in the jack or durian. B. .

—The correct word for sprinkle, pour is . The word also means to smell as smelling salts, &c. It has nothing to do with which is quite differently spelt.

What Mr. Duroiselle probably means is the B. that is the custom of dropping water drop by drop at some offering as a sort of witness or proof hereafter that such offering was made.

—This is the medicine for smelling, e. g., smelling salts. The Pali and Talaing do not agree.

—The correct word to anoint, or smear is for the face, and for the body. The word occurs in the expression a very hot sun or day =B. .
NOTES AND REVIEWS

Here ကို has probably been wrongly copied for ကို, the first letter sometimes being carelessly written က.

ကို—I have not seen nor heard this word mean discard, abandon but in Maha Waw (မဟာဝမ်) we have အနဲကို-သားကို-မိန်ကို

စိုက်ကို-စိုက်ကို-စိုက်

i.e., he set aside his priestly robes (in exchange for a new one). The P. apanetvā does not agree with ကို which may be a mistake for စို (to set aside) which is sometimes written as ဝို

ဝို—This I understand is the same as ဝို (ဝို) which is the B. ဝိုဝို. The monkey is said to cry because it cannot climb up this smooth barked tree.

ဝို—Any stick, log, or wood, not necessarily firewood which is ဝိုဝို

ဝို—Another instance of the Burmese vowel ဝ being used for the Talaing ဝ. The word is not chim but ဝ (chi). It is sometimes also written ဝဝို or ဝဝို

ဝဝိုဝို—This is a mistake in writing ဝဝို should be ဝဝို.

ဝဝို—Uncle, I have not yet come across this word. ဝဝို and ဝဝို are generally used for uncle.

ဝဝို or ဝဝို (သရဝ) = mad and ဝဝို or ဝဝို (ထရဝ) = a male person.

ဝဝိုဝို—The word ဝဝို is a form of respect = master, while ဝဝို (pronounced a shon) is a priest who has no earthly desires but simply devotes his whole mind on the Laws of Gautama. B. ဝဝို

ဝဝို—by itself does not mean live but has the force of the B. ဝ. The whole word is ဝဝို or ဝဝို, the letter ဝ or ဝ having been omitted in copying.

ဝဝိုဝို—(သူဝိုဝို ဝ) This is wrong, and is putting the cart before the horse. The sentence should either be ဝဝိုဝို (သူဝိုဝို ဝ) = the sun went down, or it should be ဝဝိုဝို (သူဝိုဝို ဝ) = it is dusk.

ဝဝို—Who ever heard of a man being called trum in Talaing. The superscript — is the final ဝ not ဝ. It should be pronounced trum or trum, but in conversation krouh or krouh.

ဝဝို—to be fulfilled. In the example given the sentence should run thus —manomaya ဝဝိုဝိုဝိုWR not as given by Mr. Duraiselle.

ဝဝို ဝဝို

ဝဝို ဝဝို

that is, on account of his wish being fulfilled.

ဝဝို—In the example ဝဝို &c., this is a mistake and should be ဝဝို. It is to be hoped that in the grammatical notes this error will not be overlooked.

ဝဝို—should be pronounced tvoh and not tvam. The superscript (—) is the final ဝ and not ဝ.
The Pali katheti correctly translated should be စိန်းစိန်း. The original manuscript is wrong in using ပ in the sense of to tell, recount. The word ပ = to preach, as a sermon is the P. deseti.

စိန်းစိန်း—(htangajaw) the superscript (←) being the final ပ and not စ.
စိန်းစိန်း—does not mean 'to follow and come' which would be ဝဝဝဝ.
Here စိန်း = to observe and ငါ = to come, that is, 'to observe to come'.
စိန်းစိန်း = to observe to follow,
စိန်း—This is wrongly pronounced ပ is not slam but slaw. The superscript (←) is not စ but ပ.
စိန်းစိန်း—This error has been repeated for the third time see under ဝဝဝဝ and also ဝဝဝဝ.
စိန်း—lit. "the state which is without profit or benefits," and is similar to ဝဝဝဝ given by Mr. Duroiselle in his notes. The Pali and Talaing given do not agree. P. adhamma = ဝဝဝဝ and not as given by Mr. Duroiselle. The word ပ is pronounced hammer and not hamai.
စိန်း—This is not the word for kingdom. P. rajjam = ဝဝဝဝ (deer doh dura reer)
စိန်း—This does not mean to apply medicine, etc., which is ဝဝဝဝ. For P. isinncati see ဝဝဝဝ. In the example given ဝဝဝဝ should be ဝဝဝဝ:

<table>
<thead>
<tr>
<th>P. te asittam</th>
</tr>
</thead>
<tbody>
<tr>
<td>ဝဝဝဝ ဝဝဝဝ</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>My master did you remember.</td>
</tr>
</tbody>
</table>

စ—is pronounced nu er and not nai.

ဝဝဝဝ—(nu er lveh). In the example given the words ဝဝဝဝ have been wrongly copied for ဝဝဝဝ. In palm leaf manuscripts the word ဝ or ဝဝ is often written ဝဝ to avoid its being misread for ဝဝ. So also, we have ဝ or ဝဝ written as ဝဝ to avoid confusion with ဝဝ.

ဝဝဝဝ—Here the superscript (←) in ဝဝ is the final ဝ and not စ as given by Mr. Duroiselle, Klem should be altered to klé or klay.
ဝဝ—by itself does not mean to listen to, the whole word is ဝဝဝဝ or ဝဝဝဝ and therefore ဝဝ is a mistake for ဝဝဝဝ.

ဝဝဝ—(pa nyong or pa ḏ oxidation) Mr. Duroiselle is wrong here. ဝဝဝ is not the P. pañha. The word ဝ = to do, make, and ဝဝ = a pretence, that is, to make a pretence (of doing something). We sometimes hear the expression ဝဝ ဝဝဝဝ (pa ner, pa pa nyong myu urk) applied to a person who is well dressed and swaggers about. "Oh my father! do not make a pretence of being a myook."

ဝဝဝ—(Chinese) to make a pretence of asking (question). P. pañha = ဝဝ万公里
ဝဝဝ—In the example given ဝဝဝဝ, etc., Mr. Duroiselle says that ဝဝ = P.
Kāla and refers to और as proof in support of his argument. The force of और has already under और been explained. Here however और is a mistake for ओऽ.

व्यक्ति—does not mean to ask leave, but to cause to know, make known. The Pali and Talaing do not agree, P. अपुचति = अपुचति. When व्यक्ति is preceded by व्यक्ति the phrase व्यक्ति = to petition B. व्यक्ति. When a petition is addressed to an officer the form व्यक्ति is used, and to a priest व्यक्ति व्यक्ति.

व्यक्ति—is to raise not to explain. The Pali given is अरोक्ति for use of which see my note on व्यक्ति. Here the word व्यक्ति has probably been misread or wrongly copied for व्यक्ति.

०००—Another instance of carelessness in copying. The correct word is ०००, the letter ० having been omitted.

०००—How can any one cause a Lent? Mr. Duroiselle has completely erred in translating this expression by "to cause to be a Lent," to spend the Lenten season (in, at). I have not heard the expression used in the above sense but I have heard और or और—(पा दोह गुर वोह) = to have boat races at the end of the Lenten season; or else, we may have और = to have a पवेण at the end of the Lenten season. Mr. Duroiselle has tried to force a meaning here by translating और as "to cause to be a Lent" and has then taken the P. वस्तवासम वसाति वसाति to spend a Lenten season and tried to combine the two. To spend a Lenten season should be और. Thus we have

P. Vassāvasam
vasāti

०००

Lenten Season
live, spend

०००—Mr. Duroiselle has read this word wrongly. The word और means to cover up and not to send away, dismiss, &c. What he should have given is और-यूयोज्येति-[note the difference in the final letters].

०००—(पा दु र काला) not padai kila.

०००—This is also an error in reading, and should be और which is the Pali ग्रहणि = to combine. Mr. Duroiselle then introduces "cf Hasw: और to join." Haswell in his vocabulary is absolutely wrong in giving और अस as = to join with paste or glue. (Bur.) और और The (Bur.) और here does not mean to stick with paste but to be adjoining or near, and therefore the meaning should have been "to put or place near."

०००—Here और = to approach (Bur) और और और और. The expression और और = to approach and return and go, that is, to approach (near something) and then return and go.

The B. और given by Mr. Duroiselle is the T. और and not और.

०००—To approach and enter.

०००—To crumble, to decay and crumble, to break down, fall to pieces. और = B. और. We also have the expression और—(term praw) = to be destroyed. The Pali जिरति and the Talaing do not agree.
(plon toin) once more, once again, and not but, now, &c. The Pali is wrong; it should be puna.

This is a mistake for or (plin). The word = to twist to roll as in = to twist a rope; = to twist the eyes, i.e., to hypnotise, mesmerise as a juggler, to practice legerdemain.

This should be = that is to twist and roll over.

The word should be pronounced klé or klay and not klem,

The superscript (—is the final of and not .

Here is a mistake for or = to dress, while = to follow. The word = to dress, B. =, and = to cover up (with a cloth) B. ; hence to dress, to put on clothes.

(ber not tuner)—does not mean “about one day.” The Pali ekadi-vasa shows that the correct expression should be . This shows that has been wrongly copied for .

This is wrong, it should be = to pervade. See the same error under .

The word should be pronounced bruer and not brai.

The superscript (in and is the final of and not of and should not be pronounced tem and vvam but tay and vvu or wu. The is not bvari but buer.

The superscript (in is the final of and not of. It should be pronounced buerer meer lav.

Towards the end of this para is said to be used in the sense of “food.” This should be and not alone.

Is not exactly the P. anurüpena which is invariably translated as =—worthily. The Pali yathārahāṁ is also sometimes used for . I have come across the P. anukappeti used for .

This is not the same as It is to be hoped the grammatical notes will explain this important word correctly. The Burmese equivalent given here—Meditā is not the equivalent usually given by Mon priests.

Is also used with the meaning “to loiter about or wait with the intention of taking or snatching something.”

P. pari—ganhati

T. 


B. 

—Mr. Duroiselle has read this wrongly, it should be . Having gone wrong at the start he chops up = and makes it equivalent to = to tie because also = to tie. To complicate matters the Pali sahagata is made to be equivalent to this long string of words. The P. sahagata, together with = only and = wrongly read as =, means to be.
NOTES AND REVIEWS

The Pali for this is not tathā but should be evam tathā. P. evam=ณ and tathā=เนที.

The Pali and Talaing do not agree. P. pañīta—T. ณ.

This is either a misprint or wrongly copied, as there is no such word in Talaing. It should be ณ.

See remarks above. It should be ณ.

In the example taken from U. O. K. the word ณ is in the wrong place.

The sentence should run ณ ณ ณ.

Mr. Duroiselle has gone wrong again in trying to make out that ณ=fruit. The word ณ is a mistake for ณ to be. The sentence should be ณ (mu phov smom rau).

Both Haswell and Duroiselle give ‘if,’ as the meaning of this word, but I have invariably found it to be equivalent to the Burmese ณ = however.

P. sace cf. ณ ณ ณ where we have ณ ณ ณ. Duroiselle in his Pali vocabulary gives P. sace=if, while Moung Ba and Moung Tha Din in their dictionary give P. ณ = B. ณ = B. Surely ณ cannot mean “if,” for if it did why is it invariably followed by ณ (if)? He also states that at the end of a sentence beginning with ณ ณ ณ ณ is often used, this therefore proves that ณ must be equivalent to B. ณ ณ ณ = however.

Again the P. tena hi is given as being equivalent to ณ ณ ณ. This is wrong for it should be shown as P. tena hi—ณ ณ ณ ณ.

Nowadays however in conversation ณ is sometimes used for “if,” but it is never used in this sense in manuscripts.

This is I think a mistake for ณ ณ ณ.

This word also written ณ means to carry, and not ‘yes’. The word ณ is not the same as ณ ณ ณ, the two being differently spelt. ณ is the Vocative case and is equivalent to Burmese ณ. Colloquially however ณ is sometimes used as “Yes.”

This should be pronounced as yu-er and not yai.

This is wrongly copied. In the example given

P. na—sūñā—mi

ณ ณ ณ ณ

that is, the sentence should be ณ ณ ณ ณ. This shows that the word ณ has been wrongly written for ณ. The Pali na sūñāmi correctly translated should be (ณ) ณ ณ ณ ณ.

The Talaing translation of P. Sampaticchāmi taken from U. O. K. 9, is not grammatically correct. It should be (ณ) ณ ณ ณ ณ. The Burmese equivalent for this word would be ณ ณ ณ.
COF—In the example given P. na pucchati kira is taken by some to be equivalent to P. pucchati na kira which in Talaing would be ဗားကျောင်းထွက်လာခြင်းကို ပိနိုင်သောကြည့်များ။ ထူစွက်သူတို့ကို သို့မဟုတ် ကြည့်များသည်, 'the thing asked did you not hear, or, did you not hear the question asked!' Here COF would be an interrogative affix.

COF—lit. the B. အကျော်လောင်စွား, i.e., to wish well cf. Hasw.

COF—lit. to buy (something) to sleep. The phrase therefore must have been wrongly copied. It should therefore be ကျစွက် if it is to be serious, or grievous.

COF—The Pali evam is စိ ကြိုး only and not the whole phrase, and therefore စိး might be omitted.

COF—The စိ ကြိုး should be deleted if the meaning is nose. The word COF, COF or COF = now. P. ၌ိုင်စီ.

COF—lit. to breathe more freely. The term is used with reference to a sick person who is in a very weak and restless state. The only sign of any improvement is his breathing which becomes more even and he breathes more freely. The present form is COF. The phrase COF I have also heard explained as 'to be more easy in mind after some great anxiety.'

COF—These two words as far as I knew never came together like this. The full stop or ပုံ has been omitted. It should be COF, COF, etc. cf.

COF—This has been wrongly read, the superscript (-) in COF is the final စွက် and not စွက်. Klem should be ကြည့်စွက် and ကြည့်စွက်.

COF—does not mean to lie down. The Pali and Talaing do not agree. When a Burman or Mon is seated with his legs folded under him the act of stretching out his legs and placing them in front of him is called COF or COF. The present form is COF. B. ガိမိးစွက်များ.

COF—Does not agree with the P. Kilamati which would be ကြည့်စွက်ဗြုလုံး to be uneasy in mind, hence the feeling of weariness. The word COF means only 'a sign.'

COF—The reference to S. R. D. 126 where COF is said to be a man of the third class, the expression is not COF by itself but should be ကြည့်စွက် COF. They were afterwards known as COF. The classes referred to a P. seti= COF, gahapati=COF, vanijja=ဗြုလုံးဗြုလုံး.

COF—by itself does not mean speak to, recite. The manuscript from which the example has been taken, has been wrongly copied. The Pali ajjhabhasi= COF only or it might be expanded thus COF. This shows that the word COF to preach, recite, has been omitted. Here COF is clearly.

COF—is not to blame, but to cut off, separate, give up, cease to do. B. စွက် See below.

COF—This is a serious mistake. First the superscript (-) is the final စွက် not စွက်. Secondly COF has no meaning; it has been wrongly copied for COF or COF, thirdly the word COF or as wrongly shown COF should be coupled with စွက် and not be mutilated as above.
In the example given စိန်နေစေစွာ သုံးစွဲသည် the word ကျောင်းသာ—a fault, evil deed and ကျောင်းသာ—to cut off and be lost, i.e., to cease to do.

ကျောင်း—This should be ယောင်း, the final letter being င် and not ကျောင်း= the same as, P. Sama. ယောင်း=small, young, cf. ကြာ ယောင်း which is the same.

ယောင်း—This should be ယောင်း. See notes under ယောင်း.

ယောင်း—According to the Pali a thick jungle is right, but according to Talaing ယောင်း or ယောင်း = to remain and ယောင်း or ယောင်း = the jungle remaining.

9, ၁၂—This is a mistake for ၁၂

W. G. COOPER.

II

TALAING NISSAYAS *

SOME FURTHER CORRECTIONS.

When working at my “Talaing Nissayas,” which appeared in Vol. III, Part II of this Journal, I was labouring under a disadvantage: I had but one copy of the Dhammapada-atthakathā Nissaya, moreover, I was sent only one proof of the few first pages, lack of time preventing the Editor from sending me the rest. † Since then I was given the loan of another copy of this nissaya, which has enabled me to correct the following errors:—

ယောင်း (p. 114), read, ယောင်း etc. င်

ယောင်း (do), read, ယောင်း င်

ယောင်း (p. 117), read, ယောင်း င်

ယောင်း (do), read, ယောင်း င်

ယောင်း (p. 118), read, ယောင်း င်

ယောင်း (do), read, ယောင်း င်

ယောင်း (p. 119), read, ယောင်း cf. U. O. K. 21 ယောင်း င် ယောင်း င်

ယောင်း under (120), dele: this is a hybrid; and read: ယောင်း = P. cakka, a wheel, ယောင်း, a cart, carriage.

ယောင်း (p. 121), read, ယောင်း င်

ယောင်း (p. 122), read, ယောင်း င် = “having kept by,” that is, having discarded; cf. B. ယောင်း င်

ယောင်း (do), read, ယောင်း င်

ယောင်း (p. 123), read, ယောင်း င်

ယောင်း (p. 127), read, ယောင်း င်; another form is ယောင်း င်; the usual colloquial = ယောင်း င်

ယောင်း (p. 128), read, ယောင်း င်

ယောင်း (do), dele ဝ, and read, ယောင်း င်

* In fairness to both Mr. Cooper and Mr. Duraiselle it should be added that Mr. Duraiselle sent in his corrections a little later than Mr. Cooper's criticisms, and that in all probability both these notes were written quite independently of each other. —EDITOR.

† Mr. Duraiselle might have added that the complete printed article was sent to him before publication and that he himself prepared the list of misprints. —EDITOR.
(do), this is probably डॉ; but V. E. P. or p. 77, has also डॉ, which may be a printer's mistake.

ऋ (p. 131), read, ॠ
ऋं (p. 138), read, ॠं here ॠ, not in Haswell's, means, the palms of the hands; cf. B. ॠं
ॠ (p. 139), read, ॠ
ऋ (p. 141), read, ॠ
ऋ (p. 142), read, ॠ
ऋ (do), read, ॠ
ऋ (p. 143), read, ॠ

CHAS. DURROISELLE.

III

THE TRANSLITERATION OF OLD BURMESE INSCRIPTIONS

There is a good old proverb about the cobbler sticking to his last, and if I venture to make some comments on the above mentioned subject, it is, I need hardly say, with the greatest diffidence, as befits my position in relation to the matter. I am not a Burmese scholar and I should not have dared to approach the subject, were it not for one circumstance which must serve as an excuse for my temerity in doing so. It is this, the beginnings of Burmese and Mon epigraphy, so far as known to us at present, go back to one common source. The alphabet is the same. It was a Southern Indian alphabet, used for we do not know how long as the national Mon script, (and also of course for writing Pali), which in the 11th century A.D. was applied to the writing of Burmese.* Obviously, therefore, in attempting to form an estimate of its ancient Burmese values, we are bound to consider the evidence that may be derived from these two sources as well, for it is strictly relevant to the enquiry.

There has been much vague talk in the past about the process by which (as it has been expressed) the Indo-Aryan alphabet was adapted to the special requirements of the non-Aryan languages of Indo-China. Starting from the modern forms of these languages, which until comparatively recent times were the only forms at all well known, it has been too readily assumed that the old Indian scholars who first made use of their alphabet for these new purposes went to work in a most revolutionary way. It was supposed that they gave new and arbitrary values to a great many of the old letters and combinations of letters in order to fit them to the alien phonetic systems which they were endeavouring to express. Personally, I have always been inclined to have my doubts about this theory, which seemed to me quite improbable a priori; and a study of the oldest available Mon inscriptions has convinced me that it was very much exaggerated. There has been some modification, no doubt, but not nearly as much as was formerly imagined. The conventional values exemplified in the modern spelling

* It is to be regretted that Burmese national pride should take offence at the idea of certain elements of Burmese civilization having been received through the Mon script (p. 192 of Vol. III, Part II, of this Journal). But we are here concerned with the asserntion of historical facts, and all such national and racial prepossessions must yield to the weight of evidence. So far as regards the Burmese alphabet, it is abundantly clear, from the very shapes of the letters themselves, that it was derived from a Southern form of the Indian alphabet and therefore could not possibly have reached the Burmese overland.
of such a language as Burmese, e.g., the use of e (originally o, the palatal surd) for s, .omg (r) for ɣ, and o (originally s) for the English th, not to speak of the arbitrary values of the final consonants—these peculiarities are, for the most part, not the result of an originally made artificial adaptation of the Indian alphabet. They are phenomena of a secondary kind, the products of eight centuries of phonetic change and revision of orthography within the language itself.

The same is true of the Mon values. The early Mon inscriptions tend to show that the ancient pandits endeavoured in the main to write the language phonetically, according to the Indian values of the letters. In a great measure they seem to have succeeded in their attempt. It follows, therefore, that in general we shall be on the safe side if we adopt Professor Duroiselle's principle of transliterating the old inscriptions according to the Indian values of the letters of the alphabet and disregarding their modern Burmese and Mon values. In my opinion that is a thoroughly sound principle to start with and its application will open up the possibility of a scientific, historical study of the evolution of these two languages.

But while accepting the principle, I would point out that the results thus obtained will remain more or less provisional in respect of some matters of detail until the language thus transliterated has been carefully studied as a whole in its various successive phases and also systematically compared with the cognate languages. In other words, we need a scheme of transliteration in order to make a beginning of such a line of research, but it is quite possible that we may be called upon to modify it to some extent as we proceed. The results of comparative study will probably impose that necessity upon us. For though, as I am convinced, the early pandits tried to write the Indo-Chinese languages phonetically, that is not to say that they were always perfectly successful. Moreover there is reason to believe that they did intentionally admit a certain number of conventions, of a comparatively moderate and not very startling kind.

I may perhaps be allowed to give parallel instances from a language of another family. Some time or other in the early Middle Ages, Indian scholars began to write Old Javanese in a form of the Indian alphabet closely allied to the old Mon-Burmese form. Now the comparative study of Javanese in its successive phases and of a considerable number of the allied languages of the Indonesian section of the great Malayo-Polynesian family has been diligently pursued during the last half century, mainly by Dutch scholars who have thrown a flood of light on the evolution of the languages of that family, so that their phonetic system may now be regarded as thoroughly well ascertained. It is therefore possible to speak with some confidence about the phonetic values of the Indian symbols used in the old Javanese inscriptions: We can, as it were, get behind the written word to the real sounds intended to be expressed. Modern Javanese has no ɣ and the sound is very unusual in the cognate languages, so the Dutch scholars who transliterated the old inscriptions concluded that when the pandits wrote ɣ they meant to indicate the sound of w. Accordingly in their transliteration the Dutch scholars have rendered the Indian symbol in question by w, and there can be no doubt whatever that they were right in so doing. Similarly the old inscriptions habitually express a final n (English final ng) by the anusvāra symbol (generally transcribed m). As this was also obviously a mere convention, it has been neglected in transcription in favour of a more precise symbol.

In the case of Burmese it is quite likely that the progressive study of the language will necessitate several such modifications in transliteration. I venture to think that even now it would be well to write w instead of ɣ. The former is much the commoner sound in the languages of Indo-China in general, and until the contrary is proved it seems reasonable to assume that it was the sound in Burmese eight hundred years ago, no less than it is now. Further, the Indian symbol itself, even in Sanskrit, is sounded as w in certain positions, and there is really no adequate reason why it should not be so transcribed in Old Burmese.
I may add that in the earliest Mon inscriptions this symbol is commonly used to form the diphthongs āw and ow, which the later phases of the language have rewritten as. There can be no ground for supposing that the final here was a ν. It must have been the ordinary, half-consonantal u which forms the second part of such diphthongs when the main stress is on the first part. It is quite in accordance with this view that Mon similarly formed diphthongs with y, which in later times, to the great annoyance and confusion of transliterators, was supplanted by the more quickly written ū symbol. Curiously enough, neither this latter nor the au symbol appears to have been in use in the earliest Mon inscriptions, though both are of Indian origin undoubtedly. Perhaps the reason is that the sounds they represent do not occur in Pāli. They are common enough in Sanskrit and some other Indian languages.

It seems to me undesirable to render e by ĝ and a by ch; ĝ is used by many French scholars to transliterate the Indian sibilant for which we usually write s, and confusion would result from its use for the first and second letters of the palatal varga. Why not stick to c and ch, as in Sanskrit, for the present? Apart from these cases, I find myself in complete agreement with Professor Duroiselle so far as the rendering of the individual consonants is concerned. As for the un-Indian combinations of consonants, such as ĝ in Burmese, I am sure he is on the right line in rendering them literally (in this case by r̥). What the precise sound at that remote period may have been, future investigation may perhaps establish, but it seems open to some doubt at present, and anyhow a spelling like sh is just as conventional as r̥; it is merely the substitution of an English convention for the old pandits' device.*

In the matter of the vowels I think there is no real difficulty except the case of ?. This appears to have been an artificial makeshift devised to represent one or more of the neutral or indeterminate vowels (something like the English vowel found in such words as "bird", "cur", and the like, where of course there is no real r at all in Southern Standard English pronunciation). It is a question whether one should simply follow the pandits' convention and write ʊi, while realising that this is a pure convention and not the representation of an original diphthong, or whether it would be better to neglect it altogether and write some new convention of our own, e.g., ë, ù, ø, or the like.† This is obviously more or less a matter of taste, and fancy. But I would observe that at present we do not know precisely how this ? was intended to be pronounced. It might perhaps be safer to write it, provisionally, ʊi as the old pandits did.

It is a curious fact that this ʊi is very rare in the oldest Mon inscriptions. Yet there is reason to believe that the sound which it was afterwards used to express already existed then in Mon, for in the early inscriptions the words in which the symbol subsequently occurs are written inconsistently in all manner of ways, the vowel in one and the same word being often expressed variously, e.g., by ë, u, e (the inherent) a, and even such a conventional combination as æ. It seems pretty evident that in these cases the pandits' endeavours to write phonetically were not crowned with complete success. But why does ʊi appear in the Burmese inscription at the Myazedi pagoda and not (except very rarely) in the Mon ones of the same period, where it would seem to have been so badly wanted? That is a question I am unable to answer at present.

There can be no doubt at all, in my opinion, that ĝ... represents o and e...œ stands for au: their order in the alphabet is enough to prove that, and they should, at any rate for the present, be transliterated accordingly. For the pur-

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* May I say incidentally, though it does not directly concern the matter in hand, that I find myself unable to subscribe to Professor Duroiselle's argument about the pronunciation of "Sciam". Sangermano's rendering of the well-known and much discussed ethnic name? How else can you render the sound sha in Italian spelling than by scia?† I do not much like Professor Duroiselle's ø, it suggests either a close, or an accentuated o. I do not think that the sound can have been at all like that in the Men of 1100 A.D.; and I see no reason to suppose that in the contemporary Burmese the symbol had a different value from the Mon.
pose in hand these are not, as Professor Duroiselle styles them, "vowel-combinations", they are old-established symbols of the Indian alphabet, having definite values as such. With their previous history in India we are not here concerned, and it seems safest to accept them with their Sanskrit values, leaving the future to decide such niceties as whether in Old Burmese the o was an open sound (as in Eng. "more") or a close one (as in Eng. "hope"), and the like. Similarly I think that for the present oy—might well be written simply e, and ' (if it occurs in the old inscriptions) ai, according to their respective Indian values. It will always be possible to modify such details later on, when the evolution of the Burmese phonetic system has been more closely studied. I should not suppress the inherent a in such a word as  Corrections. I should write  

The study of the Burmese language on the historical and reconstructive system outlined by Professor Duroiselle in his valuable article will not merely be a great advance in Burmese research alone, it will also be a step towards the comparative investigation of the whole Tibeto-Burman family of languages. At present comparatively little has been done in that line of research. In 1896 Mr. Bernard Houghton contributed to the Journal of the Royal Asiatic Society a paper entitled "Outlines of Tibeto-Burman Linguistic Palaeontology", which is of great interest and value but lacks a systematic exposition of its phonetic basis such as modern linguistic methods rightly demand. When the phonetic laws governing the relations of the various languages of the Tibeto-Burman family have been thoroughly investigated and established, scholars will be in a position to work back towards the prehistoric forms of the words that are common to the several branches of that great family. When that has been accomplished, it will perhaps become possible to define the precise nature of the relationship which exists between it and such other linguistic groups as Chinese, Tai and Karen. At present all this is very nebulous, and the comparison of individual words in these several languages is still premature and more likely to lead to the discovery of mares' nests than to any safe or positive conclusions.

C. O. BLAGDEN.

A COMMON BURMESE CIPHER

Ciphers in Burmese are ordinarily spoken as မြန်မာစာစီစိုက်ပျိုး. What မြန်မာစာစီစိုက်ပျိုး may be I do not know but the following မြန်မာစာစီစိုက်ပျိုး may perhaps be of interest to the members of the Burma Research Society.

A မြန်မာစာစီစိုက်ပျိုး is a cipher for substantive letters only: to form words, therefore it will generally be necessary to employ it in conjunction with a cipher for the vowel or consonantal symbols. Such a cipher is what is commonly called the မြန်မာစာစီစိုက်ပျိုး ကျော်နား, sometimes employed by itself or sometimes in conjunction with the မြန်မာစာစီစိုက်ပျိုး.

Here are two formulas for the မြန်မာစာစီစိုက်ပျိုး, of which the first is incomplete

\[
\begin{align*}
6 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
4 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
7 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
6 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
3 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
5 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
2 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
1 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
0 & \rightarrow မြန်မာစာစီစိုက်ပျိုး,
\end{align*}
\]

\[
\begin{align*}
\text{ Corrections. I should write  
\end{align*}
\]
This is not explanatory to anyone who does not already know the cipher; moreover it makes no provision for several of the symbols. The following is complete or self explanatory.
I will now give two formulas for the မြင်ခွန်းမှု: The first has the more claim to metre: the second is the clearer.

The first is:—
The second formula is:

\[
\text{\textbf{Formula:}}
\]

\[
\text{\textbf{Note:}}
\]

\[
\text{\textbf{Calculation:}}
\]
The greater part of this is the same as the first. Slight alterations have been made to work the letters omitted by the first into the metre. I have written it for clearness with a line to each figure or combination of figures.

The key is:

\[
\begin{align*}
\odot & = 0 \\
\od & = 1 \\
\odddot & = 2 \\
\dddot & = 3 \\
\cdot & = 4 \\
\delta & = 5 \\
\vartheta & = 6 \\
\gamma & = 7 \\
\varpi & = 8 \\
\varepsilon & = 9 \\
\zeta & = 0 \\
\eta & = 1 \\
\theta & = 2 \\
\iota & = 3 \\
\kappa & = 4 \\
\lambda & = 5 \\
\mu & = 6 \\
\nu & = 7 \\
\xi & = 8 \\
\omicron & = 9 \\
\pi & = 0 \\
\rho & = 1 \\
\sigma & = 2 \\
\tau & = 3 \\
\upsilon & = 4 \\
\phi & = 5 \\
\chi & = 6 \\
\psi & = 7 \\
\omega & = 8 \\
\varphi & = 9
\end{align*}
\]
The gives an alternative to that of the $\odot \odot \odot \odot \odot \odot$. It is hardly necessary to explain that:

$\odot \odot \odot \odot \odot = 1$
$\odot \odot = 2$
$\odot \odot = 3$
$\odot \odot = 4$
$\odot \odot = 5$
$\odot \odot \odot \odot = 6$
$\odot \odot = 7$
$\odot \odot \odot = 8$
$\odot \odot \odot = 9$

The quintessence of the $\odot \odot$ may be considered an excuse for giving them in full.

The materials for this paper were communicated to me by a Rahan now living in the Yamethin District.

C. H. DAVIES, I.C.S.

ALPHABETUM BARMANORUM

CARPANI-MELCHIOR.

Alphabetum Barmanorum seu Romanum Regni Ave finitarumquae regionum, Romae MDCCCLXXVI. Typis Sacrorum Congreg, de Propaganda Fide. Proceditionem adprobatione. (19cm. X13cm.)

Writs Bishop Bigandet (Outline of History of the Catholic Burmese Mission) pp. 19, 21:

"Father Melchior Carpani came to Burma in 1767. Whilst at Rangoon, Bishop Percoto came to the resolution of sending Father Carpani to Rome for the purpose of giving to the sacred congregation an accurate statement of the Mission, and also to obtain its approbation of the various Burmese works he had composed, and if possible, to have them printed at the Propaganda Press. After a stay of seven years in Rangoon, Father Carpani took his departure in the year 1774."

Now as to the Burmese alphabet. In the Preface written by Johannes Christophorus Amadulius, p. VII, we read:

"On his return, last year, from the Pegu Mission, Melchior Carpani, of the
diocese of Lodi and a member of the clerics regular of St. Paul, who are called Barnabites, to whom has been entrusted the propagation of our Faith in the most extensive kingdom of Ava and the holy ministry in thirteen churches scattered throughout that same country, has happily brought unto us the signs and letters well designed of the said Burmese language. As he lived mostly in the city called Rangoon, a seaport of the kingdom of Pegu, and dwelt for sometime at Ava near the king himself, it was easy for him to become proficient in the languages of the country and obtain the exact forms of its alphabet. Thanks to this, the carving, cutting and casting of this Alphabet was duly proceeded with by our own experts in the art of casting, and thus we were able to commit to the press the very first specimen letters of that language as also a summary of our Christian doctrine." Pp. XV-XVI: "We rejoice . . . . . . to be the first to make known to the literary world and to dedicate for the advancement of the Catholic Religion this foreign alphabet, of which no trace is found on the brass tablet of twenty-seven Alphabets, as revised, augmented and published in the year MDCCCLIX (1759) by Dr. Charles Morton. Neither is it to be found in that large collection of Alphabets with two hundred different versions of the Lord's Prayer expressed in as many exotic types and idioms, as published at Leipzig in the year MDCCCLVIII, (1758) by Joh. Fred. Fritz and Benjamin Schultz. No trace of it either in that other collection of the Lord's Prayers edited by the well-known Chamberlayne; nor finally in the great Encyclopedic Lexicon, where are found many of the alphabets of the exotic languages." The Alphabetum Barmanorum was published a second time at Rome, 1787. "Edito altera emendatio," writes Paulinus a S. Barth., Musei Borgiani Velitris, Romae, 1793, p. I.

