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**Thesis presented for the Doctor of Philosophy
Examination, 1954.**

PALI METRE

**A study of the Evolution of Early Middle Indian Metre,
based on the Verse preserved in the Pali Canon.**

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A B S T R A C T

This is a study of the problems presented by the metres of the Pali Canon, seen in their historical setting as representing the Early Middle Indian phase in the evolution of Indian metre. During this phase, which is regarded as a turning point in the linguistic transition from Old Indian (Vedic) to Late Middle Indian (Apabhraṃśa), a number of new metres appeared, and an entirely new technique of versification was developed which differed in principle from the old Vedic technique. This new technique was adopted alike for Classical Sanskrit and for Prakrit vernacular literature of the following centuries, and an understanding of it should enable us to obtain a better grasp of the metrics of these later phases of Indian literature.

An attempt is here made to collect and assess all previous contributions to the study of the ancient metres and related subjects, and to show how these many different fields of study are interrelated and can thus be made to contribute to the elucidation of one another's problems.

The language of the Canon presents many difficulties which have to be studied before we can tackle the problems of scansion

and at the same time the linguistic and metrical trends constantly interacted on one another.

The most important feature of the new metres was their close connection with music, the study of which has proved to be indispensable in our research on the history of Indian literature.

The changes in metrical usage provide perhaps the most decisive tests in determining the age of any document in verse (and even in prose composition the current metrical rhythms may be reflected). We should thus be able to reconstruct the history of the ancient literature without relying on subjective opinions, and establish a firm basis for our research on that most interesting phase of the history of Indian civilization which is marked by the rise and fall of the Empire of Magadha (500 B.C.-100B.C.), and for the confused period which followed.

I N T R O D U C T I O N

The Problem of Pali Metre and the significance of its solution

1. The study of Pali is at present seriously handicapped by a difficulty which is only slightly felt in Vedic and Epic Sanskrit, whilst it is not encountered at all in the Classical Sanskrit literature. The verse texts of the ancient Pali literature contain such a large proportion of lines which apparently do not scan that it seems only by chance that pādas coinciding in structure with the familiar Sanskrit metres occur here and there. Moreover the Pali Canon, largely as a result of this metrical confusion, has the appearance of so teeming with corruptions as to be of very poor value as a historical document.

Some of the poems in more complex metres contain only a minority of apparently scannable pādas in the editions now in use, and in some cases the metres were not even recognized for many years. Thus of the *Isidāsīgāthā* in the *Therīgāthā*, edited in 1883 by Pischel, who clearly did not suspect that his text was in the *ariyā* (*āryā*) metre, Mrs. Rhys Davids in a footnote to her translation 26 years later (1909) remarks: "I am unable to classify the metre throughout this poem, from the first line to the last" ("*Psalm of the Sisters*", P.163), whilst even in the pāda index published by the PTS in its *Journal* for 1924-7 the metre of the *ariyā* poems remained unidentified. As far as I am aware no indication of the nature of the metre of this particular text was published until 1949 (in Helmer Smith's *Index* to his edition of the *Saddanīti*, pp.1162-3) and there are several similar cases in the Canon. One motive for the present piece of research resulted from my

frustrating experiences with Pischel's Therīgāthā as a set book.

In the conviction that the Pali Canon is not a document of poor value, but on the contrary of the very greatest value for the history and appreciation of Indian literature, - not to mention its interest in connection with the early history of Buddhist philosophy - I determined to undertake a general study of its position as an important phase in the evolution of that literature and of its relationships to other phases - especially to that of Classical Sanskrit. Remarkable affinities could be found between the literary styles of various works in Pali and in Sanskrit (from the Brāhmaṇa phase down to the Classical literature), yet up to now the histories of literature had in general treated the two literatures in isolation from one another, only a few tentative speculations on their comparative chronology and stylistic relationships having been made, chiefly by Oldenberg, Winternitz and De La Vallée Poussin. As for the evolution of philosophical and religious thought, the absence of any satisfactory chronological basis had reduced the historians to guesswork and personal tastes in their attempts to explain the relationship between Buddhism and the Upaniṣads and the Sāṅkhya & Yoga systems, or the early development of the various Buddhist sects.

I consider that it is the responsibility of those who specialise in Pali to find the keys to this most formative period in the history of Indian literature - from the time of the Buddha to that of Aśvaghoṣa.

Through the tangled text of the Canon preserved in the Mahāvihāra at Anurādhapura it seemed possible to divine the

characteristics of the literature of India as it was in Asoka's time and in the centuries leading up to that great crisis in Indian history. The corruptions present in the text even when Buddhaghosa and Dhammapāla studied it appeared not as obstacles, and tokens of an inferior tradition (and certainly not as marks of later fabrication) but as guarantees of antiquity which, in the very process of being overcome, would enable us to establish many of the literary techniques of that period.

The origins of the Classical Sanskrit literature are obscure, the early works having been almost entirely lost, but in the Pali literature we find the beginnings of the new forms and techniques - epic > Mahākāvya, fables > Kathā, drama, anthologies, arts of poetics and metrics - in a more comprehensive collection and, which is more important, in a much purer state than in the Epics, the Sanskrit translations of the Bṛhatkathā, or the early Jaina literature. Moreover the Pali texts offer the possibility of approximate dating owing to their closer relations with historical events.

This thesis forms part of a wider plan for the study of that period of the history of Indian literature, and aims at laying the foundations for such a study by exploiting the criterion of metre in interrelating the texts and approximately dating them.

The Authenticity of the Pali Canon.

2. To go beyond the mere impression of authenticity, as a collection of documents composed during the Moriyān period or earlier, which we derive from the present state of

the Pali texts, we require more tangible evidence for the approximate date of these texts and for the reliability of the tradition which preserved them.