E. LUCE.

ETYMOLOGICAL NOTES

III

etc.
IV

THE DERIVATION OF RĀMAṆĀ

With reference to Mr. Blagden's remarks on pages 59 and 60 of the last number of the Journal, it may perhaps be useful to remember the three divisions (षक्षा) of the Mons.—the Mon-ši, Mon-tsa and Mon-ñā. The last could be written either भं or षं, and the country of this section of the people, Hanthawaddy, would probably be called भं, pronounced and written in Burmese and Burmanised Pāli भं—RāmaṆā. Might not भं have been a contraction of भ— the भ meaning 'country,' and not being a meaningless prefix?

M. O.

"BUDDHIST CHINA"

BY

REGINALD FLEMING JOHNSTON, (JOHN MURRAY). LONDON.

At a recent celebration of the completion of his 71st year Professor T. W. Rhys Davids is alleged to have declared to a representative of the "Morning Post" that "in countries where the people profess Buddhism there is comparatively little crime; crimes of jealousy there may be but such a thing as high way robbery is unknown." If this announcement from the highest living exponent of Pāli Buddhism needs correction by a reference to the criminal annals of Ceylon, Siam and Burma it only shows the tendency to reaction which set in long since. It is a reaction in favour of every thing Eastern. It is typified in the present excessive lionizing of Professor Rabindranath Tagore in certain quarters. The excess makes for positive obscurity. Whether the indiscriminate abuse from the early Christian missionary of all pagan forms of worship and conduct of life was more harmful than the present-day fashion of universal eulogium of things Oriental will in the end prove a greater obstacle to the understanding of
the East by the West, cannot be prophesied; but for students of impartial investigation into the history of religions the one method of extremes is as injurious as the other. In the present book a good deal is collected which is to the discredit of the early missionaries and there are some passages which unfortunately are not antiquated. The book will give a very fair idea of Buddhism as it flourishes to-day in China but in Burma it will suffer by comparison which it must evoke with the creations of Shwe Yoe. The professed student must be prepared for some disappointment. It is a pity that the author who seems to be perfectly familiar with the Chinese Buddhist literature has not taken this opportunity to give us a more comprehensive survey of that monumental compilation, the Chinese "Tripitaka," recently brought out at Shanghai through the instrumentality of Mr. and Mrs. Hardoon. Chinese Buddhism is pre-eminently what used to be called Northern Buddhism. Mr. Johnston nowhere gives any indication that he is acquainted with the splendid St. Petersburg series of works in Sanskrit and Tibetan and Chinese bearing on the domain of his own studies. At the outset it must strike many readers as a curious book on Chinese Buddhism which from cover to cover does not once mention the greatest exponent of it, viz., Professor Sylvain Levi. The more one studies Mr. Johnston's book the more one regrets that he has lost a good opportunity of acquainting us with that vast compilation of Chinese Buddhist literature which has its counterpart in what are still fondly believed to be the Pali originals. He gives an indication here and there how wide is the divergence of opinion still entertained of certain articles of the Buddhist faith supposed to have been established beyond all criticism. Dr. Schrader, for instance, is rightly quoted as observing that "we are not entitled to say that the Buddha denied the soul but only that for him duration in time was duration of a flux and not immutability in any sense, nor the stability of a substance. It was the Buddha and no one else who made the doctrine of anatta a moral principle and that not by denying the Absolute One but presupposing it as the true self, the only reality." Here also there is a disposition to represent as close parallels isolated notions of the widely divergent systems of Eastern and Western philosophy. The systems, as has been pointed out, must be taken as a whole. The fragments taken from the one and put alongside fragments taken from the other give a deceptive appearance of similarity and mislead the superficial reader into the belief of a common origin of both the contradictory methods of thought. We may not, however, belittle occasional identity of philosophical dicta on both sides. The modern William James, for instance, says exactly the same as the Buddha regarding the ultimate effects of all our mental operations. It would be easy for any student of the Pali Suttos to adduce analogues to a most striking Buddhistic thought of William James; "We are spinning our fates; for every smallest stroke of vice and virtue leaves its never-so-little scar........Nothing we ever do is in strict literalness wiped out." The uncertainty of the exact original teachings of the Buddha and of the nebulous nature of traditional textual interpretation is represented by the "Dhammapada," the book par excellence of Buddhistic teachings. "Even for great benefit to another let no man imperil his own benefits, when he has realised what is for his own good let him pursue it earnestly." If this is the spirit of the dhamma, Mr. Johnston very rightly observes, some of the strictures on it by the later school of Mahayanasists in China, Japan, Tibet and Mongolia would be fully justified. It forges a weapon for alien controversialists to whom Buddhism is an egoless philosophy of egoism.

The chapter on Bodhidharma, the missionary who went from India to China, is of peculiar interest. His teaching was obviously more in conformity with the original doctrine of the Buddha, who was no great encourager of study or learning and in whose precepts we find conflicting evidence of his reliance now on individual rational choice, now on the authority of his isissima verba. "You will not find the Buddha in images or books" is a saying attributed to Bodhi-
dharma. His name the Chinese have transformed into Patitamo, usually abbreviated into Tamo. Tamo's teaching is partly responsible for the decay of learning in Chinese monasteries: his advice was taken too literally. Books were neglected and monkish energy centered in ecstatic meditation.

As opposed to the indulgence of the Buddhists of the Pali school, the Chinese Buddhists are strict vegetarians though they have a peculiarly disagreeable way of testifying their devotion to the sacred scriptures which they even to this day frequently write in their own blood instead of ink—blood drawn generally from the tongue.

The efficacy of various prayers is believed in by the modern Buddhists of China. "The prayers and rows," says Mr. Johnston, "uttered by the pilgrims when they reach the shrine of Tö́sang and the ceremonies performed by them or by the monks on their behalf of various kinds but they chiefly relate to both this and the next world." A person wishing to pray for a lost parent obtains from the monks, for consideration, a sheet of paper on which is printed a prayer to Amita. It is an official document appertaining to the next world. Blank spaces are left in it for the insertion of the believers' names and the required dates. This certificate of recommendation to the next world takes the following form. "We pray that you will have compassion on the soul of—age—who was born on the—date of—the year and whose soul has taken leave of its earthly life and has joined the immortals. Alas, time passes too quickly, we weep when our thoughts turn to the loved one we have lost. We implore you to take him from the place of pain and lead him to happiness. This day the—day of—we have carried out the proper ceremonies on behalf of the dead. We implore that he may be admitted to the joy of peace until such time as he may be taken again into the world of men. In the name of the Buddhas we implore you to save his soul." The trade in celestials' passports is neither a monopoly of Buddhists nor the passport an article for purely Buddhist consumption. The religious leaders of certain sects of Islam in India deal in similar letters of credit to their "brother Gabriel" in heaven on behalf of persons bound for the next world.

Professional Hindu cultivators of by-gone days will again find a fresh proof here that their ancient culture contained more than all that the Westerners have discovered in the present age of degeneracy. The Taoist mystics of the 3rd and 4th centuries B. C. declare that "the purified man draws his breath from the uttermost depth of the sea. His life exceeds that of the ancients." The value of deep and regular breathing is of course taught by many systems of mysticism besides Taoism and Tantric Buddhism. We should have welcomed a detailed account of the conflicts between indigenous religions of China and the exotic Buddhism. It is from its fair opponents that Buddhism can be rightly judged so far as the opposition is not represented by a spirit of religious fanaticism. It seems there is a goodly literature of anti-Buddhist polemics which still lies confined to Chinese books. The utilization of the Brahmanism and Jains against the Buddhists are of exceeding value. There is a brief examination of the derivation of the name of a monastery in the sacred Po Hia monastery, the headquarters of the Dalai Lama, which has its replica also in China. It seems surprising that neither to Mr. Johnston nor to the authority whom he cites has occurred the obvious derivation from the Sanskrit name of its follower with which the Chinese after their fashion of literal translation connect it.

An instance of the abyssal pessimism which permeates a certain section of Buddhist literature is furnished by a long dolorous prayer of the Juana school. Throughout the middle ages intercourse between China and India across the Himalayas, if interrupted, had never ceased. Just as Chinese Buddhists went to the holy land of Magada on pilgrimage to the sacred places of Buddhism, the Hindu missionaries travelled through Tibet to China to propagate the faith. There is the recorded instance of a monk depositing in China relics of the Buddha from Benares in 1626. So thoroughly familiar with Chinese Buddhism and
yet so poorly equipped with Pali studies, Mr. Johnston wants his readers to believe without any reserve or qualification that it should not be forgotten that Buddhist monks are not compelled or expected to take perpetual vows of poverty, chastity, etc. And he contrasts Buddhism with Christianity to the disadvantage of the latter. This popular fallacy like many others connected with Buddhism dies hard. There is indeed a great conflict between the several schools of Buddhism as to whether the vows of celibacy, etc., taken by an initiated monk are only temporary, to be violated at pleasure and resumed at will, or whether they are binding on the candidate for life. We have the classical instance of the erotic and eccentric poet, Bhartrihari, whom legend makes seven times a monk and as often a layman in the lap of kingly luxury. There were, however, it must be emphasized, certain schools of very early origin which demanded the vows to be perpetual to which even the Pali tradition bears unmistakable witness. For we have Buddhaghosha's authority for it. According to his somanta-pesadika, the Andhaka school required the candidate to promise "yava Jivam Buddhaṃ saranam-gacchami", which is to say, the obligation was life long. Buddhaghosha is careful on his own part however to insist that neither canonical prescription nor the scholia enjoin this perpetuity n-eva Paliyam na atthakathasu atthi. It is essential to take it into account that Buddhaghosha was an exponent of one school only and that even to him the traditional literature of that school as distinguished from the canonical texts was often suspicious, e. g., when he observes relating to a certain passage in the Great Commentary that "it appears to conflict with the Pali text" yam cetam Mahattha-Kathayam vuttam tam Paliyā viruddhamiva dissatī (By the way this passage furnishes an additional proof that Pali originally signified not the language of Buddhism but the written text of the scriptures).

The Chinese belonging as they do to the Mahayana school strictly interdict animal food, though it needs scarcely pointing out that early Buddhism was indifferent to this matter. The reproach which sometimes attaches to Chinese monasteries as to being the habitual resort of the vicious and the depraved and as the convenient sanctuary of criminals fleeing from justice is comparable to what is sometimes alleged against the Burmese monasteries. Most probably however the remarks of Mr. Johnston as applied to the Chinese monasteries hold good equally in the case of Burma, "it would be absurd to deny that there are Buddhist monks of all characters and that many have been attracted to the monkhood through their unspiritual motives. Unfortunately there are some evils which from time to time are bound to be unpleasantly conspicuous in connection with any conceivable form of cenobitic life, especially in an age of religious apathy or degeneration quite irrespective of the religious creed with which it happens to be associated. It is sometimes supposed that the life of a monk or hermit is only fit for weak-minded or incompetent idlers; whereas it is just such persons as these to whom this mode of existence is pre-eminent and dangerously unsuited". Mr. Johnston's opinion is based on personal observation and enquiry during frequent residence in many of the principal monasteries in China and he avers that though "the great religious houses of China do not all stand at a uniform level in respect of morals and religious zeal, reputation of such monasteries as those of Chi-hua and Puto which are far from the demoralizing influences of the great towns is in most cases deservedly high". The temptation of the monastic robe to the criminal in hiding is as old at least as the Mahavagga-ānattaro puriso corikam Katva palayitva bhikkhusu pabbajito hoti (I. 43).

Indian monks were not the only ones to visit China. The Burmese also visited Pekin where there is still a library containing the Buddha's images in alabaster brought down from Mandalay. We should like to have had some confirmation of Mr. Johnston's views "that there are Chinese monks of the present day who from religious motives gladly undertake the long and expensive journey to Burma is a fact which has an especial interest when we remember
that the Buddhism of Burma and the Buddhism of China are usually regarded by Western students as hopelessly irreconcilable in respect to both of doctrine and practice". It is to be regretted that more space is not devoted to the description of the publications of the Tripitaka by Chinese emperors in 1403/24 and 1456/49, and in subsequent and preceding periods. An imperial edict bears witness to the spirit of tolerance which has made it possible for Buddhists, Taoists and Confucians to live side by side with each other in China for centuries with rare outbursts of religious impatience which are so many exceptions which prove the rule of Chinese national characteristic of religious forbearance. "From of old time", runs an imperial edict, "the Emperors and rulers of our land have modelled their methods of government upon Confucian principles. Confucianism is not the only doctrine; there is also Buddhism. These two doctrines are like the wings of a bird: each requires co-operation of the other." The spiritual benefactions of the great Emperor Kang-hsi started with an endowment of money in 1689. Seven years later he presented each of the two great monasteries with a portion of the celebrated "Diamond Sutra" written by his own hand.

G. K. N.

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SHWE PYE ZO WUTTU

BY PYA DWAWSETSAPE

Buddhist Mission Press, Rangoon.

This is a book to be spoken of in superlatives. It is superior to most novels hitherto published in coherence and interest but is especially distinguished by a marvellous accuracy of observation and vividness of expression. The characters are alive. Every scene is described as if the author had witnessed it himself. Effects of pathos or comedy or satire are attained without apparent effort simply by the skill of the born story-teller.

The scene is laid in Mandalay, Amarapura and Rangoon. The main theme is a charming story of boy and girl love. Shwe Pye Zo meets Kin Ta at the Mahamuni pagoda. They get separated in the crowd before he finds out where she lives. He at length discovers her house and visits it on the pretext of returning a string of beads which he says she left on the pagoda platform. This guile on his part alarms little Ta who has never talked with a resourceful bachelor before. Partly from fright she exchanges her string with his. He then makes himself very pleasant to the Ateindaw or guardian and Ma Gun the maid. Kin Ta says little but is talkative enough after he has gone.
The effect of Gun's advice to spin wicks while the moon shines may be imagined. From this time on, Ta Ta sadly neglects her lessons and Gun has to sing love-songs to her and repeat over and over again every word that Maung So ever said.

Kin Kin Ta and her household are suddenly compelled to flee Mandalay. Maung So has a long search for them in which he is aided by his attendant Po Du Wan and a sensible and jolly upazin, U Thawbita.

Meantime Maung So's mother has gone to Rangoon. While there she marries her daughter to a new-fledged barrister-at-law. The chapters in which he appears are masterly. We hear of the preparations made for his reception—the velvet-bordered mat for him to sit on, the chocolates which his father thinks he will like. With sure touches, the selfishness of the young man is gradually exposed. The velvet-bordered mat is pointed out to him but he fears the effect on his trousers and sits on the chair that is kept for the priest. He complains of the "heat in Burma." He declines to eat with his fingers. He walks level with his father in the street. When he has a house of his own, his durwan keeps the old man waiting at the door and the son is usually too busy to talk to him. Finally, though apparently doing well at the Bar, he deserts the old man in a monetary difficulty. All this is set down in cold narrative, with no comment or criticism. Yet the effect is a satire which the bitterest invective could not intensify. It is satire, however, without malice and all the time we not only pity the old man but are acutely uncomfortable that the son should be so lost to all decent feeling.

We have no space to trace every step in the development of the story. In the course of her wandering Kin Ta gets beaten by a jealous woman (whose fore-finger, as she abuses, goes forward and back like the driving rod of a railway engine—Maung So is bitten by a snake and nearly dies. In the end everybody discovers everybody else in Amarapura. The mystery of Kin Ta's birth is revealed. Maung So finds buried treasure; and they seem likely to live happy ever after.

There are many passages which deserve quotation for the vigour and picturesqueness of the language. The following must serve as a specimen. Maung Maung So visits Kin Ta while her guardian is from home. Ma Gun goes to the kitchen to make tea and leaves them together. In order that she may observe them through a hole in the wall, she places a tin bucket on the kerosine oil box and climbs on top. Maung So is getting on splendidly. "I have been dying for you ever since I saw you. Just as a thirsty man must be given water and a sick man medicine, only you, Mimi, can help me in my distress. True love begets true love, they say, and if you have an eighth part of the love I have for you, believe me, Mimi, I would not change places with Thagya from heaven." So saying, he stroked Kin Ta's hair.

There was a crash of tin cans in the kitchen "Gun Gun," cries Kin Ta, "what noise is that."
"'Twas a bee stung the kerosine tin," replied Gun at random. Just at this moment the old lady came into the house. Now listen to the language of tin cans;— selves drawn in; 'twas a bee stung the kerosine tin. Gentlemen, the cans cannot tell us.

We do not know quite what happened in the kitchen simply because the cans cannot quite tell us.

It is clear that the author has more than a spark of the divine fire in him. He has obviously known many men and cities. He has read much of the old literature and has always the right word at his command. He has produced a book which his countrymen may well be proud of.

J. A. S.

THE SAYINGS OF THINGAZA SAYADAW

There have been published of late some collections of the sayings of Thingaza Sayadaw. This Sayadaw was famous for the brilliancy of his wit and the depth of his knowledge of the Scriptures. He had a good intellect and never failed in leaving a good impression of it upon his hearers either by his cleverness, his witty sayings, his readiness of resource or his puns. Perhaps the chief attribute of his famous sayings may be said to depend very largely upon his puns. This is also true of all Burmese wits and writers. These vie with each other in producing the most magnificent puns. The Burmese language itself is in many respects, a product of this punning propensity. The various inuendos, the nervous structure of sentences and the many synonyms testify to the truth of the statement. The *tabyet* in the *pwe* is another instance. Indeed, there is such a play upon words in the ordinary course of conversation that the Burman would seem to be looked upon by the foreigner as being devoid of a strict veracity of speech. His eel-wriggling habit in words would make him a greater liar than he actually is. But in justice to him, be it said that this ebullition on the surface is sprung from a deep well of pure motives. The lotus above the surface of the water may be tossed about by the wind but is not its root right at the bottom of the lake?

Owing to his wit and religious knowledge, the company of the Sayadaw was courted by the Faithful and the worldling alike. He was held in great honour by every one, from the poor man up to the king. Perhaps a short account of his life may not be out of place. He was born in 1815 and named Maung Po. The first twelve years of childhood were spent with his mother at a village north of Amarapura. At the age of thirteen he was ordained and named Aggadhanna. After acquiring the preliminary studies of a novice at Amarapura he removed to the kyaung of Thè-in Sayadaw at Ava, from whom he learned the deeper studies of metaphysics and philosophy. At the age of twenty he was given the full ordination of Upasampadā. After three years at this kyaung he visited various other monasteries with the object of acquiring proficiency in the different branches of knowledge. The outcome of his studies may be seen in his publications such as *saddharmagha* and *mādhyamikā* and *viharajāra*. His learning was now established and he was honoured with a kyaung called Thingaza and the title of Aggadhannaṁālaṁkāravidyadhammanāthaṁrājaṁdirājaguru; but he was popularly known as Thingaza. He died at the age of seventy-two near Moumein.
The latest collection of his sayings has been published by the Zeyãpûra Press at Pazundaung under the title နေအောက်ရှန်း၏ ဗုဒ္ဓဝင်စာမျက်နှယ်နှင့် စားနှင့် အောင်မြင် ပြည်၏၉. These sayings certainly reveal an intellect of rare powers. They remind us very much of the answers of Nâgasena to the questions of Milinda in the Pali book Milindapãñha. If the subjects discussed by our Sayadâw are not so profound as those discussed by Nâgasena, it is because his questioner is not so clever as Milinda. The Sayadâw's forte lies in the resources of his intellect, his unfailing powers of repartee, his turn for humour and his inclination for puns. Take an instance like this: When the king, evidently to test the resources of his Sayadâw, asked him how many stars there were in the sky, out came the ready reply that there were two hundred and twenty eight koti, four million five hundred and sixty three thousand, eight hundred and twenty nine-stars. Let the king count them if he disbelieved it!

There are also many admirable anecdotes, proverbs, maxims and epigrams, which must be read in the original to be fully appreciated. The ill bred Karen often comes under the lash of his wit. Here is a lesson on misdirected revenge at the Karen's expense: A Karen asks a Burman to ride his pony. The Burman finds it a good pony and refuses to stop. To revenge himself the Karen takes the Burman's boat and says with a sneer: "If you ride my pony repeatedly, I will row your boat repeatedly up and down the river." He finds, however, that the Burman's boat causes him more fatigue than his pony to the Burman.

The following anecdote testifies to a sharp intellect: A man asks the Sayadâw, which is more powerful, Brahmâ or Mâra? The Sayadâw says Brahmâ. Then why, the man asks, when Mâra fought with the Bodhisat on the occasion of the attainment of Buddhahood did Brahmâ flee, on seeing Mâra's hosts? "Don't you know, man, that it is said in the Maûgala Sutta non-association with fools is a blessing? Well, how could you expect Brahmâ to be near Mâra?"

Such are the few selections of these Sayings. They are not only a good specimen of Burmese wit but also an important contribution towards literature. The language of the Sayadâw is also charming and adapts itself to the variety of subjects discussed. On the whole, we may say that the wit of the Sayadâw lies not so much in his power of putting down opposed arguments by the sheer weight of his logic as in his quickness to take in the ludicrous at a glance and magnify it so that the opponent is simply laughed out. The existence of so many parables and tales further shows that it lies more in his power to adapt varying scenes to their surroundings than in his ability in drawing original sketches.

M. T.
An ordinary meeting of the Burma Research Society was held on Friday evening, June 26th 1914, at Rangoon College with the president of the Society, Sir Henry Hartnoll, in the chair. Mr. C. Morgan Webb read a paper on "The Linguistic Survey of Burma." The following were present: Lady Hartnoll, Mrs. Mathews, Mrs. Moorhead, Miss Reed, Lt.-Col. Fridmore, Rev. Father Luce, Rev. J. F. Smith, Messrs. Mathews, Hunter, Rutledge, Moorhead, G. F. Grant, U May Oung, Maung Thein Kin, A. E. Bellars, B. Swithinbank, G. H. Luce, A. Khalal, Boedikker, Sayna Thein, Maung San U, Maung Ba, Maung Ba Dun, Maung Kin Maung, and A. D. Keith (hon. secretary).

Mr. Morgan Webb prefaced his paper by pointing out that what he was going to say was not of merely academic interest but was an actual proposal now under the consideration of the Local Government. Mr. Webb then proceeded to show the need for a linguistic survey of Burma. It was true that Burma had been omitted from the linguistic survey of India. But that survey had been undertaken as much for administrative purposes, as for the advancement of scientific knowledge. Moreover at the time of its commencement the magnitude of the task made it necessary to defer some later date all work that was not of immediate administrative importance. Very little, too, was known at that time of the languages on the frontier of Burma. Now, however, the conditions then existing had altered. Many areas not dealt with by the census operators of 1901 had been included in the census report of 1911. The formation of the new district of Putao had materially widened our knowledge, and now only the Chin areas and the Kachin and Naga tracts had escaped consideration. It could not now be said that most of the dialects were unknown. Owing to the fact that languages of the Mon Khmer, Tai, Kachin, and Kuki-Chin families were spoken in Assam, they had been dealt with but very partially in the linguistic survey of India. Major H. R. Davies had written a valuable book on Yunnan dialect. Members of the Burma Research Society, the Rev. Mr. Antisdell, Rev. Mr. Cochran, Messrs. Duroiselle, Grant Brown, Stewart, Furnivall and U May Oung, had contributed philological and phonetical notes to the Society's journal. It was now clear that the inclusion of Burma would not jeopardise the general success of the Linguistic Survey of India. In fact its exclusion would impair the value of that survey. So much for the negative side. He had shown that there were no valid reasons why Burmans should not be included in the linguistic survey. He would now try to indicate how its inclusion was positively imperative. Take the case of the Epos who, though numerically negligible, were linguistically most important. It was probable that they belonged to one of the later waves of Tibeto-Burman invasion. And that their further progress had been barred by the Shans. Again the similarities between the languages of the tribes on the east of Irrawaddy seemed to justify the conjecture that they belonged to one family. These tribes may have been stragglers from the main body in the great invasions. The clue to these problems lay in the dialects. If it was desirable to know how the Burmans came to Burma, the sooner these dialects were studied the better, for the last census showed that the number of speakers of individual dialects was on the decrease and within a comparatively short space of time they might be completely submerged or so corrupted as to defy analysis. A linguistic survey would also help us to the knowledge of conditions long before the time of the Burmese invasion. The family of languages to which Mon Khmer belonged
covered apparently an enormous area. Pater Smidt had shown similarities between the Munda language and the aborigines of Australia. The Anstric family to which Pater Smidt attributed Mon Khmer and Munda spread apparently from the eastern Isles of South America to Madagascar on the west and from New Zealand in the south to the Punjab in the north. The Shan Karen group also needed investigation, the Shan languages being most widely spread throughout Indo-China. The China group, the dialects of which were so numerous that one villager could not understand another villager who lived only twenty miles away, had merely been touched upon in the linguistic survey of India because of the accident that some 1920 Kachins happened to live in Assam. Burmese itself would repay study. An investigation of its two dialects, Arakanese and Tavoyan, with its cognates such as Taungthu, was urgently required.

How was such a survey to be conducted? The proposals he was about to make were purely tentative. A survey would be conducted in three stages. A preparation of a rough list of every language and dialect would first be entered upon. Such a list could be compiled by any one, officials, traders and others. Experts in this stage were not necessary. The duplication of languages did not matter. They would be grouped according to a geographical and linguistic classification. The second step would be a collection of records of the various languages and dialects. This would require linguistic experts. Legends and other records would be collected with translations. There would also be a translation of an English passage into the vernacular with notes on grammar and syntax. For the Linguistic Survey of India the parable of the Prodigal Son had been chosen as combining brevity with a demand for the greatest number of inflections. The last stage would be the classification of the records of the languages into their groups, classes, families, sub-families. This would, in all probability, require the aid of outside experts. They had, however, a considerable number of local officials and others who had passed examinations in various dialects. He was sure that the Burma Research Society would be only too glad to assist Government in every way. Its advice would be specially valuable in the choosing of experts to carry out the survey. Mr. Webb concluded by saying that as the services of Sir George Grierson would be available, the opportunity might be taken to secure him for the conduct of the final stage of the survey.

Mr. Webb was loudly applauded as he sat down. Sir Henry Hartnoll expressed the feeling of the meeting in thanking Mr. Webb for his interesting paper. He suggested, however, that there were no records at all of many languages which had no script.

In reply Mr. Webb said that the phonograph could be used. In this they had an advantage over the Linguistic Survey of India, because at the time of the commencement of that survey the phonograph had not been sufficiently perfected to be reliable. Another method was to adopt some standard forms of transliteration, the Hunterian form, for example.

U May Oung suggested that some member or members of the Burma Research Society should draw up a bibliography of works already written on the various languages of Burma.

Mr. Webb replied that this would be one of the first duties of the officer conducting the survey.

Mr. Rutledge considered that Mr. Webb had thoroughly proved his case. He thought that it would be a good idea to append to Mr. Webb’s article when it appeared in the Society’s journal a note as to when the Linguistic Survey of India started, its scope and the time taken. Mr. Webb’s object was to convince as many people as possible of the necessity of a survey. Such a note would facilitate the comprehension of what exactly a linguistic survey was. As to the local experts he foresaw certain difficulties. It had been said of one officer on the frontier that he was capable of learning a language in three weeks and forgetting it in two.
Mr. Page demurred to three weeks and from personal experience substituted six months. Officers who had once studied a language could pick it up again. The difficulty would be in the fact that so many officers who passed language examinations were so quickly transferred.

Mr. Webb was optimistic. He considered that if the Burma Research Society were to assist, competent investigators would be secured.

There being no further business the meeting broke up to enjoy the usual refreshments, after according a hearty vote of thanks to Mr. Morgan Webb and to the Local Government for allowing him to read what was now an official document.

In addition to those gentlemen named by Mr. Morgan Webb as having contributed to language research in Burma we understand that Mrs. Leslie Milne, the author of "The Shan at Home" has been engaged for some time past on a book on the Palaungs and a Palaung grammar.
LIST OF PUBLICATIONS Received since April 1914, Volume IV, Part I.

Bulletin of the Philippine Library, Volume II, Nos. 9, and 11, May and July 1914.

Indian Antiquary, June, July and August 1914.

Journal of the of the Royal Anthropological Institute of Great Britain and Ireland, July and December 1913.

Journal of the East India Association, 1914 April and July 1914.


South Indian Inscriptions, Volume II, Part IV.

Annual Reports of the Archaeological Survey of India, for 1909-10.
THE HISTORY OF THE RELICS OF THE EXALTED ONE
(FOUND AT PESHAWUR)

In our days, the North West Frontier Province of India and the hill country beyond it is the home of restless Pathan and Afghan tribes. Its security is only assured by means of a ceaseless round of military precautions. Every exit from the mountains round Peshawur is guarded by forts. The forts are linked together by telephones; and in addition to the regular troops in cantonments there is an outer guard of levies, police and militia.

But this has not always been the condition of affairs. Most of Northern India and Afghanistan belonged in ancient times to the Kushan Empire. Part of what we now call the North West Frontier Province was then called Gandhāra. Its capital was Pushkalavatī, or as Hiuen Tsang names it Po-lu-sha-Pu-jo, now identified with modern Peshawur. The other big towns of Gandhāra occupied sites very near to the biggest towns of the modern Province. They were celebrated throughout the world as centres of religion, art, literature and learning. Some important Buddhist books, whose names are still known, were written here. Gandhāra was noted throughout India and China for the magnificence of its pagodas. It was the birth place of a school of statuary which is, in a sense, still extant.

Mediaeval and modern Peshawur have sprung up near that ancient site of Po-lu-sha-Pu-jo. The old site which lies to the north and east of the present city is probably still very much the same as it always was, except that instead of pagodas, the country is thickly covered now with innumerable Mussalman tombs. The remains of that old civilization—its brick buildings, pottery, stone images, seals, gems and coins lie only a few feet down in the soil. But on the surface there are miles of tombs and mosques, whose richly coloured enamel tiles gleam here and there amidst the dark foliage of tamarix and cyprus. In the heart of this wilderness of graveyards is a beautiful Mogul garden called Wazir Bagh with long water-tanks and fountains. Here crowds have always collected on Fridays and feast days to worship at the shrines of many a saint, ignorant of the fact that a small desolate mound of earth, not half a mile away, had contained for centuries relics a thousand times more venerable than those of a few Mahomedan Syceds. This mound is called Shah ji Dheri, or the King’s Mound, and is the site where King Kanishka buried relics of the Gautama Buddha about 2000 years ago and built over them a pagoda.

There has only been one pagoda of superlativa importance in Northern India, and it was this pagoda of King Kanishka. It stood in an open plain, rising high above the smaller pagodas at its base, just as the Shwe Dagon in Rangoon towers above its satellites. It was surmounted by a spire and twenty five circles of gilded bronze. It was adorned with bands of precious substances, and was the largest monument in India. Its circumference was nearly a quarter of a mile, and its height was variously estimated by Chinese pilgrims from four to seven hundred feet. It possessed no less than thirteen storeys, the base being of stone and the superstructure of wood (*).

What remains of it now? Why nothing but the Law, of which it was an ornament—the Law of Transiency. Buddhist monuments are more than ever eloquent in their decay. Anicca, Dukkha, Anatta is the Buddhist formula. All things are subject to death, sorrow and destruction. The proudest monuments of Kings in time are broken in pieces. This is the Law from which there is no escape. If you go very soon to Shah ji Dheri, before many more rains

have washed down the excavated earth, you will see for yourself the remains of that same pagoda. The ancient stupa has been carefully dug out. Its base is square and measures about forty yards each way. Nothing remains of all that majestic superstructure. A few stucco frescoes of Buddha figures are preserved in places, and the fragments of a few stone images. But beyond that the place is a waste, a great earthy mound formed by the rubbish of the vanished shrine, and the accumulation of twenty centuries of dust.

At what period were the relics deposited in this peaceful land of Buddhist priests, scholars, writers and sculptors? It is not yet possible to exactly state the date, though it will undoubtedly be fixed soon. Archaeological knowledge is advancing so rapidly now in India, that its problems are fast being solved, and the picture of ancient days is developing before us. Like a child's puzzle of picture blocks, the work checks its own accuracy as it is fitted together bit by bit. Yet up to the present the great Kushan Emperor, Kanishka, who reigned at Pushkalavati, the capital of Gandhāra, refuses to fit comfortably into any of the various niches suggested for him. He is spoken of as 'illusive Kanishka'; and illusive he will remain until some day a newly found coin or inscription fixes him down to his exact place in history. But roughly he belongs to a period dating from B.C. 100 to A.D. 100.

At that time several important events—the most important events in all the history of India—had lately occurred. In B.C. 560 (or as some say B.C. 500), a prince called Siddhārtha was born in Kapilavastu in Nepal of the Sākya tribe. He grew up and became the Gautama Buddha, and electrified the world with those wonderful teachings which have 'made our Asia mild.' About two centuries later India was invaded by Alexander the Great. That invasion did not end with the retirement of his armies. Greek Governors remained, who, when the Empire of Alexander fell to bits, became kings in their respective provinces. Their descendants took Greek names, and struck coins with Greek inscriptions for the next three hundred years, and until long after all connection with Greece had been severed. After the invasion, the imported art of Greece found itself all of a sudden in contact with the marvellously warm, living, sympathetic zeal of the new religion; and the two inspirations—Greek and Indian—amalgamating, found expression in a school of statuary called Greeko-Buddhist, which for beauty and feeling has never been equalled in Asia. Up to this time the Buddhists had never attempted to depict their Buddha in statuary. His presence in sculpture was represented by a wheel, or an empty throne. 'Now, however, he began to be carved, and that wonderful classic figure was evolved whose regular brows, fine Greek nose, wavy or curly hair, sweet mouth and exquisite poise, became so suggestive of dignity and mental repose. This was the prototype of the Buddha figure. Thousands of them have been found in Gandhāra. Thousands more remain safe from Mahommedan iconoclasm beneath the soil. The supply is almost inexhaustable. And for two thousand years in India and Burma, Tibet, China, Ceylon, Mongolia and distant Japan, no appreciable departure from that first inspiration has been attempted. Buddha images the world over have remained true to the prototype of the Greeko-Buddhist school of Gandhāra.

A little more than a century after this all India fell under the benevolent rule of Asoka, who consolidated it under one rule as it was never consolidated before, or since, until our own times. His enthusiasm and religious zeal gave a fresh impetus to Buddhist architecture. He himself built numerous stupas, inscribed edicts on rocks, and set up pillars all over the country. He also collected together the relics of the Buddha which after the Mahā Parinirvāṇa (or Great Decease) had been divided into eight parts and deposited in stupas. In the third century B.C. he redistributed them in smaller portions throughout his Empire. It was one of these portions which came into Kanishka's hands in about the 1st century A.D., and which he enshrined in a wonderful stupa, or pagoda, in Gandhāra.
These then were the events which had preceded the rise of Pushkalavati to the zenith of its glory. The atmosphere was charged with religious enthusiasm, which found expression in art and in building. With such culture and enlightenment, flourishing under strong rulers, well able to protect their dominions, there followed, as might be expected, a civilization in Gandhāra which has not been reached there again. In art they can produce nothing now to compare with the work of their ancient predecessors. In fact, it is a safe rule in judging the age of statuary in Peshawur to give it antiquity in proportion to its perfection. In morality there has been the same decay. To realise how miserably the people have fallen in their mode of living, one has only to compare a modern village—or even modern mud Peshawur city itself—with the double storied stone buildings at Takht-i-Bhai, whose walls still stand 30 feet high after 2000 years of decay.

These flourishing conditions reigned everywhere. At Charsadda there were other big Buddhist monuments, notably the "Eye Gift Stupa," so called because of a legend to the effect that the Buddha in a former life had given away his eyes in charity at that spot. The mound of débris at Mir Zirat Dheri has been identified with the 'Eye Gift Stupa.' There was also a great Buddhist city on the summit of a ridge of hills called Takht-i-bhai, near the present town of Mardan. At Takht-i-bhai there were monasteries with underground refectories, and shrines containing images of Kuvera and Hāriti, and the Bodhisattvas Avalokītesvara and Maitreya (the Buddha to come). Down in the plain was another city now buried in the mounds of Saribhalol. These mounds then, and these broken ruins, of which mention has only been made of a very few, were once Gandhāra, and such were the people who as predecessors of the Burmese, had charge of the Buddha relics. Who shall say that Gandhāra of old was not as beautiful and charming as modern Peshawur—and much more peaceful. Then, as now, a rich green sea of wheat covered the plain in spring, while a sheen of pink and white fruit blossoms spread over the city. It was in such surroundings, the Chinese pilgrim Huen Tsang tells us, "that one day, two thousand years ago, King Kanishka while out riding came upon a white hare, which suddenly disappeared. He then saw a young shepherd boy, who was building a little stupa about three feet high."

"The King said to him "What are you doing"?"

"The boy replied "Formerly Sakya Buddha, by his divine wisdom delivered this prophecy:—There shall be a king in this victorious land who shall erect a stupa, which shall contain a great portion of my bodily relics.""

"The sacred merits" continued the shepherd boy, "of the great king (Kanishka) in former births, with his increasing fame, have made the present occasion a proper one for the fulfillment of the old prophecy. Now I am engaged for the purpose of directing you to these former predictions."

Having said this he disappeared. The King hearing this was overjoyed. Surrounding the site of the little stupa which the boy had made, he built a stone stupa, wishing to surpass the smaller one in height to prove the power of his religious merit. But in proportion as his stupa increased, the other always exceeded it by three feet. So he went on till he reached 400 feet. Then he succeeded in covering the other. The King overjoyed, raised on the top of his stupa twenty-five circles of gilded copper on a staff, and he placed in the middle of the stupa a peck of 'Sariras' of Tathāgata (Buddha), and offered them religious offering. Surely he had finished when he saw the little stupa take its place at the South-east of the great foundation, and project from its side almost half way up. The King was distressed at this, and ordered the stupa to be destroyed. When they had got down to the bottom of the second storey, through which the other projected, immediately that one removed to its former place, and once more it surpassed in height the other.

*Buddhist Records of Western World, p. 99.
This legend is also briefly mentioned in the To-Kwo-Ki, written by the Chinese pilgrim Fa-Hian in A. D. 400. Another pilgrim to record it is Sung Yun of Tun-hwang, who was sent to India in A. D. 518, in company with the Bhikshu Hwei Sang, on an embassy from the Dowager-Empress Tai Han of the great Wei dynasty. This is how he describes the pagoda*—: "Sixty li south west of this (i.e., the place where Buddha plucked out his eyes to give in charity) there is a Tsot-h-f seuon thou (a pagoda with a surmounting pole, identified with Shah ji Dheri) Investigating the origin of this tower, we find that when Tathagata (Buddha) was in the world he was passing through this country with his disciples on a mission of instruction; on which occasion, when delivering a discourse on the east side of the city he said, 'Three hundred years after my Nirvana there will be a king of this country called Ka-ni-si-ka (Kanishka). On this spot he will raise a pagoda.' Accordingly, three hundred years after that event there was a king of this country so called.' Sung Yun then repeats the legend of the building already described in the words of Huien Tsang. Huien Tsang continues†—: "Outside the city (of Po-lu-sha-Pu-lo) eight or nine li (five of Huien Tsang's li go to a mile) to the south east there is a pipala tree about 100 feet high. To the south of the pipala tree is a stupa built by King Kanishka. This King ascended the throne four hundred years after the Nirvana, and governed the whole of Jambudvipa."

From the time that the last of these pilgrims wrote these accounts in the seventh century, the pagoda of Kanishka, the largest monument in India, vanished completely from the face of the earth!

When Huien Tsang visited it in A. D. 629 (or as some say A. D. 640), the stupa had then fallen into disrepair. Buddhism was declining. According to Mr. Marshall of the Archæological Department, there is an inscription of the 10th century from which one may infer that the pagoda survived the last of the Chinese pilgrims by about 300 years. The question then, which naturally troubled archaeologists was—what had become of this great building, and how had it so completely disappeared?

It has since been pointed out that much of Peshawur City was built out of it, just in the same way that Rome rose from the ruins of the Colosseum. Besides this it may have been party thrown down by the marauding hosts of Mahmud of Ghazni, though most probably it never survived till his day.

There has been speculation for many years about the site of Kanishka's vanished stupa. The spot, if it could be found, would be of value and interest for several reasons. Firstly, it might, and probably did, still contain the relics of the Buddha. Secondly, if the pagoda was once located, it would be of use in fixing many other places mentioned by the Chinese pilgrims who were exact geographers, giving the direction and distance of each place from the one they had visited.

Shah ji Dheri had been an object of interest to archaeologists ever since the early days of General Cunningham, who first suspected the nature of the mound in the sixties. Guessing that this might be the site mentioned by Huien Tsang, Fa-Hian and Sung Yun, he began to excavate with a company of Sappers under Lieutenant Crompton. A shaft was run from one side into the heart of the mound. But it was dug a little too high. Lieutenant Crompton died, and his work was suspended, when his tunnel was within twenty feet of the spot where the relic casket lay. His reports were compiled by an assistant, and were to the effect that these mounds could not possibly contain Kanishka's great stupa. It was then hoped that perhaps the stupa might be found in one of the many mounds in the adjacent district of Hashtnagar (Eight Cities), and excavations from time to time were carried out at a mound called the Bala Hissa near Charasadda, and at Mir Ziarat Dheri, which has since been proved to be the site of an almost equally celebrated pagoda known as the 'Eye Gift' of the city of Shahr-i-Napurshan

* Buddhist Records of the Western World, p. ciii.
† Buddhist Records of Western World, p. 99.
THE HISTORY OF THE RELICS OF THE EXALTED ONE

(City of Not-Asking). Relic caskets were found in these and other big mounds, with the relics intact inside them in crystal reliquaries. They are now in the Peshawur Museum. Relics placed in such large stupas are sure to have had some special interest, but nothing is now known of their history.

In the 'nineties the subject of Shah ji Dheri was seriously taken up again by M. Foucher, the distinguished French savant. Having studied the country and carefully plotted out Huien Tsang's line of march, he decided that modern Peshawur was indeed identical with the Po-lu-sha-Pu-lu of the pilgrim. Therefore "outside the city eight or nine li" (about a mile and a half) there should be indications of a big pagoda, and a big monastery, of which also special mention was made. Just in that place there actually were two mounds, called Shah ji Dheri.

The thread was taken up by the Archaeological Department in about 1906. Dr. Spooner studied Huien Tsang and confirmed the arguments of M. Foucher. The distance of the mounds from the city agreed. There were two mounds, the right distance apart, corresponding with the stupa and its monastery. Lastly Dr. Spooner thought he recognised in the word Shah ji, a reference to some royal place—a royal Dheri, or mound. As a matter of fact all these theories were perfectly correct except this last; since 'ji' is a term used of Syeds, but never of kings.

Excavations were recommenced, after a lapse of about forty years, in 1907. For months it looked as if nothing was to be found in the confused heaps of débris. Then, in 1908 little by little there emerged from the mound the stone plinth of this gigantic pagoda, which is undoubtedly the largest of its kind known to exist in India,* and which in other respects agrees with the description of Kanishka's memorial recorded by the Chinese pilgrims. Indeed, there could now be no shadow of doubt that this was the identical building. The exact centre was fixed at the intersecting of lines joining the four corners, and a shaft, or well, was sunk into the centre of the basement, and carried down with much labour through heavy stone foundation until, at last, at a depth of 20 feet below the surface, expectations were realised by the discovery of a small stone relic chamber. It was within twenty feet of the tunnel dug by Lieutenant Cromton in the sixties. A large stone slab covered the chamber. It had subsided a little, breaking off one of the three figures on the lid of the casket below. Otherwise the casket, and its contents, were intact. If any evidence had been previously wanting to prove that this pagoda was Kanishka's, it was amply supplied now by the objects brought to light. Kanishka's 'lion seal,' still unbroken, closed the crystal reliquary within the casket. A Kanishka coin lay near it, which in itself would have been sufficient proof of the period of deposit. Thus the authenticity of the relics was established once for all. They were the ones buried by Kanishka, and these Huien Tsang tells us—and his accuracy has been severely tested in all his other statements—were relics of the Gautama Buddha. Dr. Marshall points out that there were several relics deposited at the redistribution by Asoka in stupas which afterwards were in Kanishka's territory, so that there would be no difficulty in his procuring a relic to add dignity to his capital city of Pushkalavati. So link by link the evidence has been drawn from obscure Chinese monastic libraries, and from barren mounds in Northern India. It is a wanderful feat if you come to consider that Buddha died five centuries B. C. The relics now entrusted to Burma are as authentic as those of Ramases the Great, or Seti I. But whereas there have been scores of kings as great as Ramases there has been, in our kalpa, only one Buddha, the 'Light of the World.'

The relic casket was made of an alloy—chiefly of bronze. Several weeks later, when the encrustation of ages had been chemically removed, an inscription in Karoshli was found punched into the metal in dotted lines. The last shred of doubt was dispelled by the discovery of Kanishka's name. There was also found the name of a Greek who had designed the casket. The casket was like a cylinder. Upon the lid stood a group of three figures. One figure (as already men-

tioned) had been knocked off, but it lay near by. The central figure was the Buddha. Those to right and left were the Bodhisattvas Avalokitesvara and Maitreya. The cylinder was divided into two bands. On the upper one was depicted a flight of geese. Geese have a particular significance in Buddhism. They are engraved on the Borobudur at Gaya, and on certain of Asoka's edict pillars. It was a wounded goose which Young Prince Siddhartha comforted; and we have in Burma a Buddhist province called 'Hanthawaddy' after the goose. The frescoe of geese on the casket would therefore have been considered appropriate and dignified.

On the lower band was a garland, held up at intervals by Erotes. This device is borrowed from Greek art. One figure upon it represented King Kanishka. On either side of him were the Gods of the Sun and Moon, distinguished respectively by the disc and crescent. These same emblems are found on Kanishka's coins. The casket is now kept in a safe in the Peshawur Museum. On the occasion of its being taken out for inspection by myself and a friend there was a crash of thunder, and vivid lightning.

Inside the relic casket was a small crystal vase, or reliquary, which contained—and still contains—the relics. It is shaped roughly like a barrel, and is six sided. The cavity within is cloudy, and it is difficult to see the little white bits of bone inside except in one or two clear places. I had the inestimable honour of holding it in my hand one morning in the Arakan Pagoda in Mandalay. It is kept in a safe, locked by night in the inner shrine of the pagoda, which is brightly lit with electricity. By day, when the great gates are open, a sentry is mounted over the safe. The relics are in charge of 'Paya Lugis,' or Pagoda Trustees, of whom three must be present with their several keys before the relics can be removed from the safe. The crystal reliquary now lies in a gold casket, shaped like a stupa. It was laid on a cushion. An umbrella was held over it, and thus a small procession carried it into the daylight for my inspection. A small crowd of Burmans took the opportunity of doing reverence. Some idea of the stupendous value of the find flashed upon me then, as I held it. In Egypt you can still look into the face of that very Pharo before whom Moses stood. But surely, no such wonderful find has ever been made after such a lapse of time, as this relic of the Gautama Buddha. Here in Mandalay rests a portion of that very body which beheld the omens of the old man, the sick man, and the dead, which won Enlightenment, and which made the Great Renunciation.

But to return to the find spot at Peshawur. The proximity of the Gandhira Stupa to the city is one of the reasons why it vanished so mysteriously from the face of the Earth. For generations after the decline of Buddhism in the Peshawur vall, the bricks were carried off for building purposes. The slabs of stone protecting the city gates, and the culverts along the Junrud Road are said (though I don't know on what authority) to belong to the stupa. Stone is not quarried locally.

The stupa has now been entirely dug out. Its plinth is roughly 40 yards square. At each corner are circular bastions, upon which, no doubt, stood smaller pagodas. There were also numerous little shrines all around the broad court yard. Their basement still exist. The floor of the pagoda court is now of course some feet below the surrounding country. Some stucco frescoes remain. Also some grotesque heads with bulging eyes and humorous faces have been found there. Originally they were made of stucco; but they seem to have been accidentally baked in some conflagration, and so are handed down to us in a particularly good state of preservation. The finer bits of statuary have been removed into the Peshawur museum. The stupa was without doubt once beautiful. The walls were solid, and built of large, well made bricks, while here and there blocks of dressed stone were embedded in the masonry. The bricks are about ten inches long, and as already mentioned, were in great demand for building purposes in the city. Eight walls radiate, like spokes of a wheel, from the centre of the stupa. The top is filled with alternate layers of earth and stone,
and it seems probable that these radiating walls were intended to prevent the weight of the filling from bursting the outer walls. Earth is fast being washed by rain into the well, or shaft, which was dug into the top of the mound. The 'find-spot' of great value is thus being obliterated, and nothing has been done to preserve it. When I was there last, the spot where the Buddha's relics had rested for 2000 years was desecrated with a litter of empty tins.

Considerable excavations have been made into the monastery mound. Strong brick walls, rows of pillars, and a long brick drain have been cleared. Pottery, statuary, seals, heads and gems have been added to the museum. At least three levels of occupation have been found, buildings having been erected above the remains of still older ones, which themselves had been destroyed, buried and forgotten. Sites such as this, which have been re-occupied and rebuilt upon, are as a rule less rich in 'finds' than sites which have been hurriedly abandoned by reason of fire, or earthquake, and not inhabited again. The accumulation of soil is also very great over the monastery, and it will probably never be dug out.

Constant reference is made to these monasteries by the Chinese pilgrims. It was here that some learned Buddhist books were written. There was a tradition that when the monastery had been destroyed seven times by fire, the Law of the Buddha would depart from the land. Total prophecy!! There are frequent thick deposits of ash and charcoal in the soil, showing that there were several big fires. In 629 A.D. Hien Tsang laments the decline of Buddhism in India, and records that the stupa was in bad repair. Buddhism was nearing extinction in the land of its birth.

The Shah ji Dheri mound belongs to a Mahomedan who has not been very generously treated. The incomparable treasure dug up on his property was claimed by the Government of India who gave him ten or fifteen rupees, or some such ridiculously small sum, to console himself with. He instituted a law suit. But as the relics were treasure trove, and he had already signed a document of surrender before the digging began, he lost his case. The significance of all this is that there is bound to be difficulty later on, if the question of a monument at the 'find-spot' arises. The necessity for marking the 'find-spot' in some suitable way has twice already been pointed out to the Government.

The relics having been recovered and authenticated, the question arose as to what was to be done with them. The claim of the Buddhist province of Burma was overwhelming, and they were eventually presented to the Burmese.

The possession of an authentic relic of the Buddha has been for centuries one of the aspirations of Burma. The Burmese may, however, be forgiven if at first they suspected the authenticity of the relic now presented them. It came in an age when a genuine bone was almost past hoping for, and from a part of India least likely to produce it. Fraudulent relics of the Buddha have before now been imported with great solemnity—as for example in about A.D. 1576, when Dharmapala, King of Ceylon sent a reputed tooth of Buddha as a present to Bureng Naung, King of Pegu. The only real tooth, which had been enshrined at Kandy, had been destroyed in 1560 by Don Constantine the Portuguese Viceroy of India, although the King of Pegu is said to have then offered to ransom it for a sum equivalent to £41,000 sterling."

But the Burmese have not been slow to appreciate the strength of the evidence in favour of these relics, and their authenticity is now believed in sincerity. A deputation, headed by the Pynmana Mintha, a son of the late King Mindon of Burma, was sent over to Calcutta to receive them from the hands of the Viceroy in 1910. The ashes had been placed by the Indian Government in a golden casket, set with jewels, and shaped like a Buddhist stupa. It was inscribed as follows:

"The bones enclosed within this casket are believed to be the relics of Gautama Buddha deposited by the great Kushan Emperor, Kanishka, in a once

*Phayre's "History of Burma" p. 117.
magnificent and famous stupa near the city of Peshawur. Beneath the ruins of
that stupa they were found enclosed in the crystal reliquary in which they still
repose, and within a casket of bronze bearing the effigy of the Emperor
Kanishka. They are entrusted by His Excellency the Earl of Minto, Viceroy
and Governor-General of India, to the Buddhists of the Indian Empire to be
enshrined by them at the city of Mandalay in Burma. In the tenth year of the
reign of His Majesty King Edward VII Emperor of India."

The relics were conveyed to Burma on the British India Steamer Lama, and
were exposed to view for five days at the Shwe Dagon Pagoda in Rangoon where
they were visited by thousands of people. Large crowds attended the procession
to the railway station where they were placed in a special train for transit to
Mandalay. Halts were made at Pegu, Toungoo, Yamethin, Thazi and Kyaukse
to enable crowds of people to do reverence. How strange this, after more than
a thousand years of complete neglect!

A temporary home has been found for the relics in the Sanctuary of the
Arakan Pagoda at Mandalay, where, as already stated, they are placed in a safe,
guarded by a sentry throughout the day, when the pagoda is open. Twenty
four trustees were then appointed to superintend the care of, and future dispo-
sal of, the relics. Three members were entrusted with three different keys of the
safe, without anyone of which it cannot be opened. A subscription list was
started to provide funds for a suitable pagoda to be erected on a spur of Man-
dalay Hill. Buddhist Burma has responded enthusiastically, and a truly magnifi-
cent pagoda is now nearing completion. It is called the Dattaw, or Pagoda of
the Relics.

The Arakan Pagoda, in which the Peshawur Buddha relics have now re-
mained for four years, is so called after the celebrated image it contains. This
image of the Buddha was cast in Arakan in the reign of King Chanda-Surya, who
ascended the throne of Arakan in A. D. 146. The image became so famous that
miraculous powers were attributed to it for ages afterwards. It was finally car-
rried away by the Burmese when they conquered Arakan in A. D. 1784, and the
present temple was built for its reception.

The new Relic Pagoda, or Dattaw, is built on very much the same plan as
the Arakan. There is a square central tower of seven diminishing roofs, rising
one above the other. Round this central shrine are broad colonnades. The
building is solidly made of brick and stone, with iron girders in the roof. Care
has been taken to ensure it an essentially Burmese appearance. The spur of
Mandalay Hill upon which it stands has been built round with masonry walls so
as to create a large platform, from the pagoda there is a lovely view over the
shrines and maos of Mandalay to Thebaw's Palace, and the Arakan Pagoda.
Beyond again lies the still older capital of Amarapura, and the white pagodas of
Sagaing, beyond the Irrawaddi. The walls of the inner shrine are incrusted with
coloured glass in the Burmese fashion and the relics will be protected by five
gates.

There has been a long controversy as to whether the relics should be buried
deep down in the masonry, or exposed to view. This latter plan has been finally
decided on. I think it is a pity. It would, in my opinion, have been better to
protect them as securely as possible from theft, and from the dangers of wars,
revolutions, invasions, fires and other catastrophes which presumably the future
has in store.

It is hoped that the relics will be finally deposited in their new home next
year (1915). May they throw lustre upon our Empire, and spread the know-
ledge of the Buddha's Law through the whole World.

C. M. ENRIQUEZ, CAPT.
AN APPEAL.

The relics of the Gautama Buddha having been suitably provided for, there remains one more duty to perform—namely to mark in a fitting manner the ‘find-spot’ in the Shah ji Dheri mound near Peshawur. Nothing has yet been done to preserve a site of great importance to all Buddhists, all antiquarians, and all geographers. Worse than this. There apparently is no intention of doing anything. The attention of the authorities has already been drawn twice to the pressing need of this work of conservation. Lord Curzon, who was approached, replied sympathetically, and addressed the Government of India. Later Dr. Marshall the Head of the Archaeological Department was asked if any thing could be done. His reply was to the effect that nothing could be done.

To mark the site is obviously the right thing to do. It is difficult to say what is the obstacle in the way—but one may shrewdly guess that the owner of Shah ji Dheri, who was so shabbily treated when the relics were found, is not likely to listen sweetly to reason now. Still, with more liberal treatment his feelings could no doubt be soothed, and the difficulty is not insurmountable.

In the meanwhile, six years’ rain has already washed down much earth over the site, which lies at the bottom of a deep hole. Every storm helps to obliterate the spot, and it will soon be lost for ever.

It is not fair to expect the Burmese to subscribe to this distant object, when the housing of the relics alone has cost them more than a lakh of rupees. Besides there remains much else to be done to the new pagoda. Neither can the Archaeological Department be expected to devote funds to setting up monuments, where they have all too little money for exploration and conservation. In India there are now no Buddhists to carry out this work of merit. It is quite clear that unless the Government generously assumes the initiative, the site will be lost. It is a small work, but eminently worthy of a great Government. The site is of greater importance than Old Fort William, or the Black Hole, and other interesting places which were saved from obliteration by Lord Curzon. The preservation of a site such as this is not costly. A stone pavement, or a pillar, with a brief inscription is all that is necessary. In this case a handsome monument could easily be made without cost, by using some of the giant Buddhas, (fourteen feet high), now lying on their backs in the Peshawur Museum. They belong to that same age as Kanishka’s pagoda, and are in every way appropriate.

The site is particularly worth saving. It is closely connected with the great Kushan Emperor, Kanishka. It is the site of what was once India’s greatest monument. It is associated with Hiuen Tsang, Fa Hian and Sung Ynn, towards whom the modern geographer feels a warm sympathy even across this lapse of time. What have they not done for us, those simple, brave Chinese explorers? They have restored to the world at this late age, relics which, but for them, would never have reappeared out of the dust.

Lastly Shah ji Dheri has been the resting place for 2000 years of the ashes of the Buddha. It is therefore holy ground, and sacred to thousands of British subjects, who cannot fail to note its neglect with distress. Whatever our creed, if we know what Truth is, we recognise that the Lord Buddha preached, in one form, that Truth. Asoka, that great preserver of sacred sites, exhorts us to “respect the traditions of all people, which are worthy of reverence for one reason or another.”

In a little span of time, what has been done in our age will have lapsed into dim history, and be subject to all the doubts and speculations of other generations. It is then clearly our duty to mark the site of the Buddha relic find, which will otherwise be lost to posterity. Here is a great opportunity to ‘earn merit.’

C. M. ENRIQUEZ, CAPT.

*Rock Edict XII. (Shahbarghari inscription, near Mardan, N. W. and Prov.)
The Dattaw, Mandalay Hill, the pagoda destined to enshrine the Buddha relics.
BURMESE ASTRONOMY
(continued)

BY
THOS. P. de SILVA

VENUS’ MEAN LONGITUDE

RULE.—Multiply the accumulated Savana days by 10, from which product deduct 139, the remainder divide by 2247. (18) The quotient is to be rejected as the elapsed number of revolutions. Reduce the remainder to signs, degrees and minutes by multiplying by 12, 30 and 60 successively and dividing each product by 2247. From the result deduct 6 deg. 3m. for observed correction.

For correction, add the quotient, as Savana, of the Rassa divided by 429—and the result of the remainder $\times \frac{44}{11}$, as minutes of motion.

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<td>139 brought over from beginning of epoch</td>
<td></td>
</tr>
<tr>
<td>Divide by 2247</td>
<td></td>
</tr>
<tr>
<td>495911 (220 Revolutions</td>
<td></td>
</tr>
<tr>
<td>494340</td>
<td></td>
</tr>
<tr>
<td>1571</td>
<td></td>
</tr>
<tr>
<td>12 Signs</td>
<td></td>
</tr>
<tr>
<td>18852 (8</td>
<td></td>
</tr>
<tr>
<td>17976</td>
<td></td>
</tr>
<tr>
<td>876</td>
<td></td>
</tr>
<tr>
<td>30 Degrees</td>
<td></td>
</tr>
<tr>
<td>26280 (11</td>
<td></td>
</tr>
<tr>
<td>24717</td>
<td></td>
</tr>
</tbody>
</table>

Correction:—
As 429 years = 1 day
135 " = 0 day
and as 44 " = 10 m
135 " = 31 m

(18) The multiplication of 10 and the division by 2247 = 224 days in a revolution and with the fraction converted into decimal is nearly 224 $\frac{1}{2}$ or 224.7 which is a little in excess of its quantity.
The adjustment is as below:
According to Suryasiddhanta:—
As 1577917828 D: (49605—13-9) D: 7022376 Time of rev: x
$= 49591.1 \times 7022376 = 348247350453.6 = 220 R$ 8s 12d 12m 2
1577917828

According to Sandittha without correction
as per above circulation

\[
\begin{array}{cccccc}
\text{Making a difference of motion} & 220 & 8 & 11 & 41 & 7 \\
\text{in excess for a period of} & 0 & 0 & 0 & 30 & 5 \\
\text{135 years} & = & \text{30\frac{1}{2}} & \text{minutes of motion} & \\
\text{X no. of years} & = & \text{1d 37m or 97 m (for the equivalent of Venus' daily motion)} & \\
& & \frac{135 \times 97 \times 2}{61} & \frac{26190}{61} & = & 429 \text{ years.} \\
\text{Since, as 429 years} & = \text{1d 37m or 97 m of motion} & \{ \frac{429 \times 10}{97} = \frac{4290}{97} = 44 \text{ years.} \\
\text{X no. of years} & = \text{10 m of motion} & \\
\end{array}
\]


"EURONESE ASTRONOMY"

<table>
<thead>
<tr>
<th>1563</th>
<th>60 Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>93780</td>
<td>(42)</td>
</tr>
<tr>
<td>8988</td>
<td>3900</td>
</tr>
</tbody>
</table>

As per above calculation \(8s + 11d + 42m\)
Add for correction \(0\)
Deduct for correction from observation \(0\)

Venus' mean place on Sunday midnight \(8\) 6 10
Deduct daily motion \(0\) 1 36

Venus' mean place on Saturday midnight \(8\) 4 34

**VENUS' TRUE LONGITUDE**

Sunday at midnight mean position

<table>
<thead>
<tr>
<th>I</th>
<th>Venus 8s 6d 10m</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Sun 8 28 58</td>
</tr>
<tr>
<td>III</td>
<td>Apsis 2 17 52</td>
</tr>
</tbody>
</table>

From Venus' mean 8s 6d 10m
Take Sun's mean 8 28 58
3) 11 7 12

Gola 3 and 2s 7d 12m deduct from 3 signs = 0s 22d 48m or 1368 minutes Bhuja.

As 225m : 1368m :: 1 Jya : x = 6 Jyas and 18m remainder
Gola 3, use Makara : 6 Jya = 566 = 93m vivara

As 225m : 18m :: 93m : x = 7m which with the equivalent of 6 Jya = 566 = 573m or at \(\frac{1}{2}\) = 4d 50m and as Gola 3 signifies subtractive,
From Sun 8s 28d 58m
Take Bhuja-phala 0 4 50 = 8s 24d 8m, 1st equation

From Apsis 2s 17d 52m
Deduct 1st equation 8 24 8
3) 5 22 44

Gola 1 and 2s 22d 44m deduct from 3 signs = 0s 7d 16m or 436 minutes Bhuja,

As 225m : 436m :: 1 Jya : x = 1 Jya and 211m remainder
Manda : 1 Jya = 7 = 8m vivara

As 225m : 211m :: 8m : x = 7m which with the equivalent of 1 Jya = 7 = 14m or at \(\frac{1}{2}\) = 7m and as Gola 1 signifies additive,
To the 1st equation 8s 24d 8m
Add Bhuja-phala 0 0 7 = 8s 24d 15m, 2nd equation
From Apsis 
Deduct 2nd equation 2s 17d 52m

\[ \text{3) } 5 \ 23 \ 37 \]

Gola 1 and 2s 23d 37m deduct from 3 signs = (s 6d 23m or 383 minutes Bhuja,

As 225m : 383m : : 1 Jya : x = 1 Jya and 158m remainder
Manda : 1 Jya = 7 | = 8m vivara
2 \( \frac{5}{7} \) = 15 | = 8m vivara

As 225m : 158m :: 8m : x = 5m which with the equivalent of 1 Jya = 7 = 12 and as Goda 1 signifies additive,

To Sun 8s 28d 58m
Add Bhuja-phala 0 0 12 = 8s 29d 10m, 3rd equation

From Venus 8s 6d 10m
Deduct 3rd equation 8 29 10

\[ \text{3) } 11 \ 7 \ 0 \]

Gola 3 and 2s 7d 0m deduct from 3 signs = = 0s 23d 0m or 1380 minutes Bhuja,

As 225m : 1380m : : 1 Jya : x = 6 Jyas and 30m remainder
Gola 3, use Makara : 6 Jya = 566 | = 93m vivara
7 \( \frac{2}{7} \) = 659 | = 93m vivara

As 225m : 30m :: 93m : x = 13m which with the equivalent of 6 Jya
= 566 = 579m or 9d 39m and as Gola 3 signifies subtractive,

From 3rd equation 8s 29d 10m
Deduct Bhuja-phala 0 9 39

Venus' true position on Sunday at midnight 8 19 31 = 4th equation

Saturday at midnight mean position \( \{ \)
I Venus 8s 4d 34m
II Sun 8 27 59
III Apsis 2 17 52

From Venus 8s 4d 34m
Take Sun 8 27 59

\[ \text{3) } 11 \ 6 \ 35 \]

Gola 3 and 2s 6d 35m deduct from 3 signs = 0s 23d 25m or 1405 minutes Bhuja,

As 225m : 1405m : : 1 Jya : x = 6 Jyas and 55m remainder
Gola 3, use Makara : 6 Jya = 566 | = 93m vivara
7 \( \frac{2}{7} \) = 659 | = 93m vivara

As 225m : 55m :: 93m : x = 23m which with the equivalent of 6 Jya
= 566 = 589m or at \( \frac{1}{4} \) = 4d 54m and as Gola 3 signifies subtractive,

From Sun 8s 27d 59m
Take 0 4 34 = 8s 23d 5m, 1st equation

From Apsis 2s 17d 52m
Take 1st equation 8 23 5
Gola 1 and 2s 24d 47m deduct from 3 signs = 0s 5d 13m or 613 minutes Bhuja.

As 225m : 613m : 1 Jya : x = 2 Jyas and 163m remainder
Manda 2 Jya = 15
3 " = 22 = 7m vivara
As 225m : 163m : 7m : x = 5m which with the equivalent of 2 Jya = 15 = 20m or at \( \frac{1}{2} \) = 10 and as Gola 1 signifies additive,
To 1st equation 8s 23d 5m
Add Bhuja-phala 0 0 10 = 8s 23d 15m, 2nd equation

From Apsis 2s 17d 52m
Take 2nd equation 8 23 15

Gola 1 and 2s 24d 37m deduct from 3 Signs = 0s 5d 23m or 323 minutes Bhuja.

As 225m : 323m : 1 Jya : x = 1 Jya and 98m remainder
Manda : 1 Jya = 7
2 " = 15 = 8m vivara
As 225m : 98m : 8m : x = 3m which with the equivalent of 1 Jya = 7 = 10m and as Gola 1 signifies additive,
To Sun 8s 27d 59m
Add Bhuja-phala 0 0 10 = 8s 28d 9m, 3rd equation

From Venus 8s 4d 34m
Deduct 3rd equation 8 28 9

Gola 3 and 2s 6d 25m deduct from 3 Signs = 0s 23d 35m or 1415 minutes Bhuja.

As 225m : 1415m : 1 Jya : x = 6 Jyas and 65m remainder
Gola 3, use Makara : 6 Jya = 566
7 " = 659 = 93m vivara
As 225m : 65m : 93m : x = 27m which with the equivalent of 6 Jya = 566 = 593m or 9d 53m and as Gola 3, signifies subtractive,
From 3rd equation 8s 28d 9m
Deduct Bhuja-phala 0 9 53

Venus' true position on Saturday at midnight 8 18 16, 4th equation

From Sunday at midnight Venus' true position 8s 19d 31m
Take Saturday at midnight Venus' true position 8 18 16

Daily motion 0 1 15
As 24 hrs : 10 hrs : 1d 15m or 75m : x = 31m which added to Saturday at midnight 8s 18d 16m

Venus' true place on Sunday at 10 a.m. 11th January 1874 8 18 47
BURMESE ASTRONOMY

SATURN'S MEAN LONGITUDE.