It has been shown by Adikaram (EHBC pp.3,11.etc.) that the Commentaries on the Pali Canon as edited in the 5th century A.D. are almost entirely Indian in tradition (and in fact North Indian), although this edition was based on a translation from the Old Sinhalese recension of the Aṭṭhakathā, collated with South Indian recensions. Of the Buddhist Theras mentioned in the Commentaries for their views on the interpretation of points in the Canon, the latest belong to the 1st century A.D. A list of the theras who handed down the Vinaya "up to the present day" has no thera later than the 1st century A.D. Adikaram therefore regards the Sinhalese Commentaries as a continuation of the Indian Theravāda (Sthaviravāda) tradition, into which new material was incorporated down to the 1st century A.D., after which time it became closed.

The orthodox tradition in Ceylon is that these Commentaries were brought from India in the 3rd century B.C. with the Canon, and written down (but in Old Sinhalese, not in Pali) at the same time as the Canon (1st century B.C.). The former date may be slightly exaggerated in antiquity (it represents perhaps rather the beginning of the introduction of Buddhism into Ceylon than the completion of the process - but no time is more likely than that of Asoka for the most decisive events in the establishment of the new religion in Ceylon), but the latter falls in the historical period of Ceylon and is probably correct. The reason given for the

writing is that in this period of invasion and famine (the 1st century B.C.) many monks were killed, or starved, and the oral tradition was thus threatened with the destruction of some of its texts.

Now, if even the Commentaries were preserved in North Indian form (although translated into the local dialect in order to make the Canon more accessible to Sinhalese monks), the Canon itself must represent at the very latest a form and dialect belonging to the period immediately preceding the establishment of the tradition in Ceylon. This form and dialect cannot then be dated later than the end of the 2nd century B.C. Only a few verses not commented in the Aṭṭhakathā (as noted by its 5th century A.D. editors) may be later additions to the Canon, together with the Parivāra - a kind of index to the Vinaya which refers to Ceylon and must have been composed there between the 2nd century B.C. and the 1st century A.D.

3. We have now to ask whether the Canon in its present form contains material older than the 2nd century B.C. Here we can compare the language with the dated linguistic records of the period - mainly inscriptions⁽¹⁾ We can also note references in the Canon to historical events.

A comparison with the Prakrit inscriptions shows that the Pali language is closest to the earliest records (e.g. preservation of intervocalic consonants, without voicing), and it may therefore be regarded as having flourished in and

(1)... See Mehendale, HGIP, for a useful survey of Prakrit historical linguistics from the earliest inscriptions (5th or 4th century B.C.) to the 4th century A.D.

probably before the Moriyān Period.⁽¹⁾ The Canonical texts, as we shall argue below (Chapters I, II, IV), have the appearance of standing close to a living language rather than that of artificial productions in a dead language, like their Commentaries, and therefore would seem to belong to the period when that language flourished.

Some indirect indication of the literary tendencies of the period may be gleaned from the sculpture, as pointed out by Professor Codrington in "The Legacy of India" pp. 78-9. The loss of the names of the 'godlings' and the decrease in the number of Jātakas from 30 at Bharhut to 6 at Sanchi seem to reflect the literary transition from the Pali Canon with its precise knowledge of the 'godlings' and many hundreds of Jātakas to the confused or vague Buddhist Hybrid Sanskrit conceptions of the various classes of supernatural beings, and to the limited and standardised collections of Jātakas selected to illustrate the 'ten perfections', such as may be found in one of the latest texts of the Canon itself, the Cariyāpiṭaka, and in the Jātakamālā.

The formation of the Canon is associated historically with at least two councils, one of which is recorded in a chapter which appears to be a later addition to the Vinaya, at which monks from different parts of India compared their versions of the teaching of the Buddha. Certain versions were approved, others rejected, by the various groups or schools, which gradually increased in number. Each school tried to establish a definitive canon, as authentic as possible within

(1)... Slight modifications may have resulted from the use of a later Southern orthography when the Canon was written down - on this see Chapter I.

the limits of their beliefs and practices. Under the stabilising influence of the Moriyān Empire at least three such canons were established: Theravāda, Sabbatthivāda (Sarvāstivāda), Mahāsaṅghika - of which the former two were closely related.⁽¹⁾ The Pali Canon preserved for us by the Theravāda tradition no doubt grew up gradually, during the whole period of formation of canons, around a kernel of ancient texts of various types - long, medium or short suttas, gāthās (poems), songs (geyya), jātakas, udānas, and so on - just as did the other canons, which contained the same categories of texts.

We shall see in our study of the metres, especially in Chapter VII on the Vatta (Vaktra) (see also section 6 of this Introduction) that the study of whole collections of texts as found in the Canon (arranged according to these categories), such as the Theratherīgāthā or the Jātaka, leads to confused results. Only individual poems and small groups of poems show clearly defined usages consistent with composition at a particular stage in the evolution of literary techniques. Of the large collections we can say only that some of them contain a preponderance of older (e.g. Sn) or of later (e.g. Dh.) texts, indicating a greater popularity of that form of composition at a particular period whilst others, such as Th & J, give approximately the same results, when analysed, as the entire Canon or any large random selection of texts from it. If, however, we take, for instance, the Dhammacariyasutta or the Pabbajjāsutta of Sn., we find homogeneous and very old vatta techniques, with which we may contrast the Vāsetṭhasutta and Dvayatānupassanasutta of Sn.,

(1)... On the rise of the various schools see especially Przyłuski, LEA and CR., and Lin Li-Kouang, A-MVL Ch.IV.

as examples of homogeneous and late vatta techniques. (cf. Conclusion).

Although we cannot say whether any Pali verses in their present form date back to the time of the Buddha (i.e. circa 500 B.C.), on the one hand the changes in technique within the Canon imply a considerable period of development prior to the 2nd century B.C., and on the other hand the formal similarities between the Canon and those of the other early schools indicate a common origin of the original 'kernels' in a period before the sectarian divisions had separated them too far. Here, however, we find ourselves on merely subjective ground and can go no further until we can support our conjectures with more precise conclusions, derived from the thesis itself, on the internal chronology of the Canon.