RULE.—Add 1877 to the accumulated Savana days; the sum divided by 10766, rejecting the quotient as elapsed revolutions, reduce its remainder to signs, degrees and minutes by multiplying by 12, 30 and 60 successively and dividing each product by 10766. To which result add 5 degrees and 2 ms for correction from observation.

For correction, add one Savana day for every 131 years of the Rassa and add one minute of motion for every 65 for its remainder —

The result is the mean place of Saturn. (19)

<table>
<thead>
<tr>
<th>To</th>
<th>49605</th>
<th>accumulated Savana days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add adjustment</td>
<td>1877</td>
<td>brought over at beginning of epoch</td>
</tr>
<tr>
<td>Add for correction</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

---

Divide by | 10766 | 51483 (4 Revolutions) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>43064</td>
<td></td>
</tr>
</tbody>
</table>

---

| | 8419 |
| | 12 Signs |

---

<table>
<thead>
<tr>
<th>101028 (9)</th>
<th>96894</th>
</tr>
</thead>
<tbody>
<tr>
<td>4134</td>
<td>30 Degrees</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>124020 (11)</th>
<th>118426</th>
</tr>
</thead>
<tbody>
<tr>
<td>5594</td>
<td>60 Minutes</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>335640 (31)</th>
<th>32298</th>
</tr>
</thead>
</table>

---

| 12660 |

---

As per above calculation

Add for correction from observation | 9s 11d 31m |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 5 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(19) The length of revolution taken as 10766 is too much, the correct value is 10765 days and fraction.

The excess is adjusted per preceding rule and worked out as below:

According to Suryasiddhanta :

As 1577917828 D : 51482 D : 146568 Time of rev. : x

\[
\frac{51482 \times 146568}{1577917828} = \frac{7545613776}{1577917828} = 4 \text{ Rev. 9s 11d 31m 34}
\]

According to Samuditha without correction :

As 10766 D : 51482 D : 1 Rev : x = \frac{51482}{10766} = 4 9 11 29 27

making a difference in motion of

in excess over a period of 135 years for fraction unaccounted :

\[
\text{As 135 years} = 2.07 \text{m of motion}
\]

\[
\text{x no. of years} = 2 \quad \text{(which is equivalent of Saturn's daily motion)}
\]

\[
= \frac{135 \times 200}{207} = \frac{27000}{207} = 131 \text{ years.}
\]

Since as 131 years = 2 m of motion

\[
\text{x no. of years} = 1 \quad \text{or} \quad \frac{131}{2} = 65 \text{ years.}
\]
Saturn's mean position Sunday at midnight 9s 16d 33m
Take daily motion 0 0 2
Saturn's mean position Saturday at midnight 9 16 31

SATURN'S TRUE LONGITUDE.

Sunday at midnight mean position

\[
\begin{aligned}
&\text{I Sun} & 8s 28d 58m \\
&\text{II Saturn} & 9 16 33 \\
&\text{III Apsis} & 8 8 37
\end{aligned}
\]

From Sun 8s 28d 58m
Take Saturn 9 16 33
\[3) 11 12 25\]

Gola 3 and 2s 12d 25m deduct from 3 Signs = 0s 17d 35m or 1055 minutes Bhuja

As 225m : 1055m : : 1 Jya : x = 4 Jyas and 155m remainder
Gola 3, use Makara : 4 Jya = 88 \]
5 \} = 21m vivara
\[109 \江南 = 21m \]
As 225m : 155m : : 21m : x = 14m which with the equivalent of 4 Jya = 88 = 102m or at \[\frac{1}{2}\] = 51m and as Gola 3 signifies subtractive,
From Saturn 9s 16d 35m
Deduct Bhuja-phala 0 0 51 = 9s 15d 42m, 1st equation.

From Apsis 8s 8d 37m
Take 1st equation 9 15 42
\[3) 10 22 55\]

Gola 3 and 1s 22d 55m deduct from 3 Signs = 1s 7d 5m or 2225 minutes Bhuja.

As 225m : 2225m : : 1 Jya : x = 9 Jyas and 200m remainder
Manda : 9 Jya = 257 \}
10 \} = 282 \江南 = 25m vivara
As 225m : 200m : : 25m : x = 22m which with the equivalent of 9 Jya = 257 = 279m or at \[\frac{1}{2}\] = 2d 19m and as Gola 3 signifies subtractive,
From 1st equation 9s 15d 42m
Deduct Bhuja-phala 0 2 19 = 9s 13d 23m, 2nd equation.

From Apsis 8s 8d 37m
Take 2nd equation 9 13 23
\[3) 10 25 14\]

Gola 3 and 1s 25d 14m deduct from 3 Signs = 1s 4d 46m or 2086 minutes Bhuja.

As 225m : 2086m : : 1 Jya : x = 9 Jyas and 61m remainder
Manda : 9 Jyas = 257 \}
10 \} = 282 \江南 = 25m vivara.
As 225m : 61m : : 25m : x = 7m which with the equivalent of 9 Jya = 257 = 264m or 4d 24m and as Gola 3 signifies subtractive,

From Saturn 9s 16d 33m
Deduct Bhuja-phala 0 4 24 = 9s 12d 9m, 3rd equation.

From Sun 8s 28d 58m
Deduct 3rd equation 9 12 9

3 ) 11 16 49

Gola 3 and 2s 16d 49m deduct from 3 Signs = 0s 13d 11m or 791 minutes Bhuja.

As 225m : 791m : : 1 Jya : x = 3 Jyas and 116m remainder

Gola 3, use Makara : 3 Jya = 66

As 225m : 116m : : 22m : x = 11m which with the equivalent of 3 Jya = 66 = 77m or 1d 17m and as Gola 3 signifies subtractive,

From the 3rd equation 9s 12d 9m
Deduct Bhuja-phala 0 1 17

Saturn's true position on Sunday at midnight 9 10 52, 4th equation.

Saturday at midnight mean position

<table>
<thead>
<tr>
<th></th>
<th>I Sun</th>
<th>II Saturn</th>
<th>III Apsis</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Sun</td>
<td>8s 27d 59m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Take Saturn</td>
<td>9 16 31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 ) 11 11 28

Gola 3 and 2s 11d 28m deduct from 3 Signs = 0s 18d 32m or 1112 minutes Bhuja

As 225m : 1112m : : 1 Jya : x = 4 Jyas and 212m remainder

Gola 3, use Makara : 4 Jya = 88

As 225m': 212m : : 21m : x = 20m which with the equivalent of 4 Jya = 88 = 108m or at $\frac{1}{3}$ = 54m and as Gola 3 signifies subtractive,

From Saturn 9s 16d 31m
Deduct Bhuja-phala 0 0 54 = 9s 15d 37m, 1st equation.

From Apsis 8s 8d 37m
Take 1st equation 9 15 37

3 ) 10 23 0

Gola 3 and 1s 23d 0m deduct from 3 Signs = 1s 7d 0m or 2220 minutes Bhuja

As 225m : 2220m : : 1 Jya : x = 9 Jyas and 195m remainder

Manda : 9 Jya = 257

$10 \text{ "} = 282 \text{ "} = 25m$ vivara
As 225 m : 195 m : 25 m : x = 22 m which with the equivalent of 9 Jya = 257 = 279 m cr at \( \frac{1}{3} \) = 2d 19 m and as Gola 3 signifies subtractive,  
From 1st equation 9s 15d 37  
Deduct Bhuja-phala 0 2 19 = 9s 13d 18m, 2nd equation.  

\[
\begin{array}{c}
\text{From Apsis} \\
8s 8d 37m \\
\text{Deduct 2nd equation} \\
9 13 18 \\
\hline
3 ) 10 25 19
\end{array}
\]

Gola 3 and 1s 25d 19m deduct from 3 Signs = 1s 4d 41m or 2081 minutes Bhuja.

As 225 m : 2081 m : : 1 Jya : x = 9 Jyas and 56 m remainder  
Manda : 9 Jya = 257  
\( \frac{1}{3} \) = 282 \( \frac{1}{3} \) = 25m vivara  
As 225 m : 56 m : : 25 m : x = 6m which with the equivalent of 9 Jya = 257 = 263m or 4d 23m and as Gola 3 signifies subtractive,  
From Saturn 9s 16d 31m  
Take Bhuja-phala 0 4 23 = 9s 12d 8m, 3rd equation.  

\[
\begin{array}{c}
\text{From Sun} \\
8s 27d 59m \\
\text{Take 3rd equation} \\
9 12 8 \\
\hline
3 ) 11 15 51
\end{array}
\]

Gola 3 and 2s 15d 51m deduct from 3 Signs = 0s 14d 9m or 849 minutes Bhuja.

As 225 m : 849 m : : 1 Jya : x = 3 Jyas and 174m remainder.  
Gola 3, use Makara : 3 Jya = 66  
\( \frac{1}{4} \) = 88 \( \frac{1}{4} \) = 22m vivara  
As 225 m : 174 m : : 22 m : x = 17m which with the equivalent of 3 Jya = 66 = 83m or 1d 23m and as Gola 3 signifies subtractive,  
From the 3rd equation 9s 12d 8m  
Take Bhuja-phala 0 1 23  
Saturn's true position on Saturday at midnight 9 10 45, 4th equation.  
Saturn's true position on Sunday at midnight do. Saturday do. 9 10 45  
Daily motion 0 0 7  
As 24 hrs : 10 hrs : : 7m : x = 3m which added to Saturday at midnight Saturn's position 9s 10d 45m  
Sunday at 10 a.m. 11th Jany. 1874 do 9 10 48 do.

RAHU MADHYA.

RULE: To accumulated Savana days add 4348; multiply the sum by 3 and divide the product by 20383. Reject the quotient as revolutions and reduce the remainder to signs, degrees and minutes by multiplying by 12, 30 and 60 successively and dividing each product by 20383. To which result add 2 degrees and 27 mins. for correction from observation.
For correction, add the quotient of the Rassa divided by 368 to the Savana days, the remainder of which divided by 120, add the quotient to the minutes of above result. The result is the mean position of Rahu (Moon’s node). (20).

| To accumulated Savana days | 49605 |
| Add adjustment brought over at beginning of epoch | 4348 |
| Multiply by | 3 |
| Divide by 20383 ) 161859 ( 7 Revolutions 142681 |
| 19178 |
| 12 Signs |

(20) The text in Sandittha is to add for the correction but my view tentatively is to subtract: as per above \( \frac{20383}{3} = 6794.33 \) whereas the real quantity reduced to its fraction = 6794.399 (see Table in Notes).

. . . the adjustment here should not be for excess as in previous cases but for being less in the divisor; and this being so, it will evidently increase the value of the quotient.

By the Suryasiddhanta figures, it is found as below:

As 1577917828 D : 53953 D : 232238 Time of revn : x

\[ \frac{12529936314}{1577917828} = 7 \text{ Rev. } 11 \text{ s } 8 \text{ d } 42 \text{ m} \]

The result per Sandittha rule without correction = 7 11 8 43

Now to this latter amount, if instead of adding, decrease by the value of correction, one minute, it gives the same result as the former.

A SUMMARY OF THE ABOVE PRECEDING RULES, HOW TO CALCULATE THE MEAN POSITIONS OF THE PLANETS, IS GIVEN BELOW IN A TABULAR FORM:

<table>
<thead>
<tr>
<th>MARS</th>
<th>MERCURY</th>
<th>JUPITER</th>
<th>VENUS</th>
<th>SATURN</th>
<th>RAHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add to the Savana days</td>
<td>507</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>1877</td>
</tr>
<tr>
<td>Result or Savana days multiply by</td>
<td>1</td>
<td>100</td>
<td>3</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Deduct from result</td>
<td>0</td>
<td>2225</td>
<td>366</td>
<td>139</td>
<td>0</td>
</tr>
<tr>
<td>Add the quotient of Rassa divided by</td>
<td>751</td>
<td>809</td>
<td>933</td>
<td>429</td>
<td>131</td>
</tr>
<tr>
<td>Divide the result by</td>
<td>687</td>
<td>8797</td>
<td>12997</td>
<td>2247</td>
<td>10766</td>
</tr>
<tr>
<td>As minutes add the quotient of the division of the remainder of Rassa divided by</td>
<td>24</td>
<td>( \frac{16}{6} )</td>
<td>186</td>
<td>( \frac{1}{6} )</td>
<td>65</td>
</tr>
<tr>
<td>Add for correction from observation</td>
<td>74</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>302</td>
</tr>
<tr>
<td>Deduct</td>
<td>...</td>
<td>262</td>
<td>180</td>
<td>183</td>
<td>...</td>
</tr>
</tbody>
</table>
The above foregoing operations of Sighra and Manda based upon the Jyas by means of additive or subtractive equation, have reference to corrections of the several inequalities in the different kinds of motion of the planets.

When in proper (direct) motion, the Sun takes 30 days to move from one sign into another, Moon 2 days and 15 sarks, Mars 45 days, Mercury 18 days, Venus 28 days, Jupiter 12 months, Saturn 30 months and Rahu 19 months.

(I) When the motion of the planets beginning with Mars, from one sign into another is ahead of their usual motion and the time taken is less than as above limited, it is said to be "Singha," and (II) if the motion is backward, "Vakra." (III) And when in excess of the limit, no movement taking place from one sign into another, "Niyadum."  

The first two kinds of motion are also called in some other works:

"Sihaja-cariya" (deed or practice of a lion) and

"Eyagga-cariya" (deed or practice of a tiger).

The former signifying that the retrograde motion of a planet is in the manner of a lion i.e., after finding prey, he returns by the way he came and not as in the manner of the tiger, as the term signifying in the latter.

Some other works in Burmese also give five kinds of motion, viz.:

I. Crooked motion, i.e. a forward movement into the next sign and then backward again.

II. Very crooked motion, i.e. the movement from a sign into the next takes less time than that allotted; or the forward movement into the next sign and again backward into another, next from its original position.

III. Very crooked and twisted motion, i.e. by having 14 nakshats Ashvini, Bharani, Krittika, Rohini, Magha, Sravati, Saravan, Dhanasidha, Satabisha, Revati, Ultra-praguni, Uttraprabiik, Prupaprabhik and Ultra-sanh, on the left, and 11 nakshats, Migasi, Adra, Aesheha, Pruppa-pragunn, Hastha, Citra, Visakha, Anuradha, Jetha, Mula and Pruppa-san, on the right with Puana-pusha (7th) and Pusha (8th) nakshats in the centre.

IV. Accelerated motion, i.e. by skipping over a sign; or by getting from its sign into the third one; or into the fourth one from the second; or into the sixth from the fourth.

V. Very retarded motion, i.e. it takes double the time allotted to move from one sign into another.

or

(i). Vanka-gati, forward movement from one sign into the next.

(ii). Ativanka-gati, by having 14 nakshats on the left instead of as usual on the right or 11 nakshats on the right instead of on the left and two nakshats on the right instead of in the centre.

(iii). Kutila-gati, backward movement from one sign into the next.

(iv). Sigha-gati, accelerated movement by taking less time than usual.

(v). Manda-gati, remaining in one sign longer than its usual time.

Kutila-gati and Sigha-gati are respectively also called Byagha-cariya and Sihaja-cariya.
As per above calculation \[11s \text{ 8d 43m}\]
Add for correction from observation \[0 \text{ 2 27}\]
Deduct as per above correction \[= \]
Rahu’s mean (Node) on Sunday midnight \[11s 11d 10m\]

From \[12s\]
Take above calculation \[11s \text{ 11d 9m = 0s 18d 51m}\] Rahu’s true position on Sunday at midnight.

Daily motion 3’ (As 24 hrs : 14 hrs. :: 3’)= 0 0 2 deduct excess.

Rahu’s true position on Sunday at 10 a.m. \[0 \text{ 18 49}\]
For Kethu’s add 6 Signs do. \[= \]

The Suryasiddhanta gives eight kinds of motion:—

(I). Vakra (decreasing retrograde motion) \{ Retrograde.
(II). Ativakra (increasing retrograde motion) \}
(III). Vikala (Stationary)
(IV). Manda (increasing direct motion less than the mean motion)
(V). Mandatara (decreasing direct motion less than the mean motion)
(VI). Sama (mean motion)
(VII). Sighatra or Atisighra (increasing direct motion greater than the mean motion)
(VIII). Sighra (decreasing direct motion greater than the mean motion)

The Suryasiddhanta farther gives the limit when the planets begin to retrograde and leave their retrogression:—

"Mars, Mercury, Jupiter, Venus and Saturn get the retrograde motion about the same time when the degrees of their Kendraas (distance of a planet from either of its two apses of motion) as found in the 4th operation, are equal to 164, 144, 120, 163 and 115 respectively; and when also they equal to the remainders 196, 216, 230, 197 and 245 as found by subtracting the said numbers from 360 degrees, the planets leave their retrogression, or when

= 7 signs for Mars and Venus,
= 8 " Mercury and Jupiter
and = 9 " Saturn..

Moon, Mercury, Venus, Sun, Mars, Jupiter and Saturn stand in comparison to each other in this serial order as to their elevation from depression (from lowest to highest).

When any of the planets is greater than that of the Sun in signs and degrees, it indicates that that planet is visibly rising in the west; and if less than that of the Sun, in the East. But to be visible the difference in longitude must be above the limit of the degrees mentioned below.

Between the Sun and Mars and other planets, take the lesser from the greater; if deducted from Mars and other planets the degrees are West and if deducted from the Sun, East.

The difference in degrees:
East or West is 17 degrees for Mars, (within of Sun)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Jupiter do</td>
</tr>
<tr>
<td>15</td>
<td>Saturn do</td>
</tr>
<tr>
<td>12</td>
<td>Mercury do</td>
</tr>
<tr>
<td>14</td>
<td>do do</td>
</tr>
<tr>
<td>8</td>
<td>Venus do</td>
</tr>
<tr>
<td>10</td>
<td>do do</td>
</tr>
</tbody>
</table>

The planets Mars etc. having been overpowered within these limits of degrees by the brilliancy of the Sun are not visible (set or disappeared).
BURMESE ASTRONOMY

NAKKHAT. (21)

To find the number of asterisms, at the given time, the Moon (or any of the other planets) has traversed:

**RULE:** Reduce the required Planet's true longitude to minutes and divide by 800; the quotient is the number of asterisms traversed, and the remainder (the part traversed of the asterism in which the planet is) multiplied by 9, the product divided by 120, the quotient is ghati and its remainder divided by 2, the quotient is anughati.

Example:—True longitude of the Moon at 10 a.m. on Sunday, 9th decrease of Pyatho 1235 B.E. is 6 Signs 3d 7m = 10,987 minutes

<table>
<thead>
<tr>
<th>Divide by</th>
<th>800</th>
<th>10987</th>
<th>13 nakkhat elapsed 10400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remainder</td>
<td>587</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiply by</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divide by</td>
<td>120</td>
<td>5283</td>
<td>44 ghati 5280</td>
</tr>
<tr>
<td>Divide remainder by 2</td>
<td>3</td>
<td>1(\frac{1}{2}) anughati</td>
<td></td>
</tr>
</tbody>
</table>

The Moon is in the asterism Chitra i.e., 13 nakkhats 44 ghatis and 1\(\frac{1}{2}\) anughatis and will be found, expressed in some Hindu Panchangams or Pattras, Chitra in 3rd pad of 14 ghati.

(21) Besides the division of the Ecliptic into 12 equal parts of 30 amsas (degrees) each, corresponding to the Signs of the Zodiac, it is also uniformly constellated into \(\frac{7}{3}\) nakkhats or asterisms; therefore each rasi or sign = 2 nakkhats and one pad; (4 pads = one nakkhat i.e. 13d 20m or 800 minutes).

Though this mode of measurement is as quite applicable to the other planets, as some of the Hindus Almanacks (Panchangams or Pattras) express the true longitudes of the Sun and the other remaining planets by nakkhats, it is more appropriately so for the Moon by being brought into special connection with its revolution in traversing 27 nakkhats and making a complete round of the Ecliptic in a Lunar month (Chandramasa) and hence the term "Lunar Mansions" and the expression in Burmese “Nay-si-nawin and San-si-aneckat” (စနွေးစဖြစ်သောကြက်‌ကိုအခြေခံချင်းစွာ) i.e. Sun riding or mounted on the nine divisions and Moon riding or mounted on nakkhats.

The first is the system of dividing the rasi or sign into nine equal parts i.e. each navin consists of 3d 20m or \(\frac{1}{9}\) of a neckat or one pad: consequently the whole Zodiac constitutes of 108 navins or pads.

The rasis and nakkhats are both reckoned from the same point of the Zero of longitude of Mesha i.e. the initial point of Mesha is first point of Ashvini.

The above rule of the multiplication by \(\frac{7}{3}\) to remainder obtained of the division by 800, is the reduction to ghati of \(\frac{7}{3}\), which is equal to \(\frac{1}{9}\), but instead of which it is taken 3 times the numerator and denominator \(\left(\frac{1}{3}\right)^3\) and the division of the remainder therefrom by 2, is that which is reduced to anu-ghati \(\frac{7}{3}\) = \(\frac{2}{7}\). This looks a queer and conventional method of Burmese calculation but at the same time such seems to suit the purpose of the "Ko-kyoang-bedin sayas" (Astronomical calculators by 9 times) who are almost infallible in their multiplication of 9 times.

Appended is a list of the nakkhats with their measurement in the division of the Zodiac, with the Taras etc. and those of the Suryasiddhanta.
<table>
<thead>
<tr>
<th>Yog Taras</th>
<th>No.</th>
<th>Asterisms</th>
<th>No. of Stars</th>
<th>Figures</th>
<th>Pads</th>
</tr>
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<tbody>
<tr>
<td>I Kāka, Crow (12)</td>
<td>1</td>
<td>Ashvini</td>
<td>6</td>
<td>Horseshead</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Bharani</td>
<td>3</td>
<td>Hen</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Krittika</td>
<td>7</td>
<td>Razor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Rohini</td>
<td>10</td>
<td>Car</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Migasī</td>
<td>3</td>
<td>Deerhead</td>
<td>2</td>
</tr>
<tr>
<td>II Hānsa, Brahmani Goose (9)</td>
<td>6</td>
<td>Adra</td>
<td>1</td>
<td>Coral Bead</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Pannā-pusha</td>
<td>5</td>
<td>House</td>
<td>3</td>
</tr>
<tr>
<td>III Kākalaka, Crab (14)</td>
<td>8</td>
<td>Pusha</td>
<td>10</td>
<td>Arrow</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Alesha</td>
<td>4</td>
<td>Serpent</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Magha</td>
<td>4</td>
<td>House</td>
<td>4</td>
</tr>
<tr>
<td>IV Tala, Balance (4)</td>
<td>11</td>
<td>Pruppa-phaalaguni</td>
<td>4</td>
<td>Cot</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Uttra do</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V Cūlāsa, Hairpa (5)</td>
<td>13</td>
<td>Hasha</td>
<td>5</td>
<td>Hand</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Citra</td>
<td>1</td>
<td>Pearl</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>Svati</td>
<td>2</td>
<td>Sapphire</td>
<td>4</td>
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<tr>
<td></td>
<td>16</td>
<td>Visakha</td>
<td>14</td>
<td>Flowery Bed</td>
<td>3</td>
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<tr>
<td>VI Kuvuddha, Fisherman (8)</td>
<td>17</td>
<td>Anuradha</td>
<td>15</td>
<td>Palm tree</td>
<td>4</td>
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<tr>
<td></td>
<td>18</td>
<td>Jyetha</td>
<td>5</td>
<td>Ear ornament</td>
<td>4</td>
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<tr>
<td></td>
<td>19</td>
<td>Mula</td>
<td>4</td>
<td>Crouching Lion</td>
<td>4</td>
</tr>
<tr>
<td>VII Hatthi, Elephant (9)</td>
<td>20</td>
<td>Pruppa-San</td>
<td>4</td>
<td>Crouching Lion</td>
<td>4</td>
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<tr>
<td></td>
<td>21</td>
<td>Uttra-San</td>
<td></td>
<td>Crouching Lion</td>
<td>3</td>
</tr>
<tr>
<td>VIII Assa, Horse (13)</td>
<td>22</td>
<td>Sravanna</td>
<td>3</td>
<td>Arrow</td>
<td>4</td>
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<td>23</td>
<td>Dhanasiddha</td>
<td>4</td>
<td>Drum</td>
<td>2</td>
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<tr>
<td></td>
<td>24</td>
<td>Satta-Bhīha</td>
<td>6</td>
<td>Flower</td>
<td>4</td>
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<tr>
<td></td>
<td>25</td>
<td>Pruppa-parbhike</td>
<td>6</td>
<td>Legs of cot</td>
<td>3</td>
</tr>
<tr>
<td>IX Bakām, Crane ; Heron (8)</td>
<td>26</td>
<td>Uttra do</td>
<td>4</td>
<td>Legs of cot</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>Revati</td>
<td>9</td>
<td>Fish</td>
<td>4</td>
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*According to

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<tr>
<th>Nakkhats</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>11</th>
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<tbody>
<tr>
<td>Degrees</td>
<td>8</td>
<td>18</td>
<td>34</td>
<td>46</td>
<td>60</td>
<td>65</td>
<td>92</td>
<td>106</td>
<td>118</td>
<td>129</td>
<td>145</td>
</tr>
<tr>
<td>Antara degrees</td>
<td>18</td>
<td>10</td>
<td>16</td>
<td>12</td>
<td>14</td>
<td>5</td>
<td>27</td>
<td>14</td>
<td>12</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>Difference in naris</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Bijanas</td>
<td>0</td>
<td>40</td>
<td>40</td>
<td>0</td>
<td>20</td>
<td>50</td>
<td>30</td>
<td>20</td>
<td>0</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>

Rule:—The Antara degrees divided by six the quotient is nari and remainder-
<table>
<thead>
<tr>
<th>Rasis</th>
<th>Space in the Ecliptic</th>
<th>To space of antecedent asterism add ten times of</th>
<th>Suryasiddhanta apparent *</th>
<th>Longitude</th>
<th>Latitude</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mesha</td>
<td>13° 20'</td>
<td>48° 8'</td>
<td>10° 0' N</td>
<td>Alpha Arietis.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26° 40'</td>
<td>40° 6'</td>
<td>20° 0'</td>
<td>Musca</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30°</td>
<td>65° 10'</td>
<td>37° 30'</td>
<td>Pi Tauri, Pleiades.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40°</td>
<td>58° 9'</td>
<td>63°</td>
<td>Lambda Orionis.</td>
<td></td>
</tr>
<tr>
<td>Presha</td>
<td>53° 20'</td>
<td>57° 9'</td>
<td>49° 30'</td>
<td>Alpha Tauri, Aldebaran.</td>
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</tr>
<tr>
<td></td>
<td>60°</td>
<td>58° 9'</td>
<td>63°</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>66° 40'</td>
<td>4° 0'</td>
<td>67° 20'</td>
<td>Alpha Orionis.</td>
<td></td>
</tr>
<tr>
<td>v Median</td>
<td>80°</td>
<td>78° 13'</td>
<td>93°</td>
<td>Beta Geminorum.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>90°</td>
<td>78° 13'</td>
<td>93°</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>93° 20'</td>
<td>76° 12'</td>
<td>106°</td>
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<tr>
<td>Karaka</td>
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<td>64° 10'</td>
<td>224°</td>
<td>Alpha 1 and 2 Cancri.</td>
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</tr>
<tr>
<td></td>
<td>120°</td>
<td>14° 2'</td>
<td>109°</td>
<td>Alpha Leonis, Regulus.</td>
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<tr>
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<td>129°</td>
<td>Delta Leonis.</td>
<td></td>
</tr>
<tr>
<td>Sinh</td>
<td>146° 40'</td>
<td>4° 0'</td>
<td>144°</td>
<td>Beta Leonis.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>150°</td>
<td>50° 8'</td>
<td>155°</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>160°</td>
<td>60° 10'</td>
<td>170°</td>
<td>Gamma or Delta Corvi.</td>
<td></td>
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<tr>
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<td>173° 20'</td>
<td>78° 13'</td>
<td>199°</td>
<td>Alpha Virgo, Spica.</td>
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</tr>
<tr>
<td></td>
<td>180°</td>
<td>78° 13'</td>
<td>213°</td>
<td>Alpha or Chi Libra.</td>
<td></td>
</tr>
<tr>
<td>Tu</td>
<td>186° 40'</td>
<td>64° 10'</td>
<td>324°</td>
<td>Delta Scorpi.</td>
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</tr>
<tr>
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<td>14° 2'</td>
<td>229°</td>
<td>Alpha Scorpi.</td>
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<tr>
<td></td>
<td>210°</td>
<td>6° 1</td>
<td>241°</td>
<td>Nu Scorpi.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>213° 20'</td>
<td>4° 0</td>
<td>254°</td>
<td>Delta Sagitt. ri.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>220°</td>
<td>40° 6</td>
<td>260°</td>
<td>Tau Sagitt. ri.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>226° 40'</td>
<td>80° 13</td>
<td>280°</td>
<td>Alpha Aquil.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>230°</td>
<td>60° 10</td>
<td>290°</td>
<td>Alpha Delphini.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>236° 40'</td>
<td>80° 13</td>
<td>320°</td>
<td>Lambda Aquil.</td>
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<tr>
<td></td>
<td>250°</td>
<td>36° 6</td>
<td>326°</td>
<td>Alpha Pegasi.</td>
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<tr>
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<td>280°</td>
<td>36° 6</td>
<td>326°</td>
<td></td>
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<tr>
<td>Makara</td>
<td>292° 20'</td>
<td>22° 3</td>
<td>337°</td>
<td>Alpha Andromed.</td>
<td></td>
</tr>
<tr>
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<td>300°</td>
<td>79° 13</td>
<td>359°</td>
<td>Zeta Pisc.</td>
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<tr>
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<td>306° 40'</td>
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<td>359°</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>320°</td>
<td>79° 13</td>
<td>359°</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>330°</td>
<td>36° 6</td>
<td>326°</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>333° 20'</td>
<td>22° 3</td>
<td>337°</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>346° 40'</td>
<td>79° 13</td>
<td>359°</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>350°</td>
<td>79° 13</td>
<td>359°</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Samdittha:

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12| 13| 14| 15| 16| 17| 18| 19| 20| 21| 22| 23| 24| 25| 26| 27|   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 154| 164| 179| 192| 213| 224| 229| 242| 257| 262| 275| 287| 313| 323| 339| 350|   |   |   |   |   |   |
| 9 | 10| 15| 13| 21| 11| 5 | 13| 15| 5 | 13| 12| 26| 10| 16| 11|   |   |   |   |   |   |
| 1 | 1 | 2 | 2 | 3 | 1 | 0 | 2 | 2 | 0 | 2 | 2 | 4 | 1 | 2 | 1 |   |   |   |   |   |   |
| 30| 40| 30| 10| 30| 50| 50| 10| 30| 50| 10| 0 | 20| 40| 40| 50|   |   |   |   |   |   |

of which multiplied by ten is bijanas which are difference in time.
YOGA (22).

To find the Yoga at the given time:

RULE: To the true position of Sun, add that of the Moon's, the sum reduced to minutes, divided by 800, the quotient is Yoga, and its remainder multiplied by 60, divided by 800, the quotient is ghatis elapsed.

Example:

<table>
<thead>
<tr>
<th>To Sun's position</th>
<th>8s 28d 48m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Moon's position</td>
<td>6 3 7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sum, reducing</th>
<th>3 1 55</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>60</td>
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<table>
<thead>
<tr>
<th>Divided by 800</th>
<th>5515 (6 yoga)</th>
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<tbody>
<tr>
<td></td>
<td>4800</td>
</tr>
<tr>
<td></td>
<td>715</td>
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<td></td>
<td>60</td>
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<table>
<thead>
<tr>
<th></th>
<th>42900 (54 ghatis)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>4000</td>
</tr>
<tr>
<td></td>
<td>2900</td>
</tr>
<tr>
<td></td>
<td>3200</td>
</tr>
</tbody>
</table>

...6th Yoga and 54 ghatis elapsed which is in the 7th Yoga, i.e., Sukamma, as given in the list below:


TITHI (22a).

To find the tithi at the given time:

RULE: From the true position of Moon take that of the Sun's (if not subtractable add 12) if more than 6 Signs deduct same and note it is for Lasan tithi, remainder for Lasok tithi. The remainder reduced to minutes, divided by 720, the quotient is tithi, its remainder divided by 12, the quotient is ghati.

Example:

<table>
<thead>
<tr>
<th>From Moon's position on Sunday at 10 a.m.</th>
<th>6s 3d 7m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take Sun's do.</td>
<td>8 28 48</td>
</tr>
</tbody>
</table>

| As this is more than 6s | 9 4 19 |
| Deduct for Lasan | 6 0 0 |

(22) A yoga is the time during which the Sun and Moon together accomplish 13 degrees 20 minutes of space. There are thus 27 yogas which together make 360 degrees.
Remainder for Lasök  
\[3s 4\text{d} 19m\]
\[\frac{30}{94} = 60\]
Divide by \[720\] \[5659\] \(= 7\text{tithi}\)
\[5040\]
Divide by \[12\] \[619\]
\[51\frac{1}{2}\] ghatis

On the date in question, it is in the 8th tithi of Lasök (decrease of the Moon) or at the given time 7th tithi and 51\(\frac{1}{2}\) ghatis have elapsed.

(22a) A month is divided into two pakkhas of 15 tithis each: the first fortnight is denominated Lasan (increase of Moon) pakkha and the other fortnight, Lasök (decrease of Moon) pakkha.

A tithi is a luni-solar day or 1\(\frac{1}{6}\)th of a lunation or the average time in which the Moon increases her longitudinal distance from the Sun. As Sun on an average progresses one degree daily, Moon has really to pass 13 degrees to complete one tithi.

The tithis with the exception of the 15th and last have no special names attached to them but are ordinarily termed as first, second etc. of the lasan or lasök pakkha tithi and the names of the two exceptional ones are punnami and anvasi tithis.

The tithis are merely nominal divisions used for calculating Moon’s place and the date on which the year begins.

It so happens that Full Moon takes place in its proper asterismic position in the ecliptic later, or earlier than the 15th (or mean Full Moon) or on the 15th of the month, which occurrences are respectively termed Tinna or Alon, Hanina or Lasök and Punn or Ani.

<table>
<thead>
<tr>
<th>Months</th>
<th>Full Moon</th>
<th>Asterism-Noa. pd.</th>
<th>New Moon</th>
<th>Asterism-Noa. pd.</th>
<th>Names of months derived from Punnami or Full Moon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tagu</td>
<td>2nd pad Citra</td>
<td>13 2</td>
<td>1st pad Bharani</td>
<td>1 1 Citra.</td>
<td></td>
</tr>
<tr>
<td>Kèson</td>
<td>3 Visakha</td>
<td>15 3</td>
<td>2 Rohini</td>
<td>3 2 Visakha.</td>
<td></td>
</tr>
<tr>
<td>Nayon</td>
<td>4 Jeytha</td>
<td>18</td>
<td>3 Adra</td>
<td>5 3 Jeytha.</td>
<td></td>
</tr>
<tr>
<td>Waso</td>
<td>1 Ultrasan</td>
<td>20 1</td>
<td>4 Pu-ha</td>
<td>8 Ashar or Asanil</td>
<td></td>
</tr>
<tr>
<td>Wagaung</td>
<td>2 Danasiddha</td>
<td>22 2</td>
<td>1 P. Phalgusi</td>
<td>10 1 Sраванна</td>
<td></td>
</tr>
<tr>
<td>Tawtalina</td>
<td>3 Prappa parabha</td>
<td>24 3</td>
<td>2 Hashta</td>
<td>12 2 Bhadra.</td>
<td></td>
</tr>
<tr>
<td>Thadiagyt</td>
<td>4 Raivati</td>
<td>0 0</td>
<td>3 Svati</td>
<td>14 3 Asvini.</td>
<td></td>
</tr>
<tr>
<td>Tasuagmon</td>
<td>1 Krítika</td>
<td>2 1</td>
<td>4 Anuradha</td>
<td>17 Krítika.</td>
<td></td>
</tr>
<tr>
<td>Nabaw</td>
<td>2 Migasi</td>
<td>4 2</td>
<td>1 Prappa-an</td>
<td>19 1 Migasi.</td>
<td></td>
</tr>
<tr>
<td>Pyatho</td>
<td>3 Puna bhusa</td>
<td>6 3</td>
<td>2 Sravanna</td>
<td>21 2 Pūsha.</td>
<td></td>
</tr>
<tr>
<td>Tabodwe</td>
<td>4 Aslesha</td>
<td>9 0</td>
<td>3 Satura</td>
<td>23 3 Magha.</td>
<td></td>
</tr>
<tr>
<td>Tabuung</td>
<td>1 U. Phalaguni</td>
<td>11 1</td>
<td>4 U. parabha</td>
<td>26 0 Balagun.</td>
<td></td>
</tr>
</tbody>
</table>
To find the Karana:—

RULE: If lasan tithis, take the tithi as it is but if lasok, add 15 to the tithi, which multiplied by two, from the product deduct one, the remainder divided by seven, if remainder is

One, it is called Pabba (moveable or cora) Karana

<table>
<thead>
<tr>
<th>Two</th>
<th>Balava</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three</td>
<td>Kaulava</td>
</tr>
<tr>
<td>Four</td>
<td>Tetila</td>
</tr>
<tr>
<td>Five</td>
<td>Karaj</td>
</tr>
<tr>
<td>Six</td>
<td>Vuniccha</td>
</tr>
<tr>
<td>Seven</td>
<td>Bishati</td>
</tr>
</tbody>
</table>

(23) A Karana is half a tithi. As mentioned in the text the four are always fixed while the other seven are moveable and repeated each of them eight times in the month as shown in the table below:—

<table>
<thead>
<tr>
<th>Nos.</th>
<th>TITHIS Duration</th>
<th>KARANAS Names</th>
<th>Nos.</th>
<th>REPETITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>1st half</td>
<td>Kitughana</td>
<td>1</td>
<td>Fixed.</td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Balava</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Kaulava</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>1st</td>
<td>Tetila</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Karaj</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>1st</td>
<td>Vuniccha</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Bishati</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>1st</td>
<td>Palava</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>1st</td>
<td>Balava</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Kaulava</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Tetila</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>7th</td>
<td>1st</td>
<td>Karaj</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Vuniccha</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>8th</td>
<td>1st</td>
<td>Bishati</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>9th</td>
<td>2nd</td>
<td>Palava</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>10th</td>
<td>2nd</td>
<td>Balava</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>2nd</td>
<td>Kaulava</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>11th</td>
<td>2nd</td>
<td>Tetila</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>2nd</td>
<td>Karaj</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>12th</td>
<td>2nd</td>
<td>Vuniccha</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>2nd</td>
<td>Bishati</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>13th</td>
<td>2nd</td>
<td>Palava</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>14th</td>
<td>2nd</td>
<td>Balava</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Kaulava</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>15th</td>
<td>2nd</td>
<td>Tetila</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>14th</td>
<td>2nd</td>
<td>Karaj</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1st</td>
<td>Vuniccha</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>15th</td>
<td>1st</td>
<td>Bishati</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>14th</td>
<td>1st</td>
<td>Bishati</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>
Besides these there are four other Karajyas which are always taken as fixed Karajyas:

Lasun 1st tithi of the preceding 30 ghatis, Kitughana
Lasok 14th tithi of the succeeding 30 ghatis, Sakuni
,, 15th tithi of the preceding 30 ghatis, Naga and
,, do. succeeding 30 ghatis, Catuppada

Example:—In the above the tithi found is the 8th of the lasok, therefore adding to it

\[
\begin{align*}
15 + 23 & = 38 \\
\text{which multiply by} & = 2 \\
& = 46
\end{align*}
\]

deduct one from this 45, divided by seven the remainder is 3, indicating Kaulava Karajya.

<table>
<thead>
<tr>
<th>Nos.</th>
<th>TITHIS Duration</th>
<th>KARANAS Names</th>
<th>Nos.</th>
<th>REPETION</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th</td>
<td>1st „ 2nd „</td>
<td>Palava</td>
<td>16th</td>
<td>5th do.</td>
</tr>
<tr>
<td>17th</td>
<td>1st „ 2nd „</td>
<td>Kaulava</td>
<td>17th</td>
<td>6th do.</td>
</tr>
<tr>
<td>18th</td>
<td>1st „ 2nd „</td>
<td>Tetila</td>
<td>18th</td>
<td>7th do.</td>
</tr>
<tr>
<td>19th</td>
<td>1st „ 2nd „</td>
<td>Karaj</td>
<td>19th</td>
<td></td>
</tr>
<tr>
<td>20th</td>
<td>1st „ 2nd „</td>
<td>Vani cha</td>
<td>20th</td>
<td></td>
</tr>
<tr>
<td>21st</td>
<td>1st „ 2nd „</td>
<td>Bishati</td>
<td>21st</td>
<td></td>
</tr>
<tr>
<td>22nd</td>
<td>1st „ 2nd „</td>
<td>Palava</td>
<td>22nd</td>
<td></td>
</tr>
<tr>
<td>23rd</td>
<td>1st „ 2nd „</td>
<td>Kaulava</td>
<td>23rd</td>
<td></td>
</tr>
<tr>
<td>24th</td>
<td>1st „ 2nd „</td>
<td>Tetila</td>
<td>24th</td>
<td></td>
</tr>
<tr>
<td>25th</td>
<td>1st „ 2nd „</td>
<td>Vaniccha</td>
<td>25th</td>
<td></td>
</tr>
<tr>
<td>26th</td>
<td>1st „ 2nd „</td>
<td>Palava</td>
<td>26th</td>
<td></td>
</tr>
<tr>
<td>27th</td>
<td>1st „ 2nd „</td>
<td>Kaulava</td>
<td>27th</td>
<td></td>
</tr>
<tr>
<td>28th</td>
<td>1st „ 2nd „</td>
<td>Karaj</td>
<td>28th</td>
<td></td>
</tr>
<tr>
<td>29th</td>
<td>1st „ 2nd „</td>
<td>Vaniccha</td>
<td>29th</td>
<td></td>
</tr>
<tr>
<td>30th</td>
<td>1st „ 2nd „</td>
<td>Sankuna</td>
<td>30th</td>
<td>Fixed.</td>
</tr>
<tr>
<td></td>
<td>1st „ 2nd „</td>
<td>Naga</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1st „ 2nd „</td>
<td>Catuppada</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AYANAMSA (24).

To find the Ayanaṁsa :—

**Rule:** To the Yuga of the given date add 88; the sum divided by 1800, the quotient resulting therefrom divided again by 4, the remainder of which is gola.

When gola is 1 or 3, deduct the remainder of the division by 1800, from its divisor (1800) the remainder is Bhuja.

When gola is 0 or 2, take the remainder of the division by 1800, as Bhuja.

The Bhuja thus found multiplied by 9 and the product divided by 600, gives degrees and its remainder divided by 10, gives minutes called the Ayana.

When gola indicates Mesha 0 or 1, deduct, and when Tuladi, 2 or 3, add, the ayana thus obtained, from or to the positions of the Sun and other planets. The results are the Sayana positions of the the Sun and other planets.

<table>
<thead>
<tr>
<th>Example</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>For B. E. 1235 =</td>
<td>4974 Kali Yuga years</td>
</tr>
<tr>
<td>Add</td>
<td>88</td>
</tr>
<tr>
<td>Divide by</td>
<td>1800</td>
</tr>
<tr>
<td></td>
<td>3600</td>
</tr>
<tr>
<td>Remainder is taken</td>
<td>1462 as Bhuja</td>
</tr>
<tr>
<td>Multiply by</td>
<td>9</td>
</tr>
<tr>
<td>Divide by</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>12600</td>
</tr>
<tr>
<td>Remainder by</td>
<td>10</td>
</tr>
</tbody>
</table>

(24) Suryasiddhanta : The circle of Asterisms librates 600 times in a great Yuga (that is to say all the Asterisms, (i) at first, move westward 27d. (ii) Then returning from that limit they reach their former places. (iii) Then from those places they move Eastward the same number of degrees, (iv) and returning thence come again to their own places).

Therefore the time of complete revolution is 600th part of 4320000 years

\[
= 7200 \text{ years of } 27d \times 4 \text{ times } = \frac{1}{54} \text{" for its annual rate }
\]

The adding of 88 is because the Vrisuva chaya of Mesha and Tala, being the same, its adjustment is to make the two ayanas coincide at the beginning of the epoch.

The multiplication of \( \frac{1}{600} \) is the reduction obtained of \( 3 \frac{5}{6} \)" of a degree of the ecliptic.

Babuji Ketkar in his "Jyoitraganitam" gives the value of the Ayanaṁsa for the era under calculation to be 22h 5m. According to which it will be seen on page 198 whether or not the accuracy of this figure as claimed by him brings the positions of the Sun and other planets near the ones, as deduced by the European methods.
BURMESE ASTRONOMY

CARADDHA CARASAVA BIJANAS (25).

To find the Caraddha carsava bijanas when the equinoctial shadow of a place as taken by means of a Sanku (gnomon) is given.

RULE: Reduce the visuvachaya in liptas and palas of a given place to palas. Multiply this by ten. Set the result down in 3 places: divide in the first place by 59, 2nd by 33 and last by 28. The quotients respectively resulting from these are the caraddha carsava bijanas of the required place.

Below is a list of a few places with the measurement of shadow taken at noon on the day of the Sun’s entry into the Vernal equinox, as given on page 7 of Sara-vijjodya (25a).

<table>
<thead>
<tr>
<th>Place</th>
<th>Lipt</th>
<th>Pala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanka and Malacca</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Kandy, Ceylon</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Rangoon, Lower Burma</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Sri-Khettra, Prome</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Dinnyawaddi, Arracan</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Amarapooara, Mandalay</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Bangkok, Slam (Yoedia)</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Peking, China</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Kwintong (Canton)</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Majjhimadesa (Bo tree) Gaya</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Benares (Baranasi)</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>London, England</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

Example:—The shadow taken at Rangoon 3 lipta and 37 palas reduced to palas = $217 \times 10 =$

1st $2170 \div 59 = 36$
2nd $2170 \div 33 = 65$
3rd $2170 \div 28 = 77$

Caraddha Carsava Bijanas

ANOTHER RULE: Set down the reduced palas in three places: in the first place multiply by 10, in 2nd by 8 and in the last by $\frac{1}{10}$. The results thus obtained are the carsava bijanas (ascensional difference). Take the first as it is; add the first to the second, and the sum add to the third. The results are the caraddha carsava bijanas.

Example:—

Amarapooara’s shadow is 4 liptas 44 palas. Reduced to palas = 284 palas.

1st $284 \times 10 = 2840 \div 60 = 48 = 48$
2nd $284 \times 8 = 2272 \div 60 = 38 + 48 = 86$
3rd $284 \div 3 = 947 \div 60 = 16 + 86 = 102$

(25) This is a horizontal dial with a vertical gnomon regardless of what length it is, taken it is divided into twelve equal parts called angula (finger) and each angula consists of 60 vingula.

Sandithi employs Tropical year for ascertaining the length of days and nights, i.e., by the movement of Sayana ravi that part of the day during which the Sun is above and that during which it is below, the horizon.

The initial point of Sayana ravi or the Sun’s entry into the vernal equinox by tropical time is the point when the length of days and nights are of equal duration i.e., 30 naris for day and 30 naris for night. And from this point, 30 naris or half a day is increased uniformly degree by degree up to 30 naris + 36 bijanas when the Sun reaches 30 degrees in its movements. At the completion of 60 degrees the time is $30n + 36b + 29b$; and at the 90th decree, $30n + 36b + 29b + 12b$ for the latitude of Rangoon (see p. p. 193 194).

These values deducted from 30 naris will give the length of the nights.
DINADDHA AND NISADDHA.

To find the length of day and night and the Sunrise and Sunset of a given place.

RULE: To the true midnight position of previous day add the fourth part of the daily motion of the Sun. Whichever the gola indicates, add to or deduct, the Ayanasma. The result is Sayana ravi. Reduce Sayana ravi in Signs and degrees, to degrees, which divided by 90 the quotient is Gola.

When gola is 0 or 2, take its remainder as Bhuja and
When gola is 1 or 3, deduct its remainder from the divisor (90) and take this remainder as Bhuja.

Divide the Bhuja by 30, the quotient is Khanda and remainder vivara. Apply this to the corresponding Khanda of caraddha carasava bijanas Jya and its remainder proportionately between the difference of gata and gamya Jyas.

If gola is Meshadi, 0 or 1, add the result (i.e., carasava) to 900.
And if Gola is Tuladi, 2 or 3, deduct the carasava from 900. The result is the Dinaddha bijanas of the day (half diurnal duration) deduct this from 1800, the remainder is Nisaddha bijanas (half nocturnal duration) of the day under calculation. Twice these results are respectively the length of day and night.

(25a) VISUVA CHAYA.

<table>
<thead>
<tr>
<th>Mergui</th>
<th>2 liptas 35 palas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tavoy</td>
<td>2</td>
</tr>
<tr>
<td>Thongwa</td>
<td>3</td>
</tr>
<tr>
<td>Amherst</td>
<td>3</td>
</tr>
<tr>
<td>Marataba, Maulmein, Myatungmya</td>
<td>3</td>
</tr>
<tr>
<td>Bassein, Twante, Napataw, Maubin, Shwelaung</td>
<td>3</td>
</tr>
<tr>
<td>Thaton, Pastanaw</td>
<td>3</td>
</tr>
<tr>
<td>Kyumpaw, Peu, Rangoon</td>
<td>3</td>
</tr>
<tr>
<td>Hennada, Tharrawaddy</td>
<td>3</td>
</tr>
<tr>
<td>Shwegyin, Papan, Kyakto, Myanaung</td>
<td>3</td>
</tr>
<tr>
<td>Pawngde, Sindoway</td>
<td>3</td>
</tr>
<tr>
<td>Pronc, Shwelaung</td>
<td>3</td>
</tr>
<tr>
<td>Toungoo</td>
<td>4</td>
</tr>
<tr>
<td>Karuenui, Thayetmyo</td>
<td>4</td>
</tr>
<tr>
<td>Kyaukphyu, Allanmyo</td>
<td>4</td>
</tr>
<tr>
<td>Pyiama, Moby Shan States</td>
<td>4</td>
</tr>
<tr>
<td>Akyab, Maqwe, Miebu</td>
<td>4</td>
</tr>
<tr>
<td>Arrcan, Myoauung</td>
<td>4</td>
</tr>
<tr>
<td>Yamethin, Mone, Fort Stedman, Yenanyaug</td>
<td>4</td>
</tr>
<tr>
<td>Maungdaw, Meiktla Taunggyi</td>
<td>4</td>
</tr>
<tr>
<td>Pagan, Kyawngtan</td>
<td>4</td>
</tr>
<tr>
<td>Kyaukse</td>
<td>4</td>
</tr>
<tr>
<td>Pakokku, Myingya</td>
<td>4</td>
</tr>
<tr>
<td>Aya, Sagaing, Amarapura, Mandalay</td>
<td>4</td>
</tr>
<tr>
<td>Mon, wa, Aton</td>
<td>4</td>
</tr>
<tr>
<td>Chittagong, Calcutta, Shwebo, Thibaw</td>
<td>4</td>
</tr>
<tr>
<td>Yen, Mingla</td>
<td>4</td>
</tr>
<tr>
<td>Mogok Laishio</td>
<td>5</td>
</tr>
<tr>
<td>Kindat, K lewa</td>
<td>5</td>
</tr>
<tr>
<td>Bhamo, Wuntho</td>
<td>5</td>
</tr>
<tr>
<td>Katha</td>
<td>5</td>
</tr>
<tr>
<td>Chidwin, Kachin, Budha Gaya</td>
<td>5</td>
</tr>
</tbody>
</table>

The above are the approximate measurements of shadow at noon on the day of Sun's entry into the Veral Equinox, to within a few palas' difference of the result obtained by SAMDITTHA method. They are deduced from the Charakhandha ( Ascensional difference) of an Indian work known as "Stri-psti-paddhatri", an English Translation of which is printed and published by V. Subrahmanya Sasstri, E. A. of Bangalore City.
Half the time of the former or latter will be respectively the time of sunset or sunrise.

Example:—For the length of day and night and sunrise and sunset of Rangoon.

Midnight true position of Sun 8s 28d 23m at 8th decrease Pyatho
Add 1/4 of 62m i.e., daily motion 0 0 15

Nirvana Sun's position 8 28 38 at Sunrise on 9th do.
Add Ayanamsa (gola Tuladi) 0 21 56

Sayana Sun's position 9 20 34 do.

Reduced: 9s 20d 34m
30

Divided by 90 ) 290

Gola 3, (and 20d 34m) to deduct:—

From 3s or 90d
Take Rem' 20 34

Khanda 1st 36 = 36
2nd 65 = 29
3rd 77 = 12

Divide by 30 ) 69 26 Bhaja (and 9 20d vivar)

As 30d: 9 20d : : 12 Bijanas difference : x =

\[
\begin{align*}
\frac{9\frac{1}{3}}{30} \times 12 &= \frac{273}{30} \\
\therefore x &= \frac{3276}{30 \times 30} = \frac{900}{4} = 4 \text{ bijanas which added to}
\end{align*}
\]

equivalent of 2nd Khanda = 65 + 4 = 69 bijanas and as Gola Tuladi :

From 900 — 69 = 831 Diaaddha × 2 = 1662 bij = 27naris 42b day \(\frac{1}{2}\)
From 1800 — 831 = 969 Nisaddha do. = 1938 \(\ldots\) = 32 \(\ldots\) 18 night \(\frac{1}{2}\)
= 13 naris 51 bij Sunset or 5 hrs 32m 24 sec. \(\ldots\) English

UDAYA-BIJANAS.

To find the Udaya-bijanas of the zodiacal signs for a place when those of the zero of latitude are given, viz:—

According to Suryasiddhanta:—

| I | Mesha | VI | Kan | 1670 | VII | Tu | XII | Mih |
| II | Presha | V | Sinha | 1795 | VIII | Briccha | XI | Kuh |
| III | Medum | IV | Karakat | 1935 | IX | Dhanu | X | Makara |

(These are in asus \(\ldots\) if divided by 6 will give in bijanas.)

RULE: From or to the udaya bijanas of the Zero of latitude, the caraddha carasava bijanas of the required place, from Mesha to Medium and from Makara to Mih are subtractive and the remaining six signs, i.e. from Karakat to Kan and from Tu to Dhanu, are additive.

Example:—To find the rising periods (udaya) of Rangoon whose ascensional differences are 36, 29 and 12.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I Mesha</td>
<td>1670 278—</td>
<td>36 242</td>
<td>4 — 2</td>
<td></td>
</tr>
<tr>
<td>II  Presha</td>
<td>1795 299—</td>
<td>29 270</td>
<td>4 — 30</td>
<td></td>
</tr>
<tr>
<td>III Medura</td>
<td>1935 323—</td>
<td>12 311</td>
<td>5 — 11</td>
<td></td>
</tr>
<tr>
<td>IV Karakat</td>
<td>1935 323+</td>
<td>12 335</td>
<td>5 — 35</td>
<td></td>
</tr>
<tr>
<td>V  Sinh</td>
<td>1795 299+</td>
<td>29 328</td>
<td>5 — 28</td>
<td></td>
</tr>
<tr>
<td>VI  Kan</td>
<td>1670 278+</td>
<td>36 314</td>
<td>5 — 14</td>
<td></td>
</tr>
<tr>
<td>VII  Tu</td>
<td>1670 278+</td>
<td>36 314</td>
<td>5 — 14</td>
<td></td>
</tr>
<tr>
<td>VIII Briccha</td>
<td>1795 299+</td>
<td>29 328</td>
<td>5 — 28</td>
<td></td>
</tr>
<tr>
<td>IX  Dhanu</td>
<td>1935 323+</td>
<td>12 335</td>
<td>5 — 35</td>
<td></td>
</tr>
<tr>
<td>X  Makara</td>
<td>1935 323—</td>
<td>12 311</td>
<td>5 — 11</td>
<td></td>
</tr>
<tr>
<td>XI  Kuni</td>
<td>1795 299—</td>
<td>29 270</td>
<td>4 — 30</td>
<td></td>
</tr>
<tr>
<td>XII  Mih</td>
<td>1670 278—</td>
<td>36 242</td>
<td>4 — 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21600 3600</td>
<td>3600 60 — 0</td>
</tr>
</tbody>
</table>

LAGNA (26)

To find the Lagna at the given time :—

The text in Sanjittha being rather elliptical the Notes to the Siddhantasirman on Lagna by Bapu Devasastry, have been here inserted as the latter is more explicit than the former :

*Find first the true place of the Sun, and add to it the amount of the ayanamsa (precession of the equinox) for the longitude of the Sun. Then, from the longitude of the Sun, the sign of the ecliptic in which the Sun lies and the degrees of that sign which he has passed, and those which he has to pass, are known. The degrees of which are respectively called Bhuktamsas and Bhogvamsas. Now the time which requires to pass the Bhogyamsas is called Bhogyas time, and is found thus :

*If 30d : period of rising of sign wherein is the Sun : : Bhogyamsas : Bhogyas time.

*In the same manner, the Bhukta time can also be found through the Bhuktamsas.*

(26) That point of the ecliptic which is at any time on the Eastern horizon is called the Lagna and is expressed in signs, degrees etc. reckoned from the first point of stellar Aries. That point which is on the Western horizon is called Atha (setting) Lagna. The point of the ecliptic on the meridian is called Madhya (middle) Lagna (culminating point of the ecliptic).
BURMESE ASTRONOMY

Now from the time at the end of which the Lagna is to be found and which is called the Ithha or given time, subtract the Bhogya time just found and from the remainder subtract the periods of rising of the next successive signs to that in which the Sun is as long as you can. Then at last you will find the sign, the rising period of which being greater than the remainder you will not be able to subtract, and which is consequently called the Asuddha sign and its rising period, Asuddha rising. From this it is evident that the Asuddha sign is of course on the horizon at the given time. The degrees of the Asuddha sign which are above the horizon and called Bhukta or passed degrees are found as follows:

If the rising period of the Asuddha sign : 30\(d\) : remainder of given time : passed degrees of the Asuddha sign.

Add to these passed degrees thus found, the preceding signs reckoned from the first point of Aries and from the sum, subtract the amount of the precession of the equinox. The remainder thus found will be the place of the Lagna from the stellar Aries.

If the time at the end of which the Lagna is to be found, be given before sunrise, then find the Bhukta or passed time of the sign in which the Sun is, in the way above shown and subtract it and the rising periods of the preceding signs from the given time. After this find the degrees of the Asuddha sign corresponding to the remainder of the given time which will evidently be the Bhogya degrees of the Lagna by proportion as shown above, and subtract the sum of the Bhogya degrees of the Lagna, the signs the rising periods of which are subtracted and the Bhukta degrees of the sign in which the Sun is from the Sun's place and the remainder thus found will be the place of the Lagna.

Thus two processes are: one when the given time at the end of which the Lagna is to be found, is after sunrise, and the other when that time is given before Sunrise.

Example:—Find the Lagna at 10 o'clock a.m., on the 9th decrease of Pyatho 1235 B.E. in Rangoon.

The Sayana ravi on this date is 9s 20d 34m at sunrise; length of day is 27 naris and 42 bijanas or 1662 bijanas and sunrise is 6h 28m or 15 naris and 9 bijanas.

The given time is 3h 32m or 8 naris and 50 bijanas or 530 bijanas after sunrise.

The sun lies in the 10th sign Makara which he has traversed 20d 34m and the rising period of this sign is 311 (see p.194).

\[\text{As } 30d \div 3 = 311 \text{ bij : } x = \frac{617 \times 311}{30 \times 30} = 214 \text{ bijanas.}\]

Of 311 bijanas he has traversed 214, \(\therefore\) it remains 97 bijanas to be traversed in this sign.

To this 97 bijanas of Makara
Add 270 bijanas of the next sign, Kura
and add 163 bijanas out of the sign after next, Minh

making 530 bijanas which corresponds to time given.
Now as at the given time, 163 bijanas have passed in Minh whose rising period is 242 bijanas (see p.194)

$. 242 \text{ bij} : 163 \text{ bij} : : 30d : x = \frac{163 \times 30}{242} = 20d \ 5m.$

$. \text{The Lagna is} \ 11s \ 20d \ 5m \ \text{in Sayana Minh}$

$. \text{Deduct Ayanasa} \ 0 \ 21 \ 36 \ \text{precession of equinox}$

$. \text{Niyana lagna} \ 10 \ 28 \ 9 \ \text{on Sunday, at 10 a.m., 11th January 1874, or 9th dec. Pyatho 1235.}$

**BAHO.**

To find the Baho i.e., the division of the day and night into four parts each, when their duration and the udaya-bijanas or the rising periods of a place are known.

**RULE:** Find how much has yet to be traversed by the Sayana Ravi in bijanas in any sign at any given date at sunrise. To which add the rising period of the successive sign and/or signs. From which if subtractable, once, by the 4th part of the length of the day, call it:

*The first Baho of the Day or Nanet tachetti, morning first beat.
If second time, 2nd Baho of the Day or Ney nachetti, day time, second beat.
If third time, 3rd Baho of the Day or Ney thonchetti, day time, third beat.
If fourth time, 4th Baho of the Day or Nya ne laychetti, evening, fourth beat.*

In this way with the ½ part of the length of the night it is continued, calling it: the first Baho of the night or nya ta chetti, the 2nd, nya-nachetti, the 3rd nya-thon-chetti and the 4th, nanet lay chetti.

**Example.—** Sayanaravi as given on page 193 is 9s 20d 34m at sunrise and length of day 1662 bijanas.

<table>
<thead>
<tr>
<th>Day</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1662</td>
<td>1938</td>
</tr>
</tbody>
</table>

and udaya bijanas as given on page 194:—

| I Mesh | XII Minh | 242 bijanas |
| II Presha | XI Kuni | 270 |
| III Medum | X Makara | 311 |
| IV Karakal | IX Dhanu | 335 |
| V Sinh | VIII Brihcha | 328 |
| VI Kan | VII Tu | 314 |

Sayanaravi, in the 10th Sign having traversed 20d 34m

\[ \text{As} \ 30d : 9 \frac{6}{8}d : : 311 \text{ bij} : x = \frac{566 \times 311}{60 \times 30} = \frac{174026}{1800} \]

\[ . \ \text{Sayanaravi has to traverse} \ 97 \ \text{bijanas (time of sunrise)*} \]

Add next 11th sign Kuni | 270 |
Add next 12th sign Minh | 242 |

\[ \text{Add} \ 699 \ |

1st, Deduct \( \frac{1}{4} \) of day's duration i.e., \( \frac{1662}{4} = 415 \) bijanas for 1st Baho of the day.

Add next 1st, sign Mesha

\[
\begin{array}{c}
\text{Add next 2nd, sign, Presha} \\
\text{Add next 3rd, sign, Medura} \\
\text{Add next 4th sign, Karakat} \\
\text{Add next 5th sign, Sinh} \\
\text{Add next 7th sign, Tu} \\
\text{Add next 8th sign, Briccha} \\
\text{Add next 10th sign, Makara} \\
\text{Add next 11th sign, Kanya} \\
\text{Add next 12th sign, Taurus} \\
\text{Add next 13th sign, Pisces} \\
\text{Add next 14th sign, Aries} \\
\end{array}
\]

2nd, Deduct \( \frac{1}{4} \) of day's duration

\[
\begin{array}{c}
416 \\
19 \\
270 \\
311 \\
600 \\
184 \\
335 \\
519 \\
103 \\
328 \\
311 \\
745 \\
261 \\
314 \\
575 \\
91 \\
328 \\
335 \\
754 \\
270 \\
314 \\
581 \\
97 \\
\end{array}
\]

3rd, Deduct \( \frac{1}{4} \) of day's duration

4th, Deduct \( \frac{1}{4} \) of day's duration

1st, Deduct \( \frac{1}{4} \) of night's duration i.e., \( \frac{1938}{4} = 484 \) bijanas for 1st Baho of the night.

Add next 7th sign, Tu

2nd, Deduct \( \frac{1}{4} \) of night's duration

3rd, Deduct \( \frac{1}{4} \) of night's duration

Add next 10th sign, Makara

4th, Deduct \( \frac{1}{4} \) of night's duration

* The time of Sunrise and Sunset will be expressed in Burmese respectively as :-

97 bijanas or 1 nari 2 pad 7 bijanas after 4th Baho of the night nanet laj chetti kyaw.

103 bijanas or 1 nari 2 pad 13 bijanas after 4th Baho of the day nya-ne laj chetti kyaw.

And the time given on page 195 will be 114 bijanas or 1 nari 3 pad, 9 bijanas after the 1st Baho of the day nanet tachetti kyaw, \( 97 + 270 + 163 = 530 - 416 \).
"A résumé of the planets' Longitudes as calculated by Sandittha method compared with those of the Nautical Almanac and Jyotirganitam.

<table>
<thead>
<tr>
<th>Sayana positions after adding.</th>
<th>Sayana.</th>
<th>Sayana.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun</td>
<td>9s 20° 9'</td>
<td>9s 20° 49'</td>
</tr>
<tr>
<td>Moon</td>
<td>6 16 34</td>
<td>6 24 22</td>
</tr>
<tr>
<td>Mars</td>
<td>11 7 13</td>
<td>11 7 43</td>
</tr>
<tr>
<td>Mercury</td>
<td>9 5 37</td>
<td>9 6 36</td>
</tr>
<tr>
<td>Jupiter</td>
<td>6 1 44</td>
<td>6 1 45</td>
</tr>
<tr>
<td>Venus</td>
<td>9 9 32</td>
<td>9 10 20</td>
</tr>
<tr>
<td>Saturn</td>
<td>10 3 22</td>
<td>10 3 27</td>
</tr>
<tr>
<td>Rahu</td>
<td>1 11 30</td>
<td>1 11 28</td>
</tr>
<tr>
<td>Ketu</td>
<td>7 11 30</td>
<td>7 11 28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sayana positions after adding.</th>
<th>Sayana.</th>
<th>Sayana.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandittha</td>
<td>8s 28° 53'</td>
<td>8s 28° 44'</td>
</tr>
<tr>
<td>Jyotirganitam</td>
<td>6 3 7</td>
<td>6 25 3</td>
</tr>
<tr>
<td>Niyana</td>
<td>10 15 56</td>
<td>11 7 52</td>
</tr>
<tr>
<td>Jyotirganitam</td>
<td>9 6 41</td>
<td>9 6 50</td>
</tr>
<tr>
<td>Sayana positions after adding.</td>
<td>Sayana.</td>
<td>Sayana.</td>
</tr>
<tr>
<td>Sandittha</td>
<td>8s 28° 48</td>
<td>9s 20° 44</td>
</tr>
<tr>
<td>Jyotirganitam</td>
<td>6 25 12</td>
<td>6 27 15</td>
</tr>
<tr>
<td>Sayana positions after adding.</td>
<td>Sayana.</td>
<td>Sayana.</td>
</tr>
<tr>
<td>Sandittha</td>
<td>9s 20° 53'</td>
<td>9s 20° 56'</td>
</tr>
<tr>
<td>Jyotirganitam</td>
<td>9 6 43</td>
<td>9 6 43</td>
</tr>
</tbody>
</table>
GLOSSARY.