To the end of the period of the formation of the old canons the 'Hīnayāna' traditions assign the rise of the Mahāyāna. Both Northern and Southern 'Hīnayāna' texts, such as the Mahāvamsa, associate the production of all sorts of heretical treatises of the Mahāyāna with the time of Asoka or of the Moriyas generally. It is not likely that these traditions would exaggerate the antiquity of their opponents' traditions, so we may look for a late Moriyān dialect in the oldest Mahāyāna texts as far as their original language can be restored from the Sanskritised versions which have been preserved. In fact this dialect does not appear to have been very different from Pali, as we should expect from the chronology we have sketched.

The Pali Language

4. Having established that the Canonical Pali texts were composed in the period which saw the rise of the Magadhan Empire, we may go further and try to localise their language and to define its position amongst the Indian vernaculars of that period. Pali does not appear to have been simply the vernacular of a particular region, although as we have just said it stood close to one of the vernaculars, on which it was based. I would like, however, to draw special attention to the conclusion of Lin Li-Kouang, which in my opinion settles finally the old question concerning the language in which the Buddha is said to have enjoined his disciples to recite his teaching⁽¹⁾ This conclusion is "le principe de l'adoption de langues locales par les bouddhistes", which he derives from several non-Pali traditions, thereby elucidating the Pali tradition, which had seemed equivocal and had been variously interpreted. The correct interpretation of the tradition recorded in V II, p.139, is that each disciple should repeat the teaching in his own dialect. From this practice arose the plurality of dialects in which the Buddhist Canons were preserved⁽²⁾

The 3rd century B.C. inscriptions provide an authentic linguistic survey of India. The variations of dialect show that the language of the Magadhan administration had not become a standard completely overriding the local vernaculars. Although the dialect which we may call Old Māgadhī had, following the Magadhan political supremacy, overlaid to some

(1)... A-MVL 216 ff.

(2)... I see that Edgerton, in his "Buddhist Hybrid Sanskrit Grammar", just published, is in agreement with this conclusion (pp.1-2).

extent the dialects of the regions radiating outwards from Magadha as far as the Upper Yamunā (Topra), Sanchi, and Kaliṅga, and even that of Mysore ("Kiṣkindhā"?), (1) this process had not gone far enough to spoil our picture. It would appear that the imperial administrations in Ujjenī and Takkasilā retained the local dialects of the West (Avantī) and the North-West (Gandhāra). (2)

Pali is closest to the Western dialect (Āvantī), and closest of all to the Girnar inscriptions (Bloch I.A.pp.44-5) (3). It agrees generally with all the dialects in regard to the pronouns, intervocalic consonants (e.g. ṭ in Paṭi-, h in dahati lahu, -ehi, hoti; P. -rasa for -ḍasa in the numerals is exceptional, but the variation r/ḍ (or ṛ) in Indian dialects is not found to be constant and is not regarded as very significant), and the (presumably emphatic) initial h as in 'hevaṃ'. With the Girnar dialect the identity extends to the whole declension (e.g. Ablative in -ā) and to the wavering between ch and kh. On the other hand Girnar allows a long vowel before a conjunct, which in Pali is allowed only exceptionally as a result of a few sandhi combinations.

The distinctive features of (Old) Māgadhī, final -e in the masculine nom. sing., and l for r, are found only exceptionally in Pali: a few quotations of Māgadhī speakers using the nom. in -e (and perhaps the gen. pl. in -uno), and e for o or l for r in the following words: s(u)ve, antepura, puretaram, pure, bhikkhave, seyyathā; pali- (for pari-), lujjati

(1)...Bloch, I.A.p.44.

(2)...We may compare with the Asokan data the linguistic map given in the Nāṭyasāstra (XIV), which probably rests on ancient traditions: Āvantī spoken from Sindh to Vidisā; Dākṣiṇātyā in Mahārāṣṭra, Andhra, Kaliṅga, and elsewhere in the South ("between the Vindhya and the Ocean"); Pāncālī from Sūrasena to Bāhikā (Bactria); and 'Odramāgadhī' or 'Ardhamāgadhī' from Vatsa to Kaliṅga and everywhere east of that line. From this statement, we might conclude that

(3)...See next page.

(rujyate), eḷaṇḍa, daddula, taluṇa, ludda (=raudra), antalikkha, peyyāla (=pariyāya), etc.

Taking into consideration the history of the Theravāda school as traced by Przyluski, with its main centre originally at Kosambī and important subsidiary centres at Ujjenī and other western cities, we may suggest that the Pali Canon originated as a western recension of the Buddha's teaching, having, however, a fair sprinkling of Māgadhī words reflecting either characteristic expressions of the Buddha himself ("bhikkhave.." "seyyathā...") or at any rate the eastern, Old Māgadhī, recension which we may infer was repeated by the great majority of his disciples, who were easterners ("...peyyāla..." very probably originated among them). As we now have it the Canon is probably a fairly good copy of the Ujjenī recension, in a form of the Āvantī dialect with the Māgadhisms just mentioned and certain peculiarities to be discussed in the next paragraph, although it cannot be ruled out that it may be in the main the old Kosambī recension itself and its dialect that of the Vatsa country. Of this dialect we know only that the Nāṭyaśāstra includes it in the eastern (Māgadhī) dialect and that the Kosambī column of Asoka is in the same eastern dialect as all six columns bearing the six "Pillar Edicts", at Topra and Mirath (Upper Yamunā), Nandangarh and Araraj (on the east bank of the Sadānīrā or Gandak), Rāmpurvā (about 30 miles N.E. of Nandangarh), and Kosambī itself.⁽¹⁾ This may be due merely to

(P.10.(2)-Contd.).....under the Moriyas Māgadhī had pushed Pāñcālī or Gāndhārī back out of the Ganges Valley and penetrated almost everywhere in the Dākṣiṇātyā region. The changes were not permanent, and may represent little more than administrative changes.