Adhikuppa
Adhikuppa-Kumbha Works, portions of which contain subjects on Astronomy.
Adhimasa Intercalary month; additive month; a work treating on same.
Adhimasa-sea Remainder of adhimasa which accumulates yearly till it amounted to a month.
Adhimase-Vinaschaya decision or investigation on Intercalary months (and days).
Adhimasa and yet-ning Intercalary month and day.
Adra the 6th Asterism.
Ataka-sastra work on Astronomy.
Amarapra the then capital of Barma proper for which the present calculation is made in this article.
Amavasi new moon; conjunction of Sun and Moon.
Amenas degrees.
Angula a digit; twelfth part of any dimension.
Anughati a measure of time; 60 of which make a ghati or nari; 3600 of which make a day.
Anukara a measure of time; 12960,000 of which make a day.
Anuraddha the 17th Asterism.
Aryasiddhanta work on Astronomy.
Asanla, Ashar 20th and 21st Asterism; the 4th month.
Ashvini, Ashvini, Ashyujja the 1st Asterism; the 7th month.
Aslesha the 9th Asterism.
Asudha (sign) the sign incapable of being subtracted.
Asas, Avas a measure of time; sixtieth of a paia or bijana.
Ata-Kyamanat Kyamanat at the beginning of Solar year.
Ata-nari nari at the beginning of Solar year.
Atu, Atu-yet Solar new year day.
Atu-avamam Avamam at the beginning of Solar year.
Atu-yet-ian excess days at the beginning of Solar year.
Atiganda the 6th Yoga.
Ati-sighra increased forward motion.
Ati-vakra increased backward motion.
Athra, Astra setting.
Avamam the remainder obtained when reducing Savana days or lunar days to Khayas; difference between Lunar and solar months.
Ayana equinoxes and solstices.
Ayanas such as Citra or Dakhshina yana, (Makara to Medum and Karakat to Dhanu) the Sun in the northern or southern course over the paths called Bashira-vidhi (outer division), Majhima-vidhi (middle division) and Anto-vidhi inner division) which are respectively also known as Aja (the goat or Ram) Gona (the Bull) and Naga The Dragon or Elephant).
The first lies from the latter part of the sign Briccha to the forepart of the sign Min (Utratran in Makara).
The next lies from the latter part of Kan and Min to the forepart of Briccha and Prisha (Citra in Tu and Ashvini in Mesha).
And the last one lies from the latter part of Prisha to the forepart of Kan (Punna-phusha and Phusha in Karakat).

Ayanamsas (quantity) of precession of equinoxes; degrees of the ayana.

Ayusama the 3rd Yoga.

Badin Astronomy or Astrology.

Baho The intimation of Time by the division of the length of day and night each into four parts which theoretically was the correct method but practically it used to be at the palace of Mandalay by striking a big drum alternately with the chime of a big bell (approximately) at every 7½ naris or English every third hour.
BURMESE ASTRONOMY

The expression in Burmese is "Baho-si" literally meaning: "Centre" and "Drum" but it is more likely that the word "Baho" was originally derived from the Hindi "Pahar" a watch of three hours, which system of Horomentry also had the division of the day and night each into four parts (4 pahar din, diurnal watches and 4 pahar rat, nocturnal watches) and subordinate division like the Burmese. The subdivision of the Burmese was the "Ming" a gong, which was struck (nearly) at every nari consecutively with the sinking of the "Phala" a vessel or cup.

This vessel was of a certain dimension made of gold (said to be 8 ticals weight) at the bottom of which was a perforated hole whose circumference was the size of 16 strings of plated hair of the female human being of Utra-guru island = 8 strings of plated hair of the female human being of Jambudipa, the island we live in.

This vessel placed floating on water contained in a bigger one made of silver known as "set-ha-yahi-phala" (vessel of the 12 signs of the zodiac so called from the description engraved thereon) was caused to circumgyrate from a fixed point forward and backward designating as "lapat" (one round) and "layyan" (one return) along the brim of the latter. When this smaller vessel, so regulated after the duration of (about) a nari, sank owing to the water leaking in through the small perforation, it went to count a measure of time termed "tamoong" (a gong) which as it signifies announced the time as one "Mong" by the striking of the same.

Eight of these "Mong" thus obtained, went to reckon a Baho, (about 72 naria) when as abovementioned the "Baho-sidaw" (the royal drum) in unison with the chime of a "khung-lung" (bell) was struck and alternately struck:
giving 11 strokes for the first Baho,
22 do. second    
33 do. third    and
44 do. fourth    which last
denoted forcibly the beginning of the division of the day and night at sunrise and sundown.

Simultaneously in connection with this announcement of the time from the "Baho-sin" (a tower in the palace where the Baho-si was kept) the four central gates from the cardinal points of the palace (each direction having three gates) in like manner announced the time to the populace who lived outside of the palace.

This contrivance of regulating time by the Clepsydra was also no doubt derived from the Hindus as the following passage excerpted from a Hindu work, describes the dimension and construction of the vessel.

"If you bore in a piece of wood a cylindrical hole of twelve fingers' diameter and six fingers' height, it contains three mana water. If you bore in the bottom of this hole another hole as large as six plated hairs of the hair of a young woman not of an old one nor of a child, the three mana of water will flow out through this hole in one ghati."

Whilst the Burmese struck the Drum and the Bell, the Hindus did likewise but in some instances instead of the beat of the bell, they blew a winding shell called "Sankha".

Except twice during the equinoctial months when then there are 30 naris for the day as well as for the night, i.e. when the Sun is at the Vernal and Autumnal Equinoxes say at Tagu and Thading-yut (Medha and Tu), the above description of the intimation of the Baho by the uniform mode of sinking the "phala" occupying an equal space of time all throughout the year and to be in consonance with the division of the length of the day and night at the 4th. Baho apparently is not correct.

Tentatively five other "phalas" so constructed respectively of varying capacities as to regulate their sinking in accordance with the length of the day and night (of the seasons) should be at least employed, so that approximately the beat of the fourth Baho coincides with the time of sunrise and sunset (at least once a month).

Bala-guni
Balava
Bana
Bara-ju-di and Bara-Kothi
Baravi

the 12th month.
name of a moveable Karana,
enigmatically for 5.
works on Astronomy and Astrology.
a work on Astronomy.
Beda-vijja
Bhadrapada, Parabhike
Bhagana
Bhakarasyadayaw
Bharani
Bhasha
Bhasunti
Bheda
Bijana
Bhishati
Bhouiti
Bhuja
Bhuja-phala
Boh
Boh-tika
Boh-tvet-nec
Botti-let-yo
Brahma-siddhanta
Briccha
Byaggha-cariya
Byaghta
Byalipatha
Camma
Cara
Caraddha-Carasava
Catoppada
Chandra
Chandramasa
Chara-Khanda
Chaya
Chaya-purusha
Chitra, Citra
Chila-muni

a work on Astronomy.
25th or 26th Asterism; the 6th month; also written Bhadra.
A Buddhist archbishop who compiled a commentary on the Astronomical work “Makaranda.”
the 2nd Asterism.
varus, delities; enigmatically for 8.
a work on Astronomy.
the vedas, enigmatically for 4.
a measure of time; 60 of which make a nari or 3600 of which make a day.
name of a moveable Karana.
Bhuskti, Bhusktiamsas, Bhoga, traversed portion; Bhogyansas to be traversed.
an argument when gola is even, taken as it is and when uneven deducted from 3 signs; enigmatically for 2.
result of operation, by the equation of Bhuja and according to the Jyas.
the datum or elements on which the Astronomical calculations are made, which are six:
1. Suryamsas or Solar months.
2. Chandramasa or Lunar months.
3. Savana, civil or terpsitical days.
4. Tithis or lunar days.
5. Adhimasa or Intercalary months.
6. Tithikshaya or omitted lunar day.

There are two kinds of Boh, as given in Adh-Kuppa Kuubha:
Sujidhat Boh consisting of (i) Kyammat, (ii) Avamsam, (iii) Yellun (iv) Uca-boh, (v) Yetsan and (vi) Adhima;
and Byanjada Boh consisting of (i) Inga, (ii) Bhuddha, (iii) Kyathapade, (iv) Thaukya, (v) Sane and (vi) Rahu.
The first kind of Boh has already been referred to in above.
The second class of Boh means the elements similar to the first,
on which the calculations are made for the mean positions of the planets, Mars, Mercury, Jupiter, Venus, Saturn and Rahu.
A commentary on the elements of Burmese Astronomy.
method of calculations made by means of the Bohs (elements) which are done by two ways, viz:—“Hnit-boh-tvet-nec” and “Yet-boh-tvet-nec”. By the former, the number of Savana days with the Kyammats remaining, (tithi-kshaya) and accumulated tithis with space at the beginning of a given Solar year are sought.
Whilst by the latter, the number of Solar months, Intercalary months, Lunar months, Lunar days, Savana days with Kyammats and the number of days (Saddadin) since the beginning of the Solar year at a given date are sought.
a work on Astronomy.
the 8th sign (Scorpio) of the Zodiac.
the wandering about of a tiger.
the 13th Yoga.
the 17th Yoga.
enigmatically for two.
variable; moveable.
ascensional difference.
one of the fixed Karana.
the Moon.
Lunar months.
ascensional difference for a given place.
shadow.
shadowy man; a person who came out of the Sun to deliver the “Suryasiddhanta.”
14th Asterism; the 1st month.
Dakkhinayan: the distance of any two meridians; difference of longitude of places.
Desastara: gods; enigmatically for 33.
Deva: the 23rd Asterism.
Devigata: the 9th sign (Sagittary) of the Zodiac.
Dhanasiddha: the 8th Yoga.
Dhruva: the 12th Yoga.
Digha: enigmatically for 2.
Dinaadha: half the time of Sun above horizon.
Dinaanan: the length of day.
Drigganitha: the system of Astronomy as introduced by Europe methods.
Dwapara-yuga: a portion of the age of the world called Mahayuga which was the third period and consisted of 864000 solar years.

Gamyā: to be past.
Gata: past.
Ghatika: a measure of time; 60 of which make a day.
Gola: the division by 3 of the difference between the ucca and madhya etc. whose quotient indicates the Bhuja and the operation of the equation whether Meshadi, additive, and Tuladi subtractive.
Gunā: enigmatically for 3.
Graha-chanda: \} works on Astronomy.
Graha-laghava: 

Haragou (Ahargana) or Savana, the number of days from a given epoch to the time for which a computation is made. Makaranda uses the word “Haragen” and Samditha, “Savana.”

Hasana: the 14th yoga.
Hastha: the 13th Asterism.

Inda: the 26th yoga.
Ilitha: required; desired.

Janamapatti: an astronomical work.
Jeytha: the 18th Asterism; the 3rd month.
Jya: tables for calculations; enigmatically for 4.
Jyottitaththa: astronomical work.

Kala: a measure of time; seconds.
Kali-yuga: the last portion of the age of the world called Mahayuga, which is the present period of time, it consists of 432000 solar years of which 5013 years have already expired.
Kalpa
An aeon which consists of 1,000 times a Mahayuga, 4,220,000,000 years, at the end of which, it will bring about the destruction of all that exists. Of which 1,928,686,045 have already expired.

Kanda
Kanu-atwin-woon-tingyi (interior minister of Kanu) was a learned minister of the last Burmese Kings, known also by the name of Mingyi Oo Hpo Hline.

Kanya-kan
the 6th sign (Virgo) of the Zodiac.

Kara
a measure of time; 216000 of which make a day.

Karaj
a name of Moveable Karana.

Karaka
the 4th sign (Cancer) of the Zodiac.

Karana
half a tithi; half a lunar day; there are eleven of these; four of which are fixed and occur only once in the lunar month while the other seven (cara) moveable ones are repeated each of them eight times.

Karina-randa rapan
enigmatically for 14198.

Kason
2nd month about May/June.

Kaukha
name of moveable Karana.

Ketu
shadowy planet; Moon’s descending node, known as the tail of the Dragon.

Kha
enigmatically for cipher.

Khanda
t section; quotient of Bhaja by 225, indicating the Jya.

Khaya, Kshaya
expunged or omitted tithi.

Khink
enigmatically for 90.

Kinshtghana
one of the fixed Karanas.

Kran
enigmatically for two.

Krishana paksha
dark half which lasts from full moon to new moon or while the moon is waning. The other half is called Sukla paksha, the bright half, lasting from new moon to full or while the moon is waning.

Krita-yuga
the first portion of the age of the world called Mahayuga which consisted of 1728000 solar years.

Kritika
the 3rd Asterism; the 8th month.

Kum
the 11th sign (Aquarius) of the Zodiac.

Kyammat
in the operation of reducing a year to Savana days, the remainder resulting therefrom which should be in naris, bijana etc. has been expressed as fraction of a day.

Kyin-kan-ko-yin-gyi-let-yo
A work containing texts on Astronomy.

Lagha-Samgraaha
 astronomical work.

Lagna
the rising sign; ascendant; the point of the Ecliptic which is at any time on the eastern horizon brought up on in four places.

Lai-jet-thai
being arranged four times.

Lalun
the number of lunar months in excess of solar months.

Lanca
an imaginary place from where the prime meridian is considered for all astronomical computation.

Lasan
increase of Moon; bright half of moon.

Lasok
decrease of Moon; dark half of moon.

Latat and Yeingin-twet-nee
method of calculation of intercalary months and days.

Lipta
minute; vilipta; second.

Madhya
mean; middle.

Madima-tike
mean Sun.

Madima Tsan
mean Moon.

Magha
the 10th Asterism; the 11th month.

Maha-bala-chanda
the great Yuga consisting of the four periods of 4320000 years, viz: Krita, Treta, Dwapara and Kali, during which Dhamma (the observance of the law) is said to stand respectively on 4, 3, 2 and 1 legs.
Burmese Astronomy

Makara
Makaranda
Mala-mäsa
Manda
Manda-phala
Mandafara
Mandoecka
Masa
Mayasura
Medum
Meru
Mesh
Meshadī
Mesha
Mesha-saṅkranti

the 10th sign (Capricorn) of the Zodiac.
a work on Burmese Astronomy.
difference between ucca and madhya etc. anomaly; increased forward motion.
equation of anomaly.
decreased forward motion.
the higher apsis; apogee.
enigmatically for 12; months.
de the demon who received the Astronomical work "Surya-siddhanta" through "Chayapuruśa" from "Surya", the Sun.
the 3rd sign (Gemini) of the Zodiac.
enigmatically for one.
the 1st sign (Aries) of the Zodiac.
beginning with the sign Mesha.
the passage of the Sun (or other planets) into the sign Mesha (Indian Aries) called here Ata-ne, Ata-yet, Atet-ne, known as the "Thingyam-tet" (saṅkranta) the solar new year day. The time of this as calculated for the year 1235 B. E. is on Monday the 2nd. decrease of Tagu and 87 Kymmats = 6 naris 31 bijanas and 30 karas or in English 3hrs. 36mins. and 36secs a.m. With this are also two other terms "akya-ne" and "akyat-ne." The former signifies the day on which the Thingyan falls or begins which is 2 days and 134 kymmats = 2 yet 10 naris 3 bijanas or in English 2 days 4 hrs. 1m. 12secs. before the end of the (previous) solar year. Therefore in the example given here the Thingyan kya is on Friday the 14th increase of Tagu at 56 naris 28 bijanas and 30 karas or in English 10 hrs 35mins 24secs. p.m. of 1235 B. E. And the latter term signifies the intermediate i.e. the period intervening between the "akya-ne" and "atet-ne." The whole thing is called "akha-dwin" i.e. the period during which a (religious) festival is observed. During this time a water throwing festival is also kept up.

Migasi
Min
Mula
Mohynin-min-tara-gyi
Muni

the 5th Asterism; the 9th month.
the 12th sign (Pisces) of the Zodiac.
the 19th asterism.
the King that expelled 798 years in the present era but was not successful.
enigmatically for seven.

Nadaw
Nágā
Nakkhats
Nari
Nari-Karana
Nata
Navami
Nayon
Ne-kyat-sara
Nhít-boh-tvet-nee
Nhít-kywin
Nisaddha
Niyadum
Niyana, Nirnya

the 9th month about December/January.
one of the fixed Karanas.
asterisms, constellations, the lunar mansions which are 27, each occupying 13° 20' on the Ecliptic.
measure of time; 60 of which = a day.
work treating on time.
meridian zenith distance.
the ninth.
3rd month about June/July.
work on Eclipse of Sun.
see "Boh and Boh-tvet-nee."
short era also called Rassa; the remainder of expunged years for the purpose of shortening calculation. Huit means a year as Savana huit or Ayana huit (tropical year); nakkhät-ka huit (sidereal year) and Surya or Saura huit (solar year). half time of Sun below horizon.
planet when remaining stationary.
the longitude of a planet without the ayanamśas (precession of equinox).
Ooche, ucca  height; extreme distance.
Odaya-udaya-bijanas or bijanas of the rising signs, oblique ascension.
asavas

Ottra-phalaguni (utttra) the 12th Asterism.
Ottra-San  the 21st Asterism.
Ottra-parabhike  the 26th Asterism.
Otta-Yan  nor hern course.
Ovanna  the 5th month also called Sravanna.

Pabba, Palava name of a moveable Karana.
Pad  a measure of time, of which make 60 bijanas or ghatis or one nakkhath, Asterism.

Pakha, paksha  half the lunar month; in Burmese Lasan pakhha and Lasök pakhha

Pala  a measure of time; minute.
Panchanga, pattra  (Hindi) a calendar so called from the five articles contained in it (five times) viz.: (i) tithi (lunar day) (ii) vara (weekday) (iii) nakshatra or nakkhath (asterism) (iv) yoga (junction star) and (v) Karana (4 tithi).

Parabita or vakya  system of calculation based on corrected tables.
Pariga  the 19th Yoga.
Pala  node of a planet.
Phala  the 12th month.
Phuta  true; rectified (longitude).
Poppasaw-Rahan  King o’ Pagan who was a monk before he became king, introduced the present Burmese era.

Pousha, pusha, phusha  the 2nd sign (Taurus) of the Zodiac.
Prisha Presha  the 8th Asterism; the 10th month.
Pruppa-philaguni  the 11th Asterism.
Pruppa-San  the 20th Asterism.
Pruppa-parabhike  the 25th Asterism.
Puna phusha, phusha  full Moon, day of opposition of Sun and Moon.
Punna  the 16th month about January/February.
Pyatho  a work on Astrology.

Rahamatthan  a monk, the shadowy planet; moon’s ascending node known as the head of the Dragon.
Rahan  enigmatically for three.
Rahu  enigmatically for six.

Rama  sign of the Zodiac containing 30 amus or 2½ nakkhats.
Rasa  short era also called ‘nhit kryin’.
Rasas  mean Sun.
Rasas  meridian.
Ravi-madhya  the 27th Asterism.
Rikha  the 4th Asterism.
Rudhi  the 16th Yoga.
Rudra  enigmatically for 11.
Runa  enigmatically for 7.
Rupakhiakurudra  enigmatically for 1101.

Sadaya  the 21st Yoga.
Sakuni  one of the fixed Karanas.
Burmesse Astronomy

Saliyahauna saka

Era; an Epoch which commences 78 years after the Christian era or 3179 years Kali-yuge or 560 years before the Burmese era, instituted by King Saliyahauna. Indian era distinct from another well-known era "Vikramaditya."

Sama

Even motion.

Samdalitha

The present astronomical work on which this article is based upon.

Samvatsara

Luni-solar year (Hindu).

Sankrami-nari

Astronomical works.

Sankranti

Entry of Sun into a sign.

Sanku

gnomon.

Saravijodaaya

A work treating on the Eclipses of Sun and Moon.

Sasanaka Kuppatha,

Astronomical work.

Satabhisa

The 24th Asterism.

Sauramasa

Solar months.

Savanas

Natural or civil days; also called haragon or Ahargana.

Sayana

The Longitude of planet with the ayanamsas (precession of equinox) added. Without the latter is called Nyana.

Seinaha, Sinh

The 5th sign (Leo) of the Zodiac.

Sesā

Remainder.

Siddhanta

text books or treatises.

Siddhantachandrika

Astronomical works.

Siddhantaisromani

Astronomical works.

Siddhi

The 23rd Yoga.

Sigha (singha)

Swift.

Sighra-tara

Increased forward motion.

Sibai-canyya

The wandering about of a lion.

Siri Maha suryasiddhanta

Astronomical work.

Siva

The 20th Yoga.

Soubhagya

The 4th Yoga.

Soubhana

The 5th Yoga.

Sravansa

The 22nd Asterism; the 5th month.

Srimukha

Name of year of Jupiter's cycle of 60 years.

Subba-Bhauma-siddhanta

Astronomical work.

Subha

The 23rd Yoga.

Subhatta-like

True Sun.

Subhatta-tsan

True Moon.

Subrahma

The 25th Yoga.

Suddadin

Number of days counted to a certain date since the beginning of solar year.

Sukamma

The 7th Yoga.

Sukka

The 24th Yoga.

Suklapaksha

Bright half of the Moon; from new Moon to Full Moon.

Salaya

The 9th Yoga.

Surya

The Sun.

Suryamasa

Solar months.

Suryasiddhanta

A well known Indian Astronomical work, professes to have been revealed by the Sun, more than two millions of years ago.

Tabodwe

The 11th month about February/March.

Taboung

" 12th  "  " March/April.

Tōg

1st  "  " April/May.

Taminganway,

The Sun) Mars is called Inga, Mercury Baddhau.

Taninla


The week days are distinguished by suffixing the word ne (day) to these.

Tara

A star.

Tasoungmon

The 8th month about November/Decambre.

Tawalain

"  6th  "  " September/Otober.

Thadingyst

"  7th  "  " October/November.

Tettia

Name of a movable Karana.

Tika

A commentary.

Tithi

Luni-solar day; thirtieth of a lunation.
Tithikshaya
Treta-yuga, a portion of the age of the world called Mahayuga which was the second period consisted of 1296000 solar years.
Tu the 7th sign (Libra) of Zodiac
Tuladi beginning with the sign Tu

Vakra backward motion
Vakya system of astronomical calculations based on corrected tables supposed to have been given by Aryabhata
Vaniccha name of a movable Karana
Vargajam the 36 Yoga
Vardhati the 27th Yoga
Vasus a class of deities
Vi-angula sixieth part of angula or digi
Vikala stationary
Vilipta second
Virya the 18th Yoga
Visakha " 16th Asterism, second month
Visakumba " 1st Yoga
Visuvachaya shadow of gnomon when Sun is on equinoctial points
Vivara difference between two Jyasa; remainder of Bhujia divided by 225
Vutti the 11th Yoga
Vyatipata " 18th "

Wagaung the 5th month about August/September
Wagyi-tat big lent repeated, when extra month of 2nd Waso of 30 days and an extra day making Nayon with 30 days are inserted.
Wa-ngti-tat small lent repeated, when an extra month of 2nd Waso of 30 day only is inserted.
Waso the 4th month about July/August.
Watai lent repeated, intercalation.

Yet-boh-twet-nee, see under "Boh" and "Boh-twet-nee" exact; Moon's age in tithi at commencement and generally in excess of solar year.
Yet-lun the time which Sun and Moon together accomplish 13° 20' of space of which there are 27.

Yoga an age of the world; enigmatical for 4.
NOTES ON THE HISTORY OF HANTHAWADDY

(concluded from Vol. IV, Part 1)

PART IV.—BURMAN RULE IN HANTHAWADDY.

A Toungoo dynasty had conquered Pegu, and Toungoo had become absorbed in Pegu. A Peguan dynasty had conquered Ava and in the course of time Pegu had become absorbed in Ava. The uprising of the Talaings under Buddha Keti in 1740 had been the uprising of a nation and when Alaung Peya took up the cause of Burma, it was again a nation rising against a foreign power. Henceforth there was no middle course for Burman and Talaing, but the long arbitration of a national war. In former records, it is a matter calling for no remark that Burmans and Talaings were to be found fighting on either side, but this ceases to be the case. The greater part of the fighting was carried on within the limits of what was afterwards Rangoon District and the present District of Hanthawaddy was the scene of the most notable achievements. The investment of Dalah was signalized by the Talaing leader floating through the Burman lines disguised as a corpse and returning the next day with reinforcements to raise the seige. The seige of Syriam lasted more than a year and the place was only conquered in the end by a courageous stratagem. The Burman Army was encamped at Bogyoke and to deceive the enemy a festival was held with drums and music. The sounds floating over to the Talaing city on the hill induced the leaders and the watchmen to relax their vigilance. Under cover of the revelry, a devoted band of thirteen warriors, the “Golden Company” made their way over the walls and flung open the gate to the Burman Army. They rushed in through the Wettha tags, the gate where Nga Tha Ellyin in the older days had killed the legendary boar, and put the inhabitants to the sword. After Pegu had been taken at the end of a two months’ seige, the jungles in the Dawbon Township north of Syriam received the royal fugitives. The exploits of various heroes receive due acknowledgment in the chronicles and there is a pleasant picture of a Talaing leader, who had been taken prisoner after many valiant deeds, being received with honour by the Burman king. The Burmans seem to have used their victory with moderation and Alaung Peya took in marriage the daughter of the King and honourably entertained the monarch when he deposed. But there were continual risings until the first British War in 1826 when the Talaing Governor of Syriam again made an attempt to recover the independence of his country. It is on record that in 1826 there had ceased to be any national antipathy in Pegu, the extermination and banishment of the leaders and “judicious treatment of the conquered having long since removed any appearance of distinction between Burman and Peguan.” No individual preferences were shewn and “all enjoy equal rights and privileges, and both are eligible to fill the highest posts under government.” This however can hardly have been the case in view of the serious depopulation of the District of Hanthawaddy which took place during this period and the repeated risings. It is more probable that there was to some extent a common union against an invader from over seas and that the differences between Burman and Peguan were temporarily set aside.

Towards the end of the eighteenth century more material concerning administrative detail is available. The works of Sangermano, Symes, and Cox are supplemented by the revenue inquests of 1784 and 1826. The rise of the Third Empire had once more relegated Syriam to a subordinate position, and even after Alaung Peya had achieved the final conquest of

* Suodgrass, page 87
the Talaings, Pegu still remained the residence of the Governor of Hanthawaddy. By this time Syriam had become practically a foreign colony, and by repeated experience had been shown to lie too open to attack. Rangoon was less exposed and also less prominent in Peguan history, here therefore the Burman monarch established the chief port of his empire. The Governor of the Thirty Two Provinces of Hanthawaddy, residing at Pegu, was known to the English as the Governor of Rangoon and his establishment was divided between the two places. He presided over the Yon-daw which included the Commissioner of Customs, and few Accountants, Scribes and Auditors (na-khan). Subordinate to him, and it appears, also members of the Yon-daw were the Inspector of the Waters (ye-wun), Commandant (sitke) and Inspector of Shipping and Port Dues (akauk-wun). The Governor of Syriam appears to have been subordinate to him but to have stood higher than the ordinary head of a township. The Governor of Dala, though inferior in rank to the Governor of Hanthawaddy was independent of him. There was a host of minor officials, pe-siu, sit-kut, ye-baw, charged with various branches of administration or ceremonial.

Of these the most important administratively were the Myothugyi, at the head of each province or township. As in Burma proper these are of particular interest as representing the only approach to organization on hereditary territorial lines. The Myothugyi was the connecting link between the people of the township organised tribally or by occupation and the external official hierarchy. In almost every case where the township had not relapsed into jungle the same family seems to have held the post at latest from the administrative reorganisation by Tha Lun Min in 1632, until the British occupation; in many cases a recorded pedigree takes them back to the later years of the 17th century. Below them the actual executive comprised the heads over the Karens, the heads over the Sabeins, the heads over the elephants, and over the buffaloes and over the horses. These had to distribute the demand and "collect the revenue proportionately as among ears of corn that are long or short or trees that are small or high." The Myothugyi in addition to judicial duties was charged with receiving the revenue from these people and paying it in to the royal treasury.

The fees and revenues of a township were sometimes alienated temporarily as a mark of royal favour, or permanently; the revenues of Dala for instance were always allotted to the Chief Queen for the time being. The recipient in such cases was termed the "myo-sa", and after deducting the dues of the local authorities the balance was remitted to the "myo-sa" instead of to the town. The chief interest however of the administrative organisation consists in its being organised within the township not on territorial but on personal lines. The existence of a personal and not of a territorial link is characteristic both of Ava and Pegu.

It is probable that copies still exist of the revenue inquests of 1000 B.E. and of 1126 B.E.; none however has yet been made public. It is not until the revenue inquest of 1145 B.E. (1784 A.C) that first hand documentary evidence is available. It had for some time been supposed that no records either of this enquiry or of the subsequent one in 1164 B.E were still in existence, but copies have been found in the Bernard Free Library for four townships in the case of the earlier enquiry and for almost all the townships in the later enquiry. The main heads of revenue were Land Revenue, Fishery Revenue and Poll Tax, subsidiary items being brokerage dues, customs and octroi. The unit of land revenue was the "carucate", the area which a pair of buffaloes could plow. It was assessed in silver in some townships so early as the reign of Sinbyunya Shin (1763-75), in other townships it was still assessed in kind in 1803. At the earlier survey 2 tolas of silver or 10 baskets of paddy was due on the unit area of land, twenty years later the demand in kind had been raised to 50 or 55 baskets of paddy. Fruit trees paid a contribution either in kind or silver, usually levied not on the trees but on the cultivator. Thus in 1164 B.E. betel cultivators had to pay a tax of 5 tolas of silver. The tax was not confined to fruit trees, it was levied also
on wood oil and other trees of commercial value. The ingenious gradation of the wood oil tax in 1784 is worth attention, the workman if they tapped near the top of the tree only paid one tola a man, if however they adopted the more wasteful practice of tapping near the bottom they had to pay twice this amount.

The Fishery Revenue was also a tax per head, and in this case the second reveals an increase upon the former both in gradation and differentiation. At the earlier date only tank fishing is taxed, the fishermen paying two to three tolas a head. In 1803 these men pay five tolas while those using a casting net pay one tola and those using a drag net pay two tolas a head. Salt workers pay a small tax of one "mat" a head.

Minor sources of revenue were bee's wax and elephant's tusks, commodities which seem to have changed greatly in relative value since those days. Thus the Karens of one village paid an annual tax of 5 viss of wax, or 250 viss of ivory, or 6 tickals and one "mat" of silver. But the Karens, and the Sabeins as well, seem as a rule to have paid nothing beyond a poll tax. This ranged from nine to ten rupees per household, and as among these tribes a whole village then inhabited a single dwelling the tax was not so excessive as would at first appear.

The purity of the silver in which the tax had to be paid is carefully recorded, as in most cases are the dues of the local officers engaged in its collection. Even at that time the tax collector was not wholly devoid of guile, thus some of the villages where land revenue was paid in kind were also charged with the grain likely to be eaten in the royal granaries. And they had also appreciated the utility of taxation as a social instrument adapted to other ends than the mere raising of revenue, in many of the townships the marriageable boys and girls who neglected their duties and opportunities were liable to taxation. As however they had to pay no more than two pieces of flat copper wire the tax can not have contributed greatly towards increasing the population.

The early arrivals from the West had been isolated adventurers sometimes The Foreign merchants such as di Conti, Caesar Frederic and Fitch, sometimes little better than pirates such as de Suarez and de Brito. It appears that an English factory was the first to be established after the downfall of de Brito's tyranny, Syriam having been apparently one of the agencies of the East India Company formed in Indo-China in 1612. In 1631, the Dutch were established there. But a dispute occurred between the Talangi Governor and the Head Factory of the Dutch in the middle of the 17th century and all foreigners were ejected. The Dutch never returned; nor does it appear that the Burmans and Peguans were ever anxious for the return of either; "it was impossible that they should forget the conduct of Gonzales de Brito, or should draw distinctions between Portuguese adventurers and British and French officers, subsequently events only proved how right they were." * In 1695 an English sailor died intestate and his property according to the custom of civilized countries † at the time escheated to the crown. This was made the pretext for obtaining the establishment of factory and although permission was gained in 1698 nothing further was done and matters appear to have continued on a somewhat indefinite footing until 1740. At this time, there was an English factor in charge, a Mr. Smart, who attempted without success to keep in with both parties, deceiving apparently both of them alike. On the final victory of the Talangs, the factory was burnt down and the agency had to be withdrawn. The missions which were also thereby put in peril were shortly re-established; the factories were never rebuilt there.

The invasion of Alaung Peya however gave a further opportunity of intrigue which was exercised by English and French alike. Although both parties had a foot in either camp, the English in the main supported the Burmans and the

* British Burma Gazeteir Volume I, Page 295.
† The leading case is quoted in "A Sentimental Journey," by Sterne.
French the Talaings. In the event the Burman King magnanimously overlooking their duplicity granted the English permission to build a factory at Rangoon. Just afterwards however the English and French ships, including the vessel of which the captain had been treating with Alaung Peya, joined the Talaing boats in an attack upon the Burmans. They were beaten off and the permission to establish a factory withdrawn. Other factories had also been permitted outside the limits of Hanthawaddy District, but the fortunes of these it is unnecessary to follow. From this time trade was conducted by isolated merchants and not by the recognition of factories.

PART V.—ARCHAEOLOGY.

The archæology of Hanthawaddy has never been studied; casual observation reveals three main lines of enquiry each of which would amply repay research. There is the problem of the laterite ruins, the problem of the pagodas of the Letkaik series and the problem of the Talaing cities. Nothing has been effected yet, and scarcely anything attempted, with regard to the elucidation of those problems. There is also a Roman Catholic Church at Syrian dating from 1750 A.C. which is under the care of the archæological department.

All down the Syriam kondan and for miles inland in the Syriam Subdivision there are found great blocks of laterite remains. At Pada there are laterite ruins connected in tradition with Aneinda raza the last prince of the Dynasty preceding that of Nga Than Hlyin. At Twante there are laterite remains of a building erected on three terraces after the fashion of “Talaing” pagodas, it is talked of however as a palace. At Kyakkaek the pagoda is built entirely of laterite and that at Kayakkalo is of laterite faced with brick. Both of these pagodas are octagonal. Connected in legend with that at Kayakkalo are the pagodas known as the Kayakkan, Thadungan and Kyaukwaing, which in their present form are built of brick. These pagodas and other laterite ruins are included in a series of similar remains found between Pegu, Syriam and Thaton, their distribution corresponds roughly with that of Orissa colonists, they are all of Buddhist origin so far as identification is possible at present, traditions relating to them have been forgotten or else relate to a period antedating the arrival of the Talaings, fragments of sculpture have been definitely connected with Orissa. The Talaings so far as can be ascertained have always built in brick. It is difficult to resist the provisional conclusion that these pagodas and other buildings were built by the Orissian colonists at some time between 500 B.C. and 500 A.C.

Other pagodas may conveniently be grouped as the Letkaik Series. This includes the brick pagodas at Letkaik, Dedanaw, Ingalon, Sagagan, Kungyangon, Mingaladon, and possibly also the Shwe San Daw at Twante, the Danok pagoda and the Kyouktan pagoda. There are others which it is unnecessary to mention. Those on the Twante side of the Thakutpin creek were at one time known collectively as the “Thirty Seven Pagodas of Angyi”. The Letkaik Pagoda which gives its name to the series owes its importance to the existence of some old Talaing inscriptions on the platform. These were considered by Forchhammer to date from the 12th century, and if this theory be correct they are by far the oldest Talaing inscriptions known in Lower Burma. The copy which he examined and translated was from a tracing by Captain Parrot made in 1880; the tracing and translation have been lost and the stone pillars have been broken; only half the inscription now remains. It is perhaps more probable that some of them date from the reign of Razdirt in the end of the fourteenth century, that at Danok is definitely connected with this king in tradition, and that some date from the reign of Dhammazed towards the close of the fifteenth century. The chronicles apparently gave reason for believ-
ing them to coincide with the date of a mission to Ceylon, and Dhammazedi organised the most important of those embassies. Detail research may indicate the necessity for distributing the pagodas of this series over a considerable period.

Remains still indicate or have indicated within recent years the existence of walled cities at Pada, Syrian, Khabin, Myogon (Sapagan) and Twante; the first two were in the province of Syrian and the last three fell in Dala. Of the towns of the Hanthawaddy of the Burman regions those at Hlaing, Tabu (Htanbu), Hmawbi and Mingaladon fell within the limits of the District. In the sixties Hlaing was specifically excluded from the area to be granted as waste land, but material remains have been converted into ballast for the railway and the demand for paddy has accelerated the process of natural decay. At Syrian the older inhabitants can still trace the old walls and identify the gates by name.

There are remains at Syrian of the Portuguese city of the 15th. century.

J. S. FURNIVAL.
To reject the broiled fish for a wet one.

Once when Brahmadatta was ruling in Benares, the Bodhisat, the future Buddha, was reborn as Sakka, King of the gods. At that time a certain young Brahmin of Benares acquired all the liberal arts at Takkasila. Being specially proficient in archery, he was known as the clever Little Archer. His master thought, "His knowledge has become equal to mine", and being highly pleased gave him his daughter to wife. He took her and set out for Benares. In a forest on the way he met a wild elephant and was attacked by him. The Archer sent an arrow at him with such force that it pierced his forehead and came out at the back of his head. The elephant fell down dead. Proceeding on their way they came to another forest infested by a gang of fifty robbers. On seeing the rich ornaments of the wife the robbers were about to capture them. But the chief robber, being skilled in reading a man's character knew the Archer at a glance to be a great hero and would not let them rise up against him. While the robbers were roasting meat, the Archer sent his wife to ask from them just a bone of meat, hoping thereby to get some meat also. The wife kept strictly to the letter of the request and would not take any meat. So the robbers gave her a bone. When the Archer saw the bare bone without any meat attached to it he was displeased and sent forth a challenge to the robbers in these terms: "Hoping to get some meat, I asked for a bone. Must they give me only the bone?" The robbers said, "What! does he think he is the only man here? are we merely women?" And threatening they rose up against him. The Archer killed forty-nine robbers with the same number of arrows. He had brought fifty arrows in his quiver and as he had already spent one on the elephant there was one arrow short for the fiftieth robber, who happened to be the chief robber. The Archer then knocked him down and holding him bade his wife hand him his sword in order to cut off his head. But the wife at that very instant conceived a passion for the robber and placed the hill in his hand and the blade in that of her husband. Thus her accomplished husband was killed. The robber took the woman and as they went along he inquired her of her past history. She told him that she was the daughter of a professor at Takkasila, that she was given in marriage to the young man and that owing to her love for him, the robber, she had caused her husband's death. The robber became terrified thinking, "This woman has killed her lawful and matchless husband. As soon as she sees some other man, she will kill me too. I must get rid of her." As they went along, they came to a river and he said, "My dear, there are ferocious crocodiles in this river; what are we to do?" She said, "My lord, first carry all my ornaments to the other bank and then come back and take me across." "Very well," he said and jumped into the river and swam across. When she saw that he made no sign of returning she implored him in various ways to come back; but he only said, "You are not a faithful woman" and left her. Thus she lost both husband and lover. When Sakka, King of the gods saw her weeping in distress he thought he would go and teach her a lesson. So he took Mātali, his charioteer and Pañcasikka, the celestial musician to the bank of the river and said to them, "Mātali, do you become a fish; Pañcasikka, you turn into a kite and I will become a jackal. I will take a broiled fish in my mouth and go in front of this woman. When I get there you, Mātali the fish, are to leap up out of the water and when I the jackal seeing the wet fish shall drop the broiled fish in my mouth and jump up to seize the wet fish, you Pañcasikka the kite are to pounce upon the broiled fish and fly up
into the sky, and you Mātali are to fall into the water." Accordingly, they acted this scene at the end of which the jackal having lost both the broiled and the wet fish was seen sitting down in a melancholy mood. When the woman saw him she laughed heartily with a voice like the sound of bamboo split in two. When the jackal asked her why she laughed so, she answered, "O foolish jackal, you are indeed a silly creature. Having lost both the broiled and the wet fish, well might you grieve." The jackal replied, "O foolish woman, it is easy to see the faults of others but one’s own it is difficult to see. Methinks, you who have lost both husband and lover ought to be in the lowest depths of grief. As for me I could easily get another fish. But where will you get another husband as the matchless one you have killed? It is you who ought to weep a hundred times, a thousand times, a ten thousand times more than I do," Hearing these words, she felt greatly ashamed and promised to lead a virtuous life and be constant in her affections. Sakka returned to his own abode.

6.

Instead of the rice-stealer, the chaff-stealer is caught.
A certain man was in the habit of stealing chaff from a house. The owner did not know anything about it. As time went on, it happened that one night another man stole some husked rice from the same house. The owner becoming aware of the fact waited the following night together with some of his men. And the chaff-stealer came as usual and was caught and imprisoned.

7.

Had I known that my father-in-law had died, might I not have bought the horse for a ride?
A father-in-law and his son-in-law were travelling on a long journey. When they reached a desert the father-in-law was overcome with fatigue and gasped for water saying to his son-in-law, "Pray get me some water or I shall die." The son-in-law went in haste and luckily found a well. He got some water and was returning when he met a horse-man, who said, "Friend, I am very thirsty. Give me your water and take my horse." The other replied, "I have my father-in-law dying for water. I must give it him. I do not care for your horse." But when he got to his father-in-law, he found him dead. The son-in-law then said, "Had I known he had died, might I not have obtained the horse."

8.

I show my teeth out of pain, think you I laugh?
Once the future Buddha was born as a monkey living close by a river. Devadatta his enemy became a crocodile in the river. One day the crocodile caught the monkey and biting his waist held him in the mouth. The crocodile saw his face and said, "Monkey, how can you laugh when I bite you severely on the waist?" The other replied, "O crocodile, you will never kill a monkey by biting his waist. Do you not know that the life of monkeys is not in the waist but at the tip of the tail? I laugh at your blunder." The crocodile believing him released his grip with the intention of biting the tip of the tail. But the monkey quickly jumped and ran up a tree. From there he greeted the crocodile thus, "O fool, I showed my teeth out of pain and you thought I laughed."

9. The garula at his wits’ end turns salt manufacturer.
Once a sea-serpent took the form of a man. A certain garula bird also became a man. One day they met. The man-garula seeing the man-serpent felt
all the savage feelings of a garula bird towards a serpent, his natural prey, and gave chase. The serpent ran for his life and being hard pressed by the garula narrowly escaped by entering the ocean and returning to the abode of the serpents at the bottom of the ocean. The garula was disappointed but would not give up the chase. So in the hopes of catching the serpent, should he ever return to the world of men, he himself became a man and lived in the company of a certain number of men manufacturing salt on the sea shore. But the serpent never came back to the world of men and the garula died while still manufacturing salt.

10. စီးထ်ပ်သည့်အပြင်ချစ်သည့်စားတာ

Like the Karen who finds a pot of jaggery.

The Karens are fond of sweet things to eat. Unfortunately the palm from the juice of which jaggery is made does not grow in their country. They have thus to depend on Burmese merchants from whom they buy jaggery often paying its weight in silver. Whenever they have a chance of eating it they show their partiality by quickly finishing a whole pot of it. Hence this proverb is used when a man without any regard for decency displays an inordinate desire for anything or when he eats more than he is expected to eat.

MAUNG TIN.
NOTES AND REVIEWS

OUR MUSEUM.

At pages 103-106, Part I, Vol. II, of the Journal of this Society, "C. D." gives, under the above heading, short descriptive accounts of the exhibits that have been collected for the Museum to found which, when circumstances permit, is one of the objects of the Society, and promises that a fuller description with the photographs will form the subject of a paper in a future issue of this journal. Since then he has been very busy with works of a more urgent nature, and he made over to me the exhibits for illustration. At the same time I was given the honour to write the fuller description myself, and he very kindly placed at my disposal his knowledge of Pāli and of Buddhism.*

I had no opportunity to examine the exhibits under group I, and of those under group II, the statuette of Chinese workmanship—No. 1 of "C. D.'s" list—is in fragments and cannot be pieced together to permit of a photograph being prepared. Photographs were prepared of the remaining exhibits, and they form the illustrations to this note.

The arrangement and numbering of the figures do not correspond with those in "C. D.'s" list, and for convenient reference each figure is given two numbers wherever it is necessary. The lower numbers indicate those in his list.

Fig. ½, Plate I. To an orthodox Burmese-Buddhist of the present day, this exquisite figure made of bronze, with crowned head and richly ornamented, represents Jambupati or the Buddha in the guise of a king whose dress outshone in wealth and splendour that of the proud king Jambupati. But curiously enough the story of Jambupati has not yet been traceable, on the authority of many eminent oriental scholars, among the canonical books of the Buddhist literature. There is a book in Pāli entitled ๒๑๔๗ (Zimme Paṇṇāsana),† alleged to be a collection of the Jātikas or the birth stories of Buddha in his previous lives. The authorship is ascribed to a Buddhist monk of Zimme (Chengmai), and there is a strong belief among some of us that he is the same as the author and composer of the story of Jambupati. It is said that king Bodawpaya (1781-1819) who took a great interest in the authenticity of the Buddhist literature had all the available manuscripts by the above author consigned to the flame, and it is very probable that the original manuscript relating to the above story has met with the same fate, or has been stored away among the old and crumpled manuscripts in some monastery or other. The story is given at length in Burmese in the ๒๑๔๗ (Tatthāgata Udānāpījana Kyam) and for a full account and critical study of it reference may be made to this book.‡

I shall endeavour to trace the origin of Jambupati in my next paper. Meanwhile, it may be accepted with safety that the figure before us represents not Jambupati but the Bodhisattva perhaps, and doubtfully a Dhyāni-Buddha¶. It

* I am indebted to "C. D." also for many other suggestions which have been embodied in my note.
† Printed at the Hanthawaddy Press, Rangoon.
‡ Vide ๒๑๔๗ ๒๑๔๗ ๒๑๔๗ ๒๑๔๗ Vol. I, p. 543 ff. "C. D." says that there is also in Talaing a story of Jambupati (B. F. L. No. 204) and also in Burmese in verse entitled ๒๑๔๗.
¶ "The term Dhyāna (Jhanna) is a general expression for the four gradations of mystic meditation which have ethereal spaces or worlds corresponding to them, and a Dhyāni-Buddha is a Buddha who is supposed to exist as a kind of spiritual essence in these higher regions of abstract thought. That is to say, every Buddha who appears on earth in a temporal body—with the object of teaching men how to gain Nirvana—exists also in an ideal counterpart, or ethereal representation of himself in the formless worlds of meditation. These ideal Buddhas are as
is seated cross-legged in the dhyāna-mudrā or the attitude of meditation on a lotus throne, and is holding in both hands a lotus-shaped vessel containing Amṛtā, or nectar of immortality. It is decorated with all the ornaments worn by an Indian Prince. It has head-dress, ear-ornaments, necklace, breastplate, armlets, bracelets, anklet and loin ornament, and a large shawl covers the shoulders and falls gracefully over the hand and thighs.

The history of the figure is not known. The large shawl is peculiar to the figures found in Northern India, Tibet, China and Japan, and the cape-like dress over the back and which forms a part of the shawl suggests the location of the country of origin of the figure in a cold and chilly place. The inspiration of art is Indian, but the cast of countenance suggests Mongolian influence. There is no sufficient data to fix the age of the figure, but from the style of execution it may be attributed to the late mediaeval art.

Fig: 3, Plate I. Though much inferior in execution this figure possesses all the principal ornaments and attributes of the above figure. The cult of Bodhisattva, which, according to Suzuki, was the forerunner of Mahāyānism*, was first promulgated in Northern India, and then spread over Tibet, China, Japan and Burma, but with the stronger vitality of the Southern School of Buddhism (Hinayānism) in Burma, this cult has been buried in oblivion, and consequently figures which are the artistic representations of Bodhisattvas and Dhāraṇī-Buddhas have become inexplicable to a great majority of us.

It is seated cross-legged in the vitarka-mudrā or the attitude of argumentation† on a lotus throne holding in its left hand a vessel with amṛtā. It is attended by the quaint figures of two devotees both seated in the attitude of adoration on lotus flowers. The age and the country of origin of this figure are not known.

Figs: 1(a) and (b) and 2, Plate II. This quaint figure—all these figures are three different views of only one—with a decided mark of Indian influence in its facial expression represents, what is popularly known in Burma as, “Dakkhīna Sākṣā” or “the Southern Branch” meaning thereby that the figure represents the Buddha and is made of the wood of the Bo-tree grown in Ceylon from that Southern-branch of the Bo-tree at Gayā.

It is seated cross-legged in the Bhumi-parsamudrā or earth touching attitude on a throne ornamented with three heads of elephant. It is holding a vessel in its proper left hand, and is flanked by two mukaras. On the back of the throne is a Yaksha in the act of fleeing from the presence of the Buddha. Below the throne is the representation of a lake with fishes and lotus plants (fig: 2). It has on its head a sort of covering which is generally identified with lotus leaf.

numerous as the human Buddhas, but as there are only five chief human Buddhas in the present age—Kraka-chanda, Kanaka-muni, Kasyapa, Gautama, and the future Buddha, Maitreyya, so there are only five corresponding Dhārani Buddhas—Vairocana, Akshobhya, Ratnasambhava, Amitabha, and Amogha-siddha (sometimes represented in images as possessing a third eye.) But this is not all. Each of them produces, by a process of evolution, a kind of emanation from himself called a Dhārani Bodhisattva, to act as the practical head and guardian of the Buddhist community between the death of each human Buddha and the advent of his successor. Hence there are five Bodhisattvas—Samaanta-bhadra, Vajrapani, Ratnapani, Padmapani, (Avalokiteshvara) and Visva-pani—corresponding to the five Dhārani-Buddhas, and the five earthly Buddhas respectively. In Nepal five corresponding female Sābetsi or Tara-devis are named.* Sir M. Monier-Williams’ “Buddhism,” pp. 202-203, and also foot-note of Mr. E. B. Havell’s “Indian Sculpture and Painting,” p. 28, cf. also pp. 194-195 of Prof: Gnutwedel’s “Buddhist Art in India” edited by J. Burgess.


† The hanging hand with palm outward is properly in the varamudrā, but the thumb and index are in the vilarka mudrā.
Fig: 1 - (a) Front view

Fig: 1 - (b) Back view

Fig: 1 - (c) View showing the underside of the throne.

Fig: 2

Fig: 3
In reply to a query, the Monywe Zedawun Sayadaw gave a comprehensive account of how such figures were brought over to Burma from Ceylon, and gave a history of them *, but unfortunately no explanations were given regarding the various attributes of the figure.

It is said that a genuine Dakkhiya Sākhā figure is one cubit (with the fingers clinched) in height—about 1' 2½”—and has nine circular marks one on the forehead, two on the shoulders, two on the elbows, two on the sides of the posterior and two on the knees. Our figure is only about 5½” in height, and has only 7 circular marks, those on the sides of the posterior being missing. It is also doubtful if it is made of the correct material.

It forms a household figure among us and much value is attached to it. Every Burman, if he is a Buddhist and if he can afford it, has such a figure in his house. Various stories (not published) are told of its efficacy in warding off fire and in bringing in wealth, but no satisfactory explanation can be had why that venerable object is considered fire-proof and wealth-bringing. With regard to the various attributes, it is explained that persons born on Wednesday are anxious to possess the figure, and as the principal letter of each of the words ModelProperty, ModelProperty and ModelProperty: (lotus, lake and fish) is formed of either the one or the other of the first five letters ModelProperty, ModelProperty, ModelProperty, ModelProperty and ModelProperty all meaning Monday, a day which when mated with Wednesday, brings peace, wealth and long-life to the owner, such attributes are carved on the figure.

I may here point out that among the Hindu pantheon, Ganesa, the God of Wisdom, and Kuvera†, the god of wealth in one sense, are generally represented with short neck, thick-set body and protuberant belly. The Milo-Fo‡ of the Chinese also has the same features. In our figure the protuberant belly is not quite apparent, but it possesses the other features, characteristics of the above figures.

Fig: ¹, Plate II. This figure in alabaster which looks very much like that of a Burmese lady represents the rishi Sumedha throwing himself across the marsh for the Buddha Dipaṅkara to walk upon when he was visiting a certain place.

Figs: ³(a), (b), (c), (d) and (e), Plate II. I have not much to add to these figures. I have arranged them in one plate for the sake of convenience.

Fig: ² represents Prince Siddhattha in the act of cutting off his hair. The left hand is broken near the elbow. Fig: ³ represents the Cankama or the Jewelled walk and figs. ⁴ and ⁵ represent the Buddha preaching his sermon to his five disciples in the Migadanavana or deer park. In fig: ⁶ there remain only the figures of the Buddha and the tree ⁷ and the circular pedestal around which they were arranged, and in fig: ⁸ there still remain two deer and a disciple in addition to those in fig: ⁹. Fig: ⁷ represents the Mucalinda incident in which the Buddha was covered by the hood of the nāga king Mucalinda to protect him from the rain which lasted for seven days. Sets of such figures illustrating the scenes in the life of the Buddha generally form the contents of relic chambers of the Buddhist shrines in Burma.§

Fig: ¹, Plate III. According to the popular story that is current among us, it seems that, when Gautama was attacked, just before he attained enlightenment, by Mara and his host, he called upon Mother-earth to bear witness to the good deeds he had done in his previous lives. Thereupon, Mother-earth, Vasundari, appeared before him and wrung off her hair the water that had been poured on

* pp. 1-20. I am indebted for this reference to Sayá Pe of the Archaeological office.
† For illustration see fig. 29 of Dr. Ananda Coomarasawamy’s “The Arts and Crafts of India and Ceylon,” and also Plate XLIY of Mr. Havell’s “Indian Sculpture and Painting.”
‡ For illustration see fig. 1, facing p. 4 of J. B. R. S. Vol. I, Part II.
§ The tree represents the deer forest or the symbol of his having obtained enlightenment.
¶ See Mr. Taw Sein Ko’s article on the “Ancient Relics found at Shwebo.” Archaeological Survey of India, Annual Report for 1903-04, pp. 145-157.
her each time the Buddha made an offering during his previous existences. That water flowed off in five great streams and drowned Māra’s host. But in the account given in the Āpādāna Āṭṭhakathā, it is said that the Buddha merely contemplated the good deeds he had done during his last existence as King Vessantara, and the earth shook, whereby Māra’s host was much frightened and fled in all directions.

The figure before us represents Vasundari in the act of wringing her hair in the light of the former story given above. It will be interesting to note that it is only in Burma such a representation of the incident has been found. From the style of the figure, its age cannot be more than a hundred years old.

Fig.: ⁷⁸, Plate III. The tablet has weathered very badly, and it is difficult to make out the figures on it. The central figure seems to be the Buddha seated in European fashion and flanked by two Bodhisattvas.

Figs.: ³ & ⁴, Plate III. I have not much to say about these figures. The throne on which the Buddha is seated (fig 3) may be compared with that of fig ¹, Plate II. The place of origin of these figures is not known, but from the abundance of similar votive tablets found at Pagan, I am inclined to suggest that they were brought away by the late Bishop from that place which he could not have failed to have visited while he was in Burma. Fig. ³ belongs to about the 13th—14th century A.D., and fig ⁴, to about the 11th century A.D.

Fig.: ⁷⁸, Plate III. It is a square plaque of baked clay representing the principal scene of the Cūlakaseṭṭhi Jātaka. Briefly the story runs as follows:

Once upon a time when Brahmadatta was king of Benares, the Bodhisat was reborn as a Treasurer’s son. On his coming of age he was made a Treasurer, and known as Cūlakaseṭṭhi (younger treasurer). One day while he was going to the king’s palace he came upon a dead rat lying on the road, and noting the position of the stars at that moment, he said that any man with his wits about him might start a trade with that rat and keep a house. A young man of poor circumstances overheard what he said, and having faith in all he said, he picked up the dead rat and sold it for a farthing at a shop for a cat. With this he bought molasses and took drinking water in a water-pot. Seeing the flower-gatherers returning from the forest, he gave each a small quantity of molasses and a ladle of water. Each gave him in return a handful of flowers. He made use of the proceeds therefrom in a most ingenious and business-like manner so that in four months’ time he became the possessor of 200,000 pieces. As a mark of gratitude he offered 100,000 pieces to Cūlakaseṭṭhi who seeing the good parts of the young man married him to his elder daughter and settled the estate on him.*

The figure on the right of the reader represents Cūlakaseṭṭhi pointing at the dead rat, that on the left is the young man in the act of picking it up, and the central figure, a little above the rest, is the same young man starting trade with it. On the top is written, “Cūlaseṭṭhi Jīt—⁴.”

The plaque† probably belongs, from the technique of the figures on it, to the Eastern Pettēlik Pagoda, Pagan, (10th—11th century A.D.). It may not be out of place here to mention that the plaque bearing the same legend and number is missing from the above pagoda.

Fig.: a.b.c, ¹⁵, Plate IV. “C. D.” writes, “A fragment of a votive brick, broken diagonally, 5½ × 4½”. The brick has a recess or niche ½ inch deep, in which is represented, seated on a throne in the bhūmipāra-mudrā, the last Buddha Sakyamuni, with around him, the Buddhas that preceded him, of whom 15 are visible; there are letters between the heads of the small Buddhas, and a line of inscription at the bottom. On the reverse another inscription in archaic


† Cf. the figures in Mr. Taw Sein Ko’s article on “The Plaques found at the Pettēlik Pagoda, Pagan,” Archeological Survey of India, Annual Report, pp., 127—136.
characters, in Pali, about half of which is missing." I have nothing more to add to the above descriptions but there are three inscriptions to be dealt with:—

1. The letters between the heads of the Buddhas;
2. The line of inscription at the bottom; and
3. Another inscription in archaic characters on the reverse.

The letters between the heads of the Buddhas are very indistinct. I read a few here and there, but could make nothing out of them. The letters on a similar tablet found at Pagan appear to be more distinct, and Mr. Robert Sewell in his "Antiquarian Notes in Burma and Ceylon" writes as follows:—

"Aksharas will be observed close to the heads of the different Buddha figures, in the right side of each. These are probably the initials of their names &Ti for Tissa, or Tishya, Kā for Kakusandha, Kassapa, or another; and so on "*

The line of inscription below the figures of the Buddha is in Pali, in Burmese characters of about the 11th—13th century A. D. As the letters are very small in the photograph, and as it is difficult to take an impression of them, I give in fig: b, Plate IV, an eye copy of them. I read the inscription as follows:—

"Athāvisati, me Buddhā trium Sambengena Katā Buddhatthāya."
"These twenty eight (figures of the) Buddhas who have crossed over to Nirvāṇa were made by Sambeng (a minister) in order to obtain enlightenment."

The inscription on the reverse face is only a fragment, about two lines on the top, a few words in those that remain being missing. I give below a transcription and translation of it.

Transcription.

1—........................................
2—........................................
3—ti katā rañño........................................
4—puññathāya'pi........................................
5—imināpuñña kammena........................................
6—dukkhappamānato sabba [sa]
7—ttepamocetum Buddh [o]
8—homi anāgāte.

Translation.

1—........................................
2—........................................
3—made........................................ king
4—for the purpose of obtaining merit.

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† Indian Antiquary, Vol : XXXV, pp. 294-295. It is read "Athāvisati, me Buddhā trayā samaeta Katā Buddhatthāya."
‡ In another inscription a photograph of which I have in my possession it is written ๑๙๑๔๘ (Sambendana pati). Cf. also l. 2, pp., 266-287, Inscriptions collected in Upper Burma.
5—8—May I by (virtue of) this meritorious deed become Buddha in due
course of time in order that the whole world may be liberated from the bound-
less sorrow (attending rebirths).

A great deal of interest centres round the purport of lines 5—8 of the above
inscription. The aim and object of the donor is not simply to obtain merit that
may ferry him, and him alone, across to Nirvāṇa, neither for the sake only of
obtaining enlightenment and then fly away from the triple world, but for the
sake of obtaining enlightenment for the weal and happiness of the world at large,
for the sake of the complete Nirvāṇa of all beings. This universal love for all
beings is one of the peculiar features of Maha-yānism. D. T. Suzuki says, "Hina-
yānism confines itself to the salvation of individuals only; it does not extend its
bliss universally, as each person must achieve his own deliverance. Mahāyānism,
on the other hand, aims at general salvation; it endeavours to save us not only
individually, but universally. All the motives, efforts, and actions of the Bodhi-
sattvas pivot on the furtherance of universal welfare."*

This votive tablet is also interesting from the artistic point of view. It is
thought by some Indianists that all the votive tablets found in Burma were
brought over by pilgrims visiting India. It is not probable, but the abundance
of such tablets found in Burma, and the inscriptions in Burmese characters which
some of them bear are decided proofs that some at least were made in Burma.
Of course the art of making them was imported from India.

MAUNG MYA,

_Burma Archaeological Survey._

WHY BURMA IS SPARSELY POPULATED

A SUGGESTION.

In reading over the April number of this Journal (Vol. IV, Part I), my eyes
ran over an interesting article "Why Burma is sparsely populated." The writer
of that article has not found out any satisfactory explanation, though his article
makes one believe that he has solved it, but on the contrary he has asked if any
one can suggest a reason. I need not recapitulate here what the learned writer
has said before, except state briefly the discussion that followed when his paper
was read. U May Oung seemed to be nearer the mark, in my humble opinion,
when he said that "Mr. Stuart's suggestion that Buddhism discouraged popula-
tion would not explain another mystery—the scant population of North America
before the English arrived............ Personal he himself did not think along
the waterways, where life was easy, the population in Burma had been less than
that of other countries............"

In his valuable paper Mr. Stuart has left nothing unsaid, he has thoroughly dis-
cussed the pros and cons that the article could admit of, and I think in suggesting it
I am like the proverbial man who holds a farthing candle to the sun. The one
reason why Burma is sparsely populated is that there is no strong desire for nume-
rous progeny amongst the Burmans. The second reason is that the average
Burman is not as lustful (I hope my readers will pardon me for using this word) as
his brother the Jew, or any other person of any nation. The third reason is that

Burma is quite a modern country. She has just been born, and cannot in any way be compared with any other province. India and China seem to me to be incomparable with Burma. Both countries are far ahead of Burma in every respect. India and China have reached their zenith of civilisation when Gotama Buddha preached his noble Truth. Burma then was inhabited by wild tribes of men who were scarcely better than beasts. Perhaps those tribes may or may not be Burmans.* Then during the times of Burmese Kings, it is a well-known fact that each king had 4 to 500 wives. Then each prince married as many wives as he wanted. Then with bad government, ignorance of the knowledge of midwifery, ignorance of sanitary laws, etc., it does not at all seem that the population would grow by leaps and bounds. In fact it would lessen the population. Withal these the Burmese people grew up into a nation. That the Burmese were at first savages who lived in tribes and clans is a settled fact. Lord Avebury in his famous work. "The Origin of Civilisation and the Primitive Condition of Man" says on "The Origin of Marriage":—"Indeed it is now admitted by most of those who have studied the subject that there was a time when individual marriage did not exist, and when mankind lived in a state of what I have suggested we might call communal marriage."

When the English were living in more settled form of living and civilisation and when they have progressed much in the institution of individual form of marriageship, and when they were threatening King John for the Magna Charta, the peoples of Burma were then living under communal marriage forms. Burma, therefore, is much behind England in matter of population.

Even now there are wild tribes in the neighbouring mountains which take up a large area of the country. The Burmese are not very far ahead of their kinsmen the hill-tribes, in matter of population. Marriage by capture which is the most characteristic of savage manners and customs still clings to modern Burmese marriage customs; e.g., the stone throwing or ခါနိ့; commonly called, the custom of hooding the bride's face, and the taking away of the bridegroom by his friends after the marriage ceremony. The curious custom which forbids the father-in-law and the mother-in-law speaking to their son-in-law and vice versa seems to be a natural consequence of marriage by capture and is part and parcel of Burmese customs and goes far to prove that it has evolved out of exogamy and that numerous progeny could not have resulted.

Then the other reason is the Burmese woman is a hard labourer and faces her work as boldly as her partner the Burman.

Lastly it does not seem to me that there are large tracts of fertile plains in Burma which are conducive to the growth of families as in India and China.

Under these circumstances, it is but natural that Burma should remain sparsely populated.

MAUNG BA AUNG.

TWO LEGENDARY HEROES OF THE MONS.

1. ATTHA, THE CATTLE-HERD.

This story tells how by the evil plotting of his uncle a Prince became a Cattle herd and how by his own bravery, and by the faith his mother had in him the Cattle herd become a Prince. It is told briefly in the Mon Chronicles, but you

* For further details, please see my article "The Origin of the Burmese." published in the April number of the "Indian Review" published by Messrs. G. A. Natesan & Co., of Madras.
will find it more fully in the play books sold in the bazaars, and not long ago one
version of the story was acted by Aung Bala. It is a story which should be read
in all the schools.

A very long time ago Hanthawaddy, the City of the Golden Hintvas, was
still beneath the sea. From Rangoon to Moulmein almost the whole way the sea
is thick with mud, soil brought down by the Irrawaddy and its tributaries from
all the valleys as far as the frontier of China and beyond. The freshets from the
side hills build up little cup shaped lakes into which the main waters of the river
cannot enter, so all the fertilising soil is carried out to sea and sinks to the
bottom, gradually building up a barrier. Meanwhile the whole surface has been
rising and the mud settled at the bottom has been raised above the sea. In the
days of Atha there was no level land but the hills of Syriam with its old pagoda,
Twante and Rangoon stood out from the sea as a tree clad archipelago. The
Mons had not yet come into the country and the Burmans were still away in the
north of what is now Upper Burma, but there were colonists from India from the
country of Orissa who had settled on the hills at the mouth of the Irrawaddy,
to carry on their trade with China. The city of Hanthawaddy, Pegu as it is now
called, had only recently emerged from out the sea and the Indians seem to have
established a colony there. The Mons at that time occupied the eastern hills,
but were driven westward by the rising power of Cambodia. The Mon capital
was at Thaton but the princes, Thamala and Wimala, led them to the west and,
driving out the Indians, settled in Hanthawaddy. Thamala was the first king.
He married a princess known as the Queen of the Golden Gourd, and after reigning ten years died leaving an only son, a baby. This was Atha. Thamala was
succeeded by Wimala, his brother, who was afraid that when the baby was
grown up he would try to seize the throne, and ordered that he should be
destroyed.

The Queen of the Golden Gourd was afraid to disobey the orders of the
king, who had now become her husband, marrying his brother's widow at the
time that he took his kingdom, but she did not want to lose her child. So she
placed him in the care of an old woman called Mi Nangalon who lived in a dis-
tant village on the borders of the kingdom. Kun Atha was the name of the
village and according to the history book it was so called because this is a Talai-
ing phrase meaning 'the last village.' Mi Nangalon did not know that the baby
was a prince, the son of Thamala. She was very old and had no children of
her own, so she looked after him and brought him up as if he had been her own
son. She had a large herd of buffaloes, and when the boy grew old enough he
would take them out daily grazing in the forest. So he grew up among the buffa-
loes, riding astride one as they went out each morning to the grazing ground and as
they came home each evening. There were no other children there for him to play
with, he lived alone with his foster mother in the remotest corner of the kingdom.
So the buffaloes learned his voice and he learned to call them all by name, and
gradually, for lack of other boys to talk to, he learned the language of the
buffaloes. And as he went about the jungle he learned that all the other animals
were equally his brethren and learned to talk with them. He would run races
with the sambar deer and wrestle with the tiger cubs, so that he grew up very
strong and swift footed, and he learned cunning from the jungle cat and wisdom
from the owl. While he was still a baby the animals had to play gently with him
for fear lest they should hurt him, but by the time that he was twelve years old
he could run faster than a four year deer, could dodge a tiger as it sprang at him
and even one of his own buffaloes knew whether he was beating it in play or
earnest. He was king in the forest as he had been born king over all the
country.

Once in every year his mother, the Queen, sent messengers for news of him.
They would come to the village in the guise of travellers from a distant country
and talk to the boy without his knowing who they were. And each year when
the messengers came back and told his mother that he was straight and upstand-
ing, one who would be a strong support to all his friends and whom all his
enemies would fear, she was both glad and sorry; glad because her son was such as they reported, sorry because she could not see him with her own eyes. But she resolved that some day she should meet his uncle, Wimala, that they should be reconciled, and that her son should sit upon the throne when he became a man. Year in, year out she sought a means by which this might be rendered possible, but for all her pondering she could devise no plan.