(Page 10.(3)-Contd.)...Brāhmī inscriptions everywhere fail to represent double consonants, which evidently were understood by the reader - see Geiger G.S.L.p.41.

(1)....Bloch I.A.pp.25-7 and 161.

a temporary ascendancy of Māgadhī over the local dialects in the Kuru and Vatsa countries, thus it is possible that the true Vatsa dialect resembled Āvantī except for the Māgadhisms as found in the Pali Canon, i.e. it stood between Māgadhī and Āvantī, but was closer to the latter. Attractive as it might be to believe that our Canon was in the language of Udena and Naravāhanadatta, it is more probable that it is 'approximately' in Āvantī. We may note, however, that Kālidāsa says: "prāpyāvantīn udayanakathākoṣṭhagrāmavṛddhān..." "having arrived in Avantī where the village elders are well versed in the Story of Udayana...." (which Vallabhadeva equates with the Bṛhatkathā), and conclude that in the literary history of India Vatsa and Avantī were especially closely connected. My conclusion, then, is that Pali is in all probability approximately Āvantī, or the result of a process Māgadhī > "Vātsī" > Āvantī.

It has been observed by several writers⁽¹⁾ that in both Asoka's inscriptions and the language of the Pali Canon 'archaism' plays a part. De La Vallée Poussin speaks of the "māgadhī officielle" opposed to the ordinary vernacular in which the titles of certain Buddhist texts are quoted (thus the dialect of the administration would be more archaic than the scriptures from which it borrowed its ethical doctrines, which, presumably in accordance with Lin Li-Kouang's principle, had moved with the times), whilst Bloch on the contrary suggest that "le caractère simple et fruste.... empreint de solennité officielle et peut-être de hiératisme; qui sait par exemple si nombre de redites ne proviennent pas d'emprunts aux textes de l'ancien bouddhisme? On a en tout cas retrouvé en

(1)...De La Vallée Poussin, vol.I p.201, Lin Li-Kouang, A-MVL p.215, Bloch, I.A.p.7.

certain passages l'Écho du canon pali". Lin Li-Kouang suggests that a process of "palisation" took place in the Canon analogous to the Sanskritisation in other Buddhist texts. He presumably has in mind that at a certain stage the 'principle of adoption of local dialects' gave place to a principle of the antiquity of the tradition resisting further change and seeking to restore an archaic garb to the scriptures. Geiger in PLL, and others, long ago pointed out the archaisms in the Canon, especially in the Therīgāthā, and they seem to betray rather later texts deliberately made to look old than the earlier strata of the Canon.⁽¹⁾ As noted above, we have to make a further reservation about Pali as a vernacular dialect. It was a vernacular modified (i) by certain Māgadhisms and (ii) by certain archaisms. That is, by the time the Canon became fixed, it represented to some extent an attempt to restore a more ancient form of the vernacular in which it was handed down.

It must be said that all this distinction of dialects amounts to very little when we consider the history of this literature as a whole. The 'translation' of a text from one dialect to another involved only very slight changes, which would affect the metre, for instance, only in a tiny minority of cases. A text could thus be taken over from Māgadhī into

(1)....Examples of archaism: in the inscriptions : 'abhivādetūnaṃ' (Bairat); in the Canon: 'kāṭuṃ' (Th II - apparently an old gloss incorporated in the text before the 1st century A.D., the orthography 'brāhmaṇa' for *'baṃhana', 'etase' (=etuṃ) (ThII), 'hetuṃ' (Bv), 'chaḍḍūna' (ThII), 'apakiritūna' (ThII), etc. It is noteworthy that these archaic infinitives in -uṃ and -ase and the gerund in -tūna are confined to some of the latest canonical texts. This indicates clearly the nature of the development taking place in Pali from a living dialect to an artificial literary language.

Āvantī without altering its original character and metre: it was merely a question of substituting r for l and o for e in a large number of words and a few other equally slight modifications in a very few words. The point I wish to make here is that we may without danger assume that we are studying the general history of Indian literature rather than the particular history of literature in one dialect, since the dialects were not isolated. If I say that a certain text in the Pali Canon was composed in the 5th century B.C., for instance, I am probably referring to an original Old Māgadhī text, although I am actually studying perhaps an Āvantī version made in the 3rd century B.C., which, however, is 98% faithful to the original in metre and still more faithful in reproducing the content of the original gāthā. The local peculiarities of style or metre, and of content or doctrine, which we find in the literature, are secondary phenomena within the general process of evolution (see for instance the evolution of the tuṭṭhubha (triṣṭubh) suggested in section 3 of Chapter ^{viii}VI).

No important changes seem to have taken place during the further migration of the Canon to Ceylon, either directly (legend of Mahinda, connected with Ujjenī, etc.) or indirectly by stages, via the Godāvarī valley and the Coḷa country. Such confusions as might be anticipated from the use of new scripts, ⁽¹⁾ and eventually of the modern Sinhalese and Burmese, which at first sight appear very liable to cause copyists' errors, were limited to sporadic corruptions, and do not seem to have produced any general substitution of new spellings.

(1)....The Brāhmī script remained in use in Ceylon for inscriptions during the period 200 B.C.-400 A.D. The script derived from the Grantha of South India had been introduced by the 4th century A.D. (Geiger, GSL pp.1-4). This is of great significance: the Canon was firmly established in North Indian form before the introduction of a new script.

A good test for the reliability of the tradition is the preservation of the authentic instrumental plural in -hi, as found in the Asokan inscriptions, against the tendency to archaïse to -bhi which appears sporadically and is allowed by the Medieval grammarians. The letters h and bh are very similar in both Sinhalese and Burmese, but this did not lead to substitution even in this most favourable case.

To conclude this section we shall note the traditional views of the Pali grammarians on the nature of the language, and also on their susceptibility or resistance to the influence of Sanskrit, with its enormous literary prestige even in Ceylon and Burma. As an example I take the best of them.

Aggavaṃsa (12th century A.D.), the most comprehensive and detailed writer on Pali grammar, was aware of the fundamental differences between Sanskrit and Pali, and of the non-validity of Sanskrit rules in the latter language, which he no doubt regarded as older (as the original from which all other languages were derived). He strove to present Pali grammar purified of Sanskritisms, supporting every statement by quotations from the Canon itself.⁽¹⁾ On p.621 of the Saddanīti he says: "yathāpāvacaṇaṃ vidhī. imasmiṃ pakaraṇe pāvacaṇānurūpen'eva ādesādividhī bhavati", "In this work the rules for substitution, etc., are laid down according to the Canon". We can go beyond Aggavaṃsa only by comparing the Pali tradition with results derived from the study of other material, such as inscriptions and other Buddhist traditions,

(1)....Interesting discussions on Pali and Sanskrit, Sd. pp.92, 510,923-4, many other comparisons between the two scattered throughout the work. Aggavaṃsa was no doubt criticising the older school of Pali grammarians founded by Kaccāna, who failed to break away sufficiently from the Sanskrit tradition to give a good description of Pali, merely trying to adapt the Kātantra to the language he was studying.

most of which was not available to him. Aggavaṃsa was further limited, however, by the absence of the concept of evolution from the grammatical science of his day, which regarded Pali or 'Māgadhī' as the unchangeable 'mūla-bhāsa' or fundamental language spoken by the Buddha. Even so he was too great a philologist not to divine certain evolutionary processes at work in the language in spite of traditional preconceptions. Thus he explains that the adjective 'yevāpanaka' was acquired by 'anukaraṇa', 'imitation' (C.P.D.), i.e. in this case 'repetition', from the phrase 'ye vā pana' (Sd. pp.261-2). This phenomenon is classified as 'rūlhibheda' (See ch.IV). Apart from such a process at work in the Canon itself, Aggavaṃsa was clearly aware of the difference between Canonical Pali and the later language of the 'kavis'. Probably he attributed this only to the difference between the individual usage of the Buddha and the kāvya style suited to the polished contemporary literature in both Classical Sanskrit and 'Classical' Pali, since he remarks that in previous incarnations the Bodhisatta had sometimes been a 'kavi' and utilised the polished style which as Buddha he rejected. An example of this difference which Aggavaṃsa gives is that in the Canon a compound may not be split between two pādas of verse, even sandhi between pādas occurring there only in certain exceptional cases. The Bhagavā is said not to have split his compounds between pādas because (i) this was against the usage of 'Māgadhī', to which he conformed, and (ii) he wished to avoid making his meaning obscure (Sd. pp. 631-2).⁽¹⁾ In general, however, Aggavaṃsa stresses the view

(1)...Two other rules given by Aggavaṃsa, which apply "in the world" (presumably in "Medieval Pali") but not in the Canon, are (i) that a pure vowel (ā, ī or ū) is not elided before 'ādi', but (ii) that in an upapada-samāsa any vowel immediately preceding the upapada is elided.

that 'the Bhagavā' was above worldly usage and was able to disregard the latter at will, for instance in regard to metre (see the passages quoted below, Ch.IV). This is the traditional explanation given for irregularities not understood by the medieval writers, and the traditional misconception of the nature of Pali which is characteristic of even the best of the old Sinhalese and Burmese grammarians. The language is regarded as above human rules, as the creation of a superhuman being, and as not evolving. Nevertheless we must acknowledge that it is most fortunate that the ancient and medieval guardians of the texts and tradition in Ceylon and Burma had this special respect for the Canonical text they received and regarded it as it stood as the final authority on all questions and as being above the control of ordinary grammatical rules. Had they attempted to correct or restore the texts with the inadequate means available to them, Canonical Pali would have been irretrievably lost.

Previous Research on Pali Metre

5. The treatises on metrics of the medieval writers on Pali expound the techniques of 'classical' kāvya composition, and those which have so far been published do not add to the interpretations of Canonical usage given in the grammars. It is evident from the treatment of the texts by the Commentaries as edited in the 5th century A.D., and from the poetic compositions in Pali made in Ceylon, that the old metrical techniques of the Moriyān period had already been lost and replaced by those of the classical literature. Reference to the Jaina tradition⁽¹⁾ shows that there too the metrics of the

(1)....The lack of scientific research on the Ardhmāgadhī language and literature is one of the most serious gaps in our knowledge of Ancient India: such research can throw much light on the early history of Buddhism, as I attempted to show in a paper read to the S.O.A.S. Buddhist Seminar in February 1953.

Moriyan period had been forgotten by the beginning of our era. Both the Theravāda and Śvetāmbara Canons preserve corruptions accepted by the earliest extant commentaries which could easily have been rectified by anyone acquainted with their metrical usages, and it appears that this partial interruption of the traditions took place in about the 1st century B.C., or even at the end of the 2nd century B.C. The historical traditions indicate a serious crisis at that time throughout the Indian world, accompanied by widespread famines and wars, which threatened the loss of the texts through the deaths or dispersal of the monks. As we have already mentioned, this resulted in the taking of emergency measures such as writing down the texts, and we may suppose that it was at that time that the old metrical tradition of the reciters was interrupted and ceased to preserve the texts from corruption - a task which was henceforth undertaken by writing. Writing was safer than the old technique in that manuscripts last longer than 'repeaters' and were perhaps easier to make copies of, but the dead, de-rhythmised, written words and pādas could be mutilated by careless scribes, who copied with the eye only: the leaves on which they wrote, like the rain god, did not distinguish good from bad and preserved all forms alike.