At length there was an opportunity. The Indians whom Thamala had driven out, came back with a great army, and attempted to re-take the kingdom. For a long time it looked as if they would succeed. Their leader was a man named Lamba, a giant, head and shoulders above all his followers in the army. There were many battles fought, and time and again the Talings were beaten. At length Wimala sent round heralds proclaiming great rewards to anyone who should come forward and prove successful in killing Lamba and driving out the Indians. Man after man appeared but the giant was very strong and a great warrior and they all failed. Then the queen thought of her son. She had treasured up the stories of his prowess and bravery, how he could run the deer, and single handed overcome the tiger. He was still only a boy, not yet sixteen, but it was a chance worth trying. So she sent for him and revealed herself as his mother, telling him that he was a Prince by birth and rightful successor to the throne and showed him how the kingdom was troubled by this giant and in danger of again passing to the Indians whom his father Thamala had overcome. The boy was brave as he was strong, and gladly offered himself as champion of the kingdom. Then he went to Wimala and without making known his true estate asked for permission to fight against the giant.

'What can this boy do,' laughed Wimala, 'where so many grown up men and champions have failed?'.

But the boy arming himself with his father’s spear, which his mother gave him, went out to fight with Lamba. One on each side, picked champions, they were to fight while the armies watched them. So Lamba came out from the army, dancing and singing and tossing his battle axe high into the air, catching it as it fell and brandishing it against the small boy who stood out silent and all alone in front of the army watching the onset of the giant. At length they came within speaking distance and the giant langed at the boy telling him to go back and mind his buffaloes: 'It is my trade' he boasted 'to kill full armed warriors, I do not wish to butcher little cattle herds'. But the boy had learned cunning from the jungle cat: 'Why then,' he asked, 'why then, having said that you would come alone, do you bring a company of men behind you?'.

Lamba turned round to look, and swift as the spring of a tiger the boy jumped at him, thrusting the spear beneath his armpit so that the head came out six inches clear on the further side. Lamba fell back dead, and the Indian army, terrified at the fall of their leader, broke and fled, while the Mons chased them to their ship, killing so many that no Indian army has ever ventured to return.

Then Wimala came out to meet the boy, telling him to ask for his reward. But the boy kept silent while his mother told the story of his life, how he had been the infant son of Thamala, whom Wimala had ordered to be killed. Wimala became very much afraid fearing lest the boy should kill him as he had killed the giant. But the boy was not yet of an age to rule and he confirmed the uncle on his throne until he died.

And after the death of Wimala, the boy succeeded to the throne, as the third King of Hanthawaddy, taking Attha as his name after the village where he had spent his childhood as a cattle herd. And during his reign the land had peace and religion was established.
2. BHADRADEVI, THE MERCHANT'S DAUGHTER.

"And the name of that Queen, Bhadra Devi, is famous up to the present day." That is how the story finishes and there is no doubt that her name deserves to be remembered. Probably, although I have never come across them there are still playbooks which commemorate her, and under the name of Ta-pu-nga she is mentioned in some of the chronicles that are readily accessible, but the only account known to me which tells of her at length is that given in the scholarly translation by Professor Schmidt of the Taungglo Chronicle from that language into German. Together with Aitha, the Cattle Herd, and the Golden Company of Auang Zeya, who led the last assault on Syrian, and the general who under the style of Lord of the Setting Sun led the forlorn hope in 1856 she deserves a place in every school reading book whether it is written in English or Burmese.

She was the daughter of a merchant who lived in the reign of Teiktha Raza, the seventh King of Hanthawaddy of the line of Thama. All the preceding kings had revered religion, honoured the Three Precious Things, the Buddha, the Law and the Assembly, erected pagodas, founded monasteries, and set up memorials fashioned in the likeness of the Buddha. But Teiktha Raza, says the history was a follower of Devadat: he did not honour the Buddha, nor accept the Law, nor pay respect to the Assembly. He cast down all the memorials of the Buddha, burying them in the ground, or throwing them into the waters and marshy places. He prohibited the public practice of religion, so that no one could go to the pagoda to observe their duties, nor could the monks administer the commandments to the people. But he could not order the hearts of his subjects and some of them in private still maintained religious practices.

Among these were a certain merchant and his family. He had only one daughter, then known as Ta-pu-nga, whom from the age of ten years he had instructed in the consolations of religion. At that time the King had not yet decreed that no one should go to the pagodas, and regularly on holy days her parents had taken her to the monastery, where she had been accustomed to hear the monks recite the Law and had learned to welcome the truths of the Three Precious Things. It was not until she had finished the first period of life and was just fully grown that the King issued his decrees against religion.

Shortly after the new laws had been promulgated she went out with an old slave woman to the bathing pool, and while bathing her foot struck against something hard. Putting down her hand she felt that it was a figure carved in stone, so calling for help from her attendant they dragged it out on to the bank. It was a heavy task, but with hard work they succeeded in landing it before the sun had reached its highest. It was a statue of the Buddha all covered with gold and glistening in the sunlight so that their eyes were dazzled.

"Who is so daring", she asked the old attendant, 'as to have overthrown this statue of the Master?'.

"Ah! lady", the old woman answered her respectfully, 'it is this blasphemous (deiti) King, who follows the word of an unfaithful teacher, over the whole country he has overthrown the memorials of religion, and should anyone pay honour to the Buddha at the pagoda it is ordered that he shall be put to death and utterly made away with'. On this wise replied the old attendant.

'I live according to the Three Precious Things', answered the maiden, 'and I do not seek to avoid death. Come let us wash the statue and we will once more place it in the Temple.' Then together they washed it and set it in the Temple. Before long the King heard that the merchant's daughter had disobeyed his orders and sent royal messengers that she should be called before him. The messengers found her cleaning and replacing other statues that had been thrown down.

'Let me remain here for a while' she said.

So the messengers went back and told the King that she was cleansing and replacing all the statues. Once again the King gave orders that she should be
brought to him. By this time she had set up all the statues in a circle as they had been at first. She had done her work and was ready to face the King. She told the King boldly what she had done, and in great anger he commanded 'Bring her to the elephants that they may trample her to death'. Outside the palace ground there was a herd of half wild elephants, not long captured. Whenever the doors of the elephant pit were opened and anyone thrust in they would trumpet loudly, and with angry eyes and waving trunks rush forward to trample them to pieces. The King who was a heretic, a destroyer of religion, would sit looking on with his crowd of courtiers and laugh. They brought her to the elephants but the maiden allowed compassion (myittii) to work on the King and the elephants and the drivers of the elephants, and she called out in a loud voice.

"I take refuge in the Buddha."

"I take refuge in the Law."

"I take refuge in the Assembly."

The elephants hearing this trumpeted loudly in praise of the Three Precious Things and of the girl and refused to go forward and trample on her. The drivers also felt compassion, but they were afraid that if they did not obey orders they themselves would be destroyed, so they urged forward their mounts. But for all their urging the elephants only trumpeted their praise more loudly.

At this the King became exceedingly angry, and ordered that she should be wrapped round with straw and cast into a fiery furnace. But again she let compassion work on those who were charged to throw her in, repeating to them the words of comfort. And they were afraid to burn her and went back to the King reporting that just as the elephants had refused to tread on her so did the flames refuse to burn her. Then the King waxed still more wroth and had the maiden brought before him bound, a prisoner. 'If,' he said, 'I see a statue of your Master fly up into the sky, then you may live but if of seven statues there is not produced an eighth then I will certainly cut you into seven pieces.'

Then the maiden by prayer acquired dominion over matter and, where seven statues stood in the circle as she had replaced them, eight flew up into the air and went to the place of the King. And the King commanded that his heretic teachers should perform a like miracle, but they could not accomplish it. So recognising the power of true religion the King became a thankful and pious follower of the Master, he set up pagodas to mark the sites of all these miracles, turned the heretics out of his kingdom and raised the maiden to the position of chief queen. And the name of that Queen, Bhadradevi, is famous up to the present day.

J. S. F.

THIEVES' NIGHT AT MANDALAY.

There is an old custom at Mandalay, now dying out but in full force a few years ago, which is of some interest to anthropologists and has not, so far as I know, hitherto been described. On the night of the full moon of Tazaungmon, which usually falls in November, every one has full license to steal what he pleases from his neighbour's house and remove it to a distance, the only conditions being that it should be taken without the owner's knowledge and placed where it is possible for him to recover it, if he chooses to search far enough. Long after the annexation of Upper Burma, on the morning after the full moon, some of the main roads in the city were to be seen almost completely blocked with vast piles of furniture and belongings of all kinds, surreptitiously removed from more or less distant houses. The bigger the object, of course, the greater the skill shown, the more trouble to the owners, and therefore the greater fun. Wooden platforms, used either as bedsteads or for sitting on during the day, were
often selected, and those, piled on the top of one another, made at least a good base for other articles, which included cooking-pots and large jars for storing water (beautiful dummy figures could be made out of these and a few articles of clothing, also surreptitiously removed), such tables and chairs as were in use, and even staircases. On one occasion, indeed, the removal of a staircase resulted in a somewhat serious accident. The owner of the house, walking out of a door in the upper story before dawn, when he was perhaps not fully awake, stepped into space, and was found below with a broken leg. Although part of the game was never to let it be known who removed the things, the owner having to find them for himself, in this case the "thief" came forward, and supported the man’s family while he was unable to work.

Not the least interesting result of the custom is the light it throws on the character of the Burmans of Mandalay. It would be impossible in a community that is not, on the whole, honest, and above all extraordinarily good-tempered. To have to go out and search for one’s household goods in a dozen different directions before sitting down to a meal would be trying to anyone’s temper, and the Burmese are generally supposed to be a passionate race. One would think, also, that thieves would make use of the custom to steal the things put out on the roads, or to commit real thefts on pretence of merely joining in the game; but I am assured that they do, or at least did, nothing of the kind. It is a point of honour for the persons who remove the goods to keep an eye on them until they are found by the owners, and if they do by any chance disappear they make good their value.

The custom seems to be comparatively little known outside Mandalay, the royal city. Another form of it, however, appears to have once been general in Upper Burma by which every one had the right, on this night of the year, to help himself surreptitiously to growing fruit, and to eat it at leisure. It was also usual for young men and girls to throw fruit at each other and at the houses of their elders; the Zibyu, an inferior kind of plum, being especially used in this way.

It may be that the Mandalay custom is merely a town development of the other. At all events the license to help oneself to fruit, and the use of fruit as a missile, in a kind of carnival suggest many parallels in other countries, and seem to be a survival of rites intended to promote fertility; while the orgy of practical joking which the Mandalay people indulge in is more difficult to explain. It may be that a mirth-loving people, finding themselves in a town with no growing fruit, substituted for the license to remove and eat it a license to play practical jokes on those among them who had more property than they ought to have. There appears to be no trace of a patron saint of thieves, in whose honour the people might have devoted themselves to a pretence of thieving for one night in the year; not, of course, in order to promote theft, but with a view to protecting their own property by propitiating the god.

R. GRANT BROWN.

PHILOLOGICAL NOTES

IV.—BURMESE PHILOLOGY AND THE SHAN LANGUAGE.

In the Journal of the Burma Research Society, June 1913, there is an article by Prof. C. Dufoiselle on Burmese Philology which quotes with approval Mr. J. A. Stewart’s rule:

"Groups of words whose main differentia is tone are seen to have a close similarity of meaning";

and then the Professor gives another:

"Words which are closely related in meaning have the same inherent vowel sound".
I was curious enough to look into the matter to see whether either or both of those rules would apply, in any large measure, to the Shan language. Of course I did not pick out words of the same tone, or words of the same vowel sound, and then see about their meanings, but, taking a large number of words of radically the same meaning, I tried to reduce them to either the one or the other of the rules given. The results are far from satisfactory—the exceptions seem to pervert rather than prove the rules, so far as the Shan language is concerned. I went through all the groups of words given on pages 15 and 16, 26 groups in all, but I need give here only a few of them to show how the rules worked. What is true of these few is also true of them all. The first group, as given by Prof. Duraiselle, contains words meaning to enter, being entered, etc. For the Shan we have: ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး.

It may be seen at a glance that these words may be grouped round several tones or vowel sounds but not round only one of either. In fact, nearly all of the tones, and one-half of the vowel sounds in the whole language are represented here.

Let us try the second group, of words meaning to press, to squeeze, etc., to see if we may be more fortunate: ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး.

Here there is a little less variety in the vowel sounds, but the same variety in tonal inflection and in initial consonants.

Now we will try the third group, words having the meaning to hang, being hung, etc.: ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး.

Here, again, it would be impossible to reduce these words to any one tonal inflection or to any one vowel sound; there must have been many "root-words".

We may try once more, for good measure, with words meaning to coil, bend, etc.: ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး, ဗေး.

Here there is the same variety in tonal inflection, but perhaps a little less in vowel sounds and in initial consonants.

The number of "root-words" may be considerably less than the total number given here, and it is possible that either or both of the rules might be applied to the Shan language to some advantage, but let us hope that some better rules may be found.

In a footnote, on page 13, Prof. Duraiselle makes the surprising statement: "Chinese is said to have about 500 root-words at most". I am not a Chinese scholar, but I doubt the accuracy of that statement. It is exceedingly difficult to believe that a language like the Chinese, which has borrowed from various surrounding barbarian races and tribes, in its process—four thousand years long—of imposing Chinese culture upon them and then in assimilating them, contains only about 500 root-words. The Chinese must have assimilated more words than that from Mongol-Tatars, Lao-Shans, Mon-Khmers, Tibeto-Burmans, Tunguses and Turks. Let alone her original stock of pure Chinese words (whatever they may have been).

That the Chinese written language may be reduced to 500 root-symbols is believable; just as the Shan written language may be reduced to a limited number of consonant and vowel combinations. But these monosyllables, though they look just alike on the written page, are pronounced in various ways and have a multitude of distinct radical meanings.

A similar thing may be said of Burmese: Take that first rule.
"Groups of words whose main differentia is tone are seen to have a close similarity of meaning". But there are only three or four tones in Burmese, as now spoken; while there must be as many thousand of words in common use, a thousand, on an average, for each tone. This must vitiate, to some degree, the value of that rule, for philological purposes, even in Burmese. The same thing holds good, to a slightly less degree, of the vowel-sound theory. The only rule that I can, at present, discover for the Shan language is the rule of endless variety.

Note:—Many of the Shan words were taken from Dr. Cushing’s Dicitionary, a few came from my own unpublished lists.

W. W. COCHRANE.

REMARKS ON MR. COCHRANE’S NOTE.

This note of Mr. Cochrane is interesting in that it shows that the phenomena pointed out by Mr. J. A. Stewart and myself and to which he refers, do not apply to the Shan language. This is a point acquired to Indo-Chinese philology. But from this to imply that two rules, which fit exactly Burmese because evolved from the structure of the language itself, are no good because they do not likewise exactly apply to Shan also, is somewhat off the mark. It was certainly not to be expected that these two rules would find equally satisfactory application in absolutely all the Indo-Chinese tongues, which include several families of languages; but it was hoped they might apply, either in toto or in part, to a large number of them, and principally to dialects of the Tibeto-Burman family. That this hope might reasonably be realized is shown by the rule set down by myself, that "words which are closely related in meaning have the same inherent vowel sound", applies equally to Talaing, which belongs to the Mon-Khmer family, its application is not so wide in this language as in Burmese, but is still sufficiently striking to establish the rule on a somewhat firmer basis. I hope to publish a short list of examples in a future number of the Journal.

Mr. Cochrane wonders at my statement that "Chinese is said to have about 500 root-words at most". I do not think any one would make such a statement at random; I could not remember where I had seen this stated in black and white, and not being myself in the least a Chinese scholar, I wrote to Mr. Taw Sein Ko, our distinguished sinologist, for his opinion. His answer is here appended, which shews I did not err widely.

CHAS. DUROISSLLE.

DEAR MR. DUROISSLLE,

Your letter of 5th instant. The Encyclopædia Britannica (Volume V, page 655) says:

"The number of the primitives (or root-words) has been variously estimated. Dr. Marshman gives them at 3867, Callery at about 1000, and later writers have reckoned them to be from 1100 to 1200. Taking them even at the lowest of these figures, it will readily be imagined how, by combining with the 214 determinatives, they may be made to form the thirty and odd thousand distinct characters of the language, since, of course, it would be possible by combining each of the 1000 primitives with every one of the 214 determinatives, to form more than seven times that number of characters". In other words, there

are over 30,000 characters or written symbols in the Chinese language. They are formed by a process known, in Algebra, as Permutation and Combination, i.e., to say, by placing the 1000 primitives in juxtaposition with the 214 determinatives.

Williams (Middle Kingdom, Volume 1, page 611) says: "In Morrison's Dictionary the number of separate words in the court dialect is 411, but if the aspirated syllables be distinguished there are 533. In the author's "Syllabic Dictionary" the number is 532; Wade reduces the Peking dialect to 397 syllables in one list, and increases it to 420 in another. In the Cantonese there are 707; in the dialect of Swatow, 674; at Amoy, about 900; at Fuhchau, 928; and 660 at Shanghai. All these lists distinguish between aspirated and unaspirated words".

There are many dialects spoken in China. At one time in the dim past, each dialect formed an independent tongue. The number of separate words used in the Court dialect spoken at Peking, which is called Pekinese Mandarin, may be roughly set down at 500. By the help of tones, which are four in number, the number of words is raised considerably. In the Amoy and Fuhchau dialects, there are about 900 and 928 separate words respectively, and each of these dialects has more than 4 tones.

It may be taken for granted that the number of separate or independent words in the Chinese language ranges from 500 to 1000, and that by the help of tones and the 214 determinatives, the number is raised to over 30,000.

Yours Sincerely,
TAW SEIN KO.
Mandalay, 6th February 1914.

V—REPLIES TO MR. COOPER'S
NOTE ON TALAING NISSAYAS AND VOCABULARY.

Mandalay, 8th January 1915.

MY DEAR MAUNG TIN,

On first reading Mr. W. G. Cooper's "A note on Talaing Nissayas and Vocabulary" in the last number of the Journal, Vol. IV, part ii, in which he criticises my "Talaing Nissayas", I was so struck by the evident lack of literary criticism, the errors into which he himself falls, and the way in which he applies the lashes, that I did not think it necessary to answer his Note. These defects are so self-evident that, in my opinion, they precluded the necessity of any reply. But several friends of mine, well acquainted with Talaing, have thought otherwise, and in deference to their wishes I now intend answering Mr. Cooper. As you have given me to understand, however, that it is now too late for any contribution finding a place in the forthcoming number of the Journal, I shall send you my reply for insertion in a future issue. I need scarcely tell you it shall be written in a friendly spirit of literary criticism. I am aware of the defect of my "Nissayas", and I take this opportunity to thank sincerely Mr. Cooper for a number of errors which he has pointed out.

I am sending you, for favour of insertion in this number, two short letters addressed to me, one by the well-known Talaing scholar, Revd. R. Halliday; the other, by Mr. C. O. Blagden, so well known in connection with Pyu and Talaing. Both of them are instructive, throwing some side-light on Mon Philology and transliteration. Anything that falls from the pen of these two mature Talaing scholars is too valuable to be stored away within the covers of a private file.

Yours Sincerely,
CHAS. DUROISELLE.
DEAR MR. DUROISELLE,

I have read Mr. Cooper's notes criticising your paper on the Talaing Nissayas. Whilst he shows a surprising knowledge for so new a student he is far from being expert enough either to set you right on all points or to question the Pali scholarship of the old Talaing writers as he seems to do. I am confident that you will be quite able to defend your own positions from Mr. Cooper's attacks unless where he has actually put you in the wrong. I could almost wish to write something in defence of the old writers. That Mr. Cooper's knowledge of either colloquial or literary Talaing has its limitations could easily be proved from his paper.

As to your system of transliteration the advantages of which Mr. Cooper does not seem to appreciate, I think you will have seen that I am quite in agreement with you in the main. I know no other way of accurately representing Talaing for the purposes we have in view. It is not as if we were seeking to teach the spoken language. Mr. Cooper's method in many cases represents mere provincialisms. There is really no standard Talaing pronunciation unless we adopt the Pegu dialect and Mr. Cooper does not represent that. The word ཤེ་ for example is pronounced variously ཁུ, ཁུཁུ and even something like ཁུཁུཁུ.. ཤེ་ is ཁུ, ཁུཁུ, ཁུཁུ, etc. ཤྐ་ may be ཁྐ, ཁུཁྐ, ཁྐཁྐ or ཁྐཁྐ as occasion requires. The first in each case is the Pegu form. Talaing prosody too recognises no change in the sound of the same vowel symbol no matter how it is placed, ཤི་ and ཤི་ rhyme with ཤི་ though the vowel is spoken differently.

I should be in favour, however, of representing the anusvāra by h and a' where it is a convenience for ཤི་ and ཤི་. Where it occurs before a final consonant I should like to see it represented by a vowel simply, perhaps ཤུ with a mark over it. I have been using Mr. Blagden's ui for ཤུ་ though it would be preferable to have a single symbol there too. I use w for ཤུ་.

I notice that Mr. Cooper takes exception to your derivation of ཤུ་ཐུ་ཐུ་ also found as ཤུ་ཐུ་ཐུ་. It is not only composed of two words, but the two words are used separately, both in the spoken language and in the books. Here is a passage from Maṇgaladipani in which the words occur in consecutive sentences:

"When the teacher had been informed many times by different people, he believed their tales and thus considered. If I put him to death, then people will say that the teacher kills his pupils."

I have not met with ཤུ་ཐུ་ for ཤུ་ཐུ་. It can only be an attempt to represent a provincial pronunciation.

ཤུ་ཐུ་ represents vakkam the kidneys.

I wonder if ཤུ་ཐུ་ should not be ཤུ་ཐུ་. In the Pali Mon Dictionary aja-nam is given as ཤུ་ཐུ་. The latter, I think, is the form used in the stem. I have found ཤུ་ཐུ་ for a collyrium, but that may have been either a mere mistake or the first part has been suggested by the word for the eyes. It is interesting to note that the Burmese has ཤུ་ཐུ་ applied to an eye-salve for cattle. I think it quite likely to be connected with the Talaing word.
Mr. Cooper is quite wrong in connecting စီးတောင် with the စီးတောင်း. It is not the name of a tree at all, but of a spirit-haunted tree. I have found a list of four kinds of စီးတောင် in the Mangaladipani, စီးတောင်း စီးတောင်းဗောစီးတောင်း စီးတောင်းဗောစီးတောင်း “Spirits of the woods, of the rocks or hills, of the dryland and of the waters.” စီးတောင်း is also found and indicates the pronunciation to which I have been accustomed. စီးတောင်း and စီးတောင်းဗော are also found and agree with colloquial usage.

I am surprised that Mr. Cooper has not met with စီးတောင်း. I am afraid his reading has not been very extensive. I heard the form စီးတောင်း very early in my acquaintance with the Talaings. This would be represented by စီးတောင်း and the form စီးတောင်းဗော mentioned by Mr. Cooper and found in constant use is no doubt a softening down of the fuller form. စီးတောင်းဗော is the expression for uncles and aunts.

Mr. Cooper’s comment on စီးတောင်း sent me looking up your reference to Sudh. 2; the quotation should read စီးတောင်းဗောစီးတောင်း, lit, “he made use of food”, “made a meal.” စီးတောင်း is reformed spelling for the usual စီးတောင်း and is for paribhoga. စီးတောင်းဗော means therefore “to make use of”, and in certain cases takes the place of စီးတောင်း. It is usually found with a word meaning food expressed or understood.

In his comment on စီးတောင်း Mr. Cooper makes a curious use of စီးတောင်း and စီးတောင်းဗော. The former indicates the indicative and the latter the imperative mood.

His explanation of စီးတောင်း is fanciful I am afraid. It is the utter weariness that is referred to in a very sick person. I have usually found the compound စီးတောင်းဗောစီးတောင်း.

Mr. Cooper is again wrong in thinking that စီးတောင်း has no meaning of itself. It is oftenest found in the combination စီးတောင်းဗောစီးတောင်း demerit, wrongdoing, sin. It is frequently written စီးတောင်းဗောစီးတောင်း. It is also found as စီးတောင်းဗောစီးတောင်း means “deed, act”, as စီးတောင်းဗောစီးတောင်း “deeds of merit.” This is apparently the later representative of Mr. Blagden’s စီးတောင်းဗောစီးတောင်း of the Myazedi inscription and စီးတောင်းဗောစီးတောင်း of the Shwezigon. စီးတောင်း and စီးတောင်းဗော are often interchangeable in Talaing as စီးတောင်း for စီးတောင်း. စီးတောင်းဗော is “to cut off”, “part with”; စီးတောင်းဗောစီးတောင်း “to refuse food.”

Well, I suppose the discussion will all help toward the end desired, but I am more and more convinced that a wider knowledge of literary Talaing than we now possess, even with a good acquaintance with Pali is needed to make headway in Talaing lexicography.

Hoping you are progressing with your Talaing studies.

Yours Sincerely,

R. HALLIDAY.
Cooper's notes on your "Nissayas" contain not a few mistakes of his own. He is quite wrong in ascerting that ဗုဒ္ဓဟူး is a contraction for ဓာတ်တိုင်း. They are two distinct expressions (with similar signification) and the Sudhammavatī has numerous cases of the former written out in full ဓာတ်တိုင်း; besides it occurs in the very old inscriptions. I will not quote the old form from memory but I can refer to it later, however it is a certain fact.

Moreover it ought to be explained to him that your transliteration does not purpose to render the pronunciation of Talaiṅg. His own transliteration is hopeless even for that purpose. We need, I admit, a method of writing Talaiṅg phonetically, but the sounds of the language must first be carefully studied and recorded and of course each local variety of pronunciation would involve some difference in rendering. For general purpose we must stick to our system of strict transliteration, neglecting the modern sounds altogether.

C. O. BLAGDEN.
(1) ကိုးကွယ်သို့အနေဖြင့် စီစဉ်ရေးသားထားသော စာရင်းကို ဖော်ပြသည်။

(2) မြင်မွေးအောင် စာရင်းကို ဖော်ပြသည်။

(3) စာရင်းကို ဖော်ပြသည်။

(4) စာရင်းကို ဖော်ပြသည်။

(5) စာရင်းကို ဖော်ပြသည်။

(6) စာရင်းကို ဖော်ပြသည်။

(7) စာရင်းကို ဖော်ပြသည်။

(8) စာရင်းကို ဖော်ပြသည်။

(9) စာရင်းကို ဖော်ပြသည်။

(10) စာရင်းကို ဖော်ပြသည်။
NOTES AND REVIEWS

(59) နောက်မှ မျှဝေကြည့် ချင်းစားနိုင်မှု ဆီရိတ်သူများ၏ အစိတ်အပိုင်း များ မျှဝေကြည့် ချင်းစားနိုင်မှုများ နောက်မှ မျှဝေကြည့် ချင်းစားနိုင်မှုများ

(51) စိုးစွဲ လောင်စာများ ကြည့်ရှုနိုင်သော စိုးစွဲလောင်စာများ နောက်မှ 

(56) အစိတ်အပိုင်းများ ကြည့်ရှုနိုင်သော စိုးစွဲလောင်စာများ နောက်မှ 

(56) စိုးစွဲလောင်စာများကြည့်ရှုနိုင်သော စိုးစွဲလောင်စာများ

(50) စိုးစွဲလောင်စာများကြည့်ရှုနိုင်သော စိုးစွဲလောင်စာများ

စိုးစွဲလောင်စာများကြည့်ရှုနိုင်သော စိုးစွဲလောင်စာများ

(59) စိုးစွဲလောင်စာများကြည့်ရှုနိုင်သော စိုးစွဲလောင်စာများ

(56) စိုးစွဲလောင်စာများကြည့်ရှုနိုင်သော စိုးစွဲလောင်စာများ
REPORT OF THE SUPERINTENDENT, ARCHAEOLOGICAL SURVEY, BURMA, 1913-1914.

This report is as interesting as its predecessor. Besides the usual accounts of the examination and preservation of monuments, it deals with excavations at Pegu and Twante, which yielded promising results. The Superintendent's labours at Yathemyo and Wingaba, Pegu met with disappointment, as they yielded nothing worthy of note. The Yathemyo, 'The Hermit's town' of Pegu, thus proved to be far inferior in archaeological interest to the Yathemyo of Hmawza. As its name indicates, it turns out to be nothing more than a cluster of monasteries built in regular rows on three sides round the principal building in the centre. The Wingaba is a name given to the Vindhyense range, where the future Buddha as King Vessantara gave away in alms his wife and children. Such a consecrated spot from the Buddhist point of view was expected to yield some good results. But "Everything is now a mass of indescribable ruins". Mr. Duroiselle's efforts at Shwegugyi and Ajapila, Pegu were attended with better success. The former, also known as the Bodhigala (Bodhigala), was erected to commemorate the Buddha's attainment of Supreme Knowledge under the Tree of Wisdom. It is now in ruins covered with thick jungle. From the débris which fall from the two rows of niches, Mr. Duroiselle recovered forty-four terra-cotta plaques, some glazed and others not. The glazed ones are of two colours, green and chocolate. The inscriptions are in Talaing and those that can be deciphered represent "the army of Mara with the head of a parrot", or of a horse, a camel, etc., as the case may be. In one of the inscriptions occurs that curious word krit (p. 13) which Mr. Duroiselle renders by "kriyes," meaning thereby a Malay kris, a word borrowed by the Talaings from the Javanese. Though there can be doubt that the Talaing word means a knife or a dagger, there is some doubt as regards its etymology. As we cannot account for the change of final s of the Malay into the final t of the Talaing, it would seem better to adopt the alternative view, mentioned by Mr. Duroiselle himself, that krit is from the Sanskrit kríti, meaning a knife or a dagger. We, however, are inclined to accept either derivation with reserve until further researches dispel the doubt.

The plaques recovered from the Ajapila pagoda, Pegu commemorate the Buddha's temptation by Mara's daughters. The figures with inscriptions confirm Mr. C. O. Blagden's reading of similar glazed tiles, for which see the Journal of the Royal Asiatic Society, 1912, page 695.

Mr. Stewart who conducted the excavations at Pegu, both the old and the new sites is to be congratulated on his success. He recovered 9 Talaing inscriptions, which prove the existence of Visnuism in Pegu. The evidence for Chivaism is not so conclusive. The Kyak-pon, that is, the figures of four Buddhas back to back seems to indicate Cambodian influence, while another bronze figure of a Buddha points to Siamese influence. These discoveries are far reaching in their results, which only remain to be confirmed by further investigations.

Of more interest to the general reader are the paragraphs containing such notes as Architecture in Pagan, and the Religious Art in Burma. Mr. Duroiselle promises us complete treatises on these. A monograph on Pagan would be especially welcome. A visitor to Pagan without a guide generally finds his first wave of enthusiasm subside, being like a person studying the map of a country he has never been to. We daresay Mr. Duroiselle will give us much valuable information and in such a way, let us hope, as to do justice to the subject, as well as entertain the unprofessional visitor. Nothing definite has hitherto been written on the Religious art in Burma. Mr. Duroiselle's paragraphs on the subject are interesting and he should be given every encouragement in the pursuit of the work. The Palace at Mandalay needs a guide book just as much as the Pagodas at Pagan do. We are glad to learn that this work is practically finished.

M. T.
THE ĀNUGUTTARA NIKĀYA, NIPĀTAS I–III

(Translated by E. R. Gooneratne)

One would have expected a translation of the Ānuguttara Nikāya to have been undertaken under the auspices of the Pali Text Society. Whatever reasons there may have been for the present translator to have published his work in Ceylon, we have very little ground for complaint as far as its merits are concerned. We however, are conscious of the different quality of the paper and type used.

The Ānuguttara Nikāya is one of the four great divisions of the Sutta Piṭaka, etymologically the name indicates a series of discourses of graded importance. The first two parts deal with what may be called elementary lessons in Buddhist catechism. The third part rises in interest and importance and forms an essential contribution towards the study of Buddhist ethics and philosophy. The three parts which were printed by the Pali Text Society in 1885 forms the basis of the present translation by Mr Gooneratne of Ceylon. The translator is not unknown to Pali scholars, having been responsible for some texts among the Pali Text Society’s editions. In the present work he shows rare powers of judgment, combined with a lucid expression. The fact that the work was undertaken in consultation with the most renowned Pali scholars of Ceylon should go far to enhance its value. Apart from this, we have found the work quite instructive and scholarly. We especially commend the sprinkling of valuable notes taken from the commentary. But in justice to impartial criticism we must point out that we have detected occasional small blunders and renderings which sound forced and weak beside the original. For instance, on page 4 paragraph 9 the sentence “Bhikkhus, I do not perceive any other cause which does not produce unfixedness and restlessness as doth a settled mind” should not be allowed to stand, as it tends to mystify the plain sense of the original, where a settled mind does not produce unfixedness and restlessness. Another thing we find fault with is the way in which the translator has rendered a word in Pali by different words and phrases in English, where there is no necessity to do so. Thus Ayoṭṭhe Manasikārā is translated on page 4 paragraph 5 as “undevout reflexion” and on page 13 paragraph 6 as “unwise contemplation”; appicchatā on page 16 paragraph 7 as “contentment” and on page 17 paragraph 6 as “Non-greed”; Santutthidā on page 16 paragraph 9 as “satisfaction” and on page 17 paragraph 8 as “content.” Such unnecessarily different renderings throw confusion on the exact signification of Pali words, especially as Pali is a language comparatively unknown. On page 16 paragraphs 16 and 17 the negative has been omitted in the second clause. The sentence in paragraph 16 should be “applying oneself to doing bad deeds and not applying oneself to doing good deeds”; the paragraph 17 should read, “applying oneself to doing good deeds and not applying oneself to doing bad deeds.” But these are small spots on the surface and we congratulate the author on his scholarly work.
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