In order to restore the old metrics it is necessary to refer to other phases of development of Indian metre, since we are concerned with one stage of the single process of evolution from Vedic to the modern vernaculars. For this reason it might be better to describe our subject as "Early Middle Indian metre", taking the Pali texts as a sample for analysis. Professor Helmer Smith has said (DP p.2): "Or, tandis que la belle époque de l'indianisme européen nous a légué une métrique

védique (Oldenberg, Arnold), une sanskrite (dogmes de Piṅgala, élucidés par Jacobi, et son école), une apabhraṃśa (Prākṛta - Paiṅgala, Chandonuśāsana de Hemacandra, d'autres traités encore, vérifiés et mis au point par Jacobi et MM. Schubring et Alsdorf), seule la versification du moyen-indien ancien (techniques Bauddha et Śvetāmbara) n'a pas, sauf erreur, été jugée digne d'un traitement d'ensemble.....".

Our task is to fill this lacuna between Vedic and Sanskrit metrics, taking Jacobi's well-known 1884 article in the ZDMG as a starting point. Helmer Smith in his Index volume to the Saddanīti takes a more or less 'synchronic' or descriptive view of the Canonical Pali metres, his terminology completed by that of the classical metres enumerated by the Vuttodaya (Sd IV 1148 ff), beside which he has since placed an analysis of the Buddhist Hybrid Sanskrit texts as a later stage (DP 16 ff) and, which is most important, attempted to distinguish two phases, which he calls P' and P", in the development of Buddhist metrics. In the present study I take on the other hand a predominately 'diachronic' view of the process of evolution of the metres, which, it seems to me, is the only way to get a real understanding of their nature.

I have attempted to collect in the bibliography all the many and varied contributions to the understanding of Pali metrics, which lie hidden in our libraries, both direct studies in Pali and the contributions which may be gleaned from discussions of other phases of Indian literature. I thought it useful to include works not actually referred to in this study, as an aid to others working not only in Pali but elsewhere in the field of Indian metrics. Some works not on

metrics have been included which throw light on problems discussed here, but well-known text books and works of reference are omitted, together with the editions of the Pali texts discussed, which where not otherwise specified are the standard editions of the Pali Text Society. The best general bibliography for Pali and related studies is that given by Helmer Smith in his "Epilegomena" to vol.I of the C.P.D., 1948.

It is impossible to survey all these contributions in this Introduction: they have been taken as points of departure for the various sections of our research, and will be found discussed in the relevant places. There are, however, some general topics which can conveniently be considered here.

The Evolution of a Metre as the Key to
the Relative Chronology of a Series of Texts

6. In connection with the historical conclusions on the date of the Pali Canon given above, we may refer to the discussions of Oldenberg and others, on the history of the vatta (vaktra)⁽¹⁾ metre (the 'epic śloka') and the position of the Pali vatta in relation to the vatta of various Vedic and Sanskrit texts. The details will be found at the beginning of Chapter VII, but the two important conclusions arrived at by Oldenberg should be stated here:

(1)....After some hesitation I decided to use normally the Pali forms of the names of metres as being most appropriate for a treatise entitled "Pali Metre". The more familiar Sanskrit equivalents are given in brackets at the first mention and occasionally elsewhere, and in the Index. In the next section dealing with the works of various scholars on the Vedic and Sanskrit tristubh, it seemed more natural to retain the Sanskrit forms of the names, and this has been done elsewhere when discussing Vedic or Sanskrit metres.

(i) The Pali vatta is close in structure to that of the Brāhmaṇas and Upaniṣads, and apparently a little later in date, whilst it appears to represent a stage a little earlier than that of the Brhaddevatā; the chronological sequence is then continued by the Mahābhārata and afterwards by the Rāmāyaṇa.

(ii) The vatta of the Aṭṭhaka and Pārāyana, the last two vaggas of the Suttanipāta, appears older in structure than that of the Jātaka, Theratherīgāthā and Dhammapada.

These conclusions are in harmony with our conclusions above, since the approximate dates generally accepted for these Sanskrit texts do not contradict our chronology for Pali. Macdonell places the Brhaddevatā in the 5th century B.C., which may be a little early, since it would suggest that the great majority of vatta texts in the Pali Canon were composed not later than about 400 B.C. Hopkins assigns the "main composition" of the Mahābhārata to the 2nd century B.C., whilst the Rāmāyaṇa in its present form probably represents a period having its 'centre of gravity' not earlier than the 1st century B.C. (See Johnston's introduction to his translation of the Buddhacarita xlvii, ff., and S. Lévi: "Pour l'histoire du Rāmāyaṇa" in J.A. 1918, p.149). The Upaniṣads are often associated with the early Buddhist period. In connection with the Brāhmaṇas we may support Oldenberg by pointing out the similarity between the laconic but repetitive prose styles of the Śatapathabrāhmaṇa and the suttas of the Dighanikāya.

Our conclusions on the internal relationships of the Pali texts confirm Oldenberg's partial conclusion. We have

already said something on this subject above, section 3, and more detailed results will be summarized at the end of this study.

The Nature of Indian Verse

7. The discussions on the triṣṭubh have been much more extensive than those on the anuṣṭubh, but the results are much less satisfactory. The complex and baffling structure of the triṣṭubh pāda led to arguments about its nature already in the early days of European research on the metres, but the results are still unsatisfactory owing to the uncertainty as to the way in which the pāda evolved. As for the Pali tuṭṭhubha in particular, much less work has been done on it than on the Pali vatta and very few verses have been analysed. On account of the general vagueness prevailing about the triṣṭubh and the difficulty of understanding its evolution, I left its treatment to a later stage of my research and then tried to explain it by comparison with the development of the other metres.

The triṣṭubh was selected - as if it were felt to be the most characteristic Indian metre - as the battlefield on which the theoretical principles of Indian metrics should be contested, so that in addition to the analysis of texts on a statistical basis we have long discussions, sometimes of a fanciful nature uncontrolled by reference to Indian criteria for the interpretation of the metre, on the theoretical rhythmical elements composing the pāda.

The 'foot' is not in Indian or in European metrics a 'division' of verse in the same sense as the pāda or strophe.

The yati or caesura does not necessarily coincide with a boundary between two feet, 'gaṇas', and word-endings are likewise independent of foot or gaṇa divisions. The foot or gaṇa can be only an abstraction intended to describe a unit (indivisible) of rhythm or a 'measure' in the verse. Such a foot can be isolated in more than one way, but the usual convention, and the only really satisfactory one, is to find an 'ictus' and make it the beginning of a foot, like the beat at the beginning of a bar in music. I shall show below, however, that the 'ictus' (in the European sense) is very far from being a universal feature of Indian verse, so that in the majority of metres the whole scheme of division into 'feet' is left hanging in the air and can serve no purpose whatsoever. In the Indian mātrā vṛttas⁽¹⁾ (used in Pali, Sanskrit, Apabhraṃśa, Hindī, etc.) the gaṇa is a useful abstraction reflecting the rhythmic structure and bearing an 'ictus' ('graha' or 'sam'), but in the older metres, and particularly in the triṣṭubh, a different mode of description must be found.

Kühnau's book, "Die Triṣṭubh-Jagatī-Familie" (Göttingen, 1886), is the bulkiest of all the contributions to the triṣṭubh debate, and since it marks a turning point in the development of the study of Indian metre, it will be convenient to begin with it. Kühnau's was the first attempt at a deep and thorough historical analysis, on scientific principles, of ancient Indian metrics, and his failure was the first step towards a proper understanding of Indian verse, since it exposed most thoroughly the misconceptions on which

(1)....The term 'mātrā vṛtta', Pali 'mattāvutta', includes mātrāchandas, gaṇacchandas, tālavṛtta, etc.

Westphal's pseudo-science of "comparative metrics" rested, with the result that no one afterwards attempted to apply it. Only in analysing the musical ganacchandas did Cappeller ("Die Ganacchandas", Leipzig, 1872) have some success with this "science", since there the strophe is organised in ganas, or 'feet', as had long been recognized by the Indian theory itself. (1) It was not from the lack of an Aristoxenus, as Westphal thought, (2) that the Indians failed to find a universal principle of division into thésis and ársis in their metres: the Indian theoreticians were acute enough, and do not deserve reproach for not discovering something which evidently was not there. When the musical division, the gana, did appear in certain metres, the Indian theory recognized it, and when the ictus itself (the 'graha' of the musical theory and the 'sam' of Hindī metrics) came to play an important part (with the development of the stress accent), (3) it too was recognized.

The difficulty for European scholars trained in the school of Aristoxenus was to acquire a correct feeling for metres whose rhythm is engendered purely by the quantitative oppositions of the long and short syllables. The result of Oldenberg's efforts to correct or improve the ictus schemes of Kühnau was in the end to associate an ictus with every long syllable (see NG, 1915, pp.492-6 and 524-5; he is

(1)....On Cappeller, see Chapter VI on ganacchandas.

(2)....Rossbach and Westphal: "Metrik der griechischen Dramatiker und Lyriker", volume II by Westphal: "Allgemeiner Metrik", part 2, p.227.

(3)....See the section of Chapter III on the accent.

doubtful about the first syllable of pādas, but this in the older metres was aneeps and could be 'heavy' or 'light' (1)). This is the reductio ad absurdum. Oldenberg had studied the "Vienna Phonograms" obtained by Felber, and had half-discovered that the modern Indian recitation of Sanskrit verses was based on the simple opposition of longs and shorts, every long being 'heavy'. (2) To say that the 'heavy' syllables carry an ictus is superfluous and misleading.

In the case of the 'semi-musical' mātrāchandas it is interesting to note that Kühnau's ictus scheme (T-J-F pp.178-9 and 206) in fact coincides with that arising from the gana division we have determined in our analysis of those metres (see Chapter V). Like Cappeller dealing with fully musical metres, he there had material before him which was governed by an ictus, probably of musical origin, and succeeded in the main in scanning it correctly. Unfortunately the scansions he applied (pp.40-1) to some varieties of mātrāchandas - those we have called 'syncopated': pavattaka (pravṛttaka), etc. - were entirely fanciful, and the "fruitfulness" (p.vi) which he attributed to this particular phase of his research led him far astray in his study of the triṣṭubh.

Kühnau further raises the question of a hypothetical transition from 'syllabic' to 'quantitative' metrics in a

(1)....It is appropriate here to refer to the Indian terminology of 'heavy' - garu (guru) - and 'light' - lahu (laghu) - for long and short syllables, which was probably associated with a feeling for a quasi-ictus similar to Oldenberg's.

(2)....The recordings made recently by Pandit Kapīndra at the School of Oriental and African Studies confirm this recitation, which probably derives from old tradition. In the akṣaracchandās, such as upajāti and vaṁśasthā, the rhythm springs from the metre, and is not derived from a tāla even in the musical renderings.

proto-Vedic period. Vedic metre, however, is already fully 'quantitative' in the sense of Westphal and Kühnau, since the rhythm is based on the opposition of short and long syllables. The transition we are in fact confronted with, but in the post-Vedic period, is the substitution uu allowed within certain limits in all Pali metres, and generating mātrāchandas and ultimately gaṇacchandas, in which almost any long syllable may be resolved in this way. This transition is the central topic of the present thesis.

This introduction of a new form of variation of rhythm within the pāda was by no means a new departure in Indian metrics. On the contrary, it should be stated that such variation was an essential and characteristic feature of Indian versification at all periods, only the means to attain it having changed. Contrary to the belief of Kühnau, there was no fixed recurring ictus precisely in those ancient metres in which variation could be achieved only ^{by} the substitution of one short for one long syllable, and it was only in the later metres, where two shorts must alternate with one long, that the ictus could arise - the 'beat' became regular and variation was realized in a new way: the system of "taktgleichheit", i.e. equivalence in length of the gaṇas, within which variations and cross rhythms could most effectively be introduced. In Classical Sanskrit, where except for the vaktra and the āryā all the metres have fixed syllabic schemes, variation is usually achieved by another method, the mixture, at strophe and at canto level, of a wide range of different metres.

Oldenberg, criticising Kühnau, rejected the 'comparative metrics' theory based on Aristoxenus ("...die Tatsachen des Veda auf das Prokrustesbett aristoxeneischer Theorie zu spannen...." NG, 1915, p.491).⁽¹⁾ As we have said, however, he retained the ictus with reservations (partly influenced by Fox Strangways - see e.g. MH p.14), seeking better ways of scanning the pādas by dispensing with the thesis - ársis system. This compromise method of analysis - the ictus without a foot - did not in itself throw any fresh light on Indian versification, but in spite of it Oldenberg made substantial contributions to the historical understanding of both triṣṭubh and anuṣṭubh (see the articles G; NG,1909; NG,1915). His freedom from Aristoxenian preconceptions enabled him, despite the encumbrance of the ictus, to lay the foundations of the study of Vedic metre in his "Prolegomena" (vol. I of his edition of the Ṛgveda) published in 1888. Thus on p. 21 of that work he suggests that the rhythm might go "against the quantity" (sic), but nevertheless arrives at the fruitful conception of a normal or fundamental 'rhythm' for each type of metre, from which variations have arisen. What we find is not: 'rhythm against quantity', but: 'variations of quantity ≡ variations of rhythm'. He is thus working in harmony with the fundamental Indian variation-technique we have just discussed, which we might call the 'pathyā - vipulā' technique partly recognized by the Indian theory.

Immediately after the "Prolegomena", Zubatý's article "Der Bau der Triṣṭubh- und Jagatī-Zeile im Mahābhārata" was published in the ZDMG (1889). His criticism of Westphal - Kühnau, which had appeared in several articles from 1886 onwards (see LF XIII, 19 ff. and XV, p.185; WZKM II, p.56), goes further than Oldenberg's, since he gives up ictus schemes

(1).... See also DLZ 1887, p.196.

altogether except in so far as he occasionally uses ictus-marks (/) simply to show how he would recite a particular pāda (e.g. ZDMG, 1889, p.645 - it will be observed that this 'ictus' again falls on all the long syllables).

Next we come to Arnold, who in his "Vedic Metre" (1905) uses methods very similar to and largely derived from those of Zubatý. He says (p.151): "A division into feet of two syllables [he is speaking of anuṣṭubh verse] is not traceable in the Rigveda, and therefore the usual terms applied to the Greek and Latin classical metres are unsuitable. There is some practical convenience in speaking of an 'ictus' which falls normally on the even syllables, but is transferred from the second to the third in the 'syncopated' form: and also in speaking of the 'general iambic rhythm' of the verse as a whole: but it must not be assumed that the ideas which these words connote were present to the Vedic poets". The "practical convenience" here is not very clear, and Arnold's very rare use of these terms in his book does not add anything to his exposition, moreover the danger he himself sees in reading in ideas foreign to the Vedic poets is one which must be avoided at all costs if we are to understand the poetry. Arnold goes on to say that the division into 'members' of four syllables each "seems to be fully established", and of course his whole study presupposes the ancient distinction of 'dimeter' and 'trimeter' verse. Such a division, with important variations from four syllables to three or five, certainly seems to be inherent in the structure of Vedic verse, but the basis and significance of this 'Indian foot' have not been explained.

Since the time of Oldenberg and Arnold the only important contributions to the analysis of the triṣṭubh have been those of Professor Edgerton, whose method is approximately that of Arnold, but without any discussion at all on the ideas of 'ictus' or even of rhythm. This 'schematic analysis' as Kühnau would disparagingly have called it, is in fact quite adequate for the material concerned and leads to excellent results, especially since Edgerton improves on the traditional Indian theory - and on the valueless tables of Hopkins - by following the natural divisions and internal relationships of the pāda, and is thereby able to separate the different historical strata in the Epic triṣṭubh.

It is now possible to trace the general history of Indian metrics and to describe the transition from the old purely quantitative metres to the new musical rhythms, governed by the ictus, which led up to the medieval tālavṛttas. This is closely connected with the history of the language: the transition from Vedic, with its preponderance of long syllables and musical accent, to Apabhraṃśa, with its preponderance of short syllables and stress accent. In studying Pali metrics we shall be concerned with the crucial phase of this transition.

8. In this study I have first attempted to clarify the metrical interpretation of the Pali texts. The relationship between the orthography of the manuscript tradition and the phonology of the Canonical language is investigated in Chapter I. Chapter II deals with the sandhi usages of the Canonical poets and Chapter III with pāda-building. In Chapter IV I have discussed the fluidity of the language in

so far as it affects versification, and the kinds of metrical license current.

The remaining chapters take up the various classes of metre found in the Canon. Mattāchandas (mātrāchandas) and gaṇacchandas are taken first (Chapters V and VI) in accordance with the aim of studying the metrical transition which begins in the Pali literature. They may be felt to have a special relationship with a dialect very close to that of their origin, and to exemplify the general poetic usages of the period in a higher degree than the other metres. The other metres, in fact, were found to be impossible of full understanding in their Pali phase without reference to mattāchandas (especially the tuṭṭhubha) and gaṇacchandas (especially the vatta). These two chapters contain the central arguments of the thesis. The solution of their problems is facilitated by reference to Indian music, and it is hoped that this research will in turn throw light on some early phases in the history of the music. The chapters on the vatta (VII) and the tuṭṭhubha (VIII) attempt to collect and interpret the previous work on those metres and to extend it to cover representative parts of the Canon and give greater precision to the descriptions and a better understanding of their evolution in the light of (i) a better understanding of the language, (ii) the results of the study of mattāchandas and gaṇacchandas and (iii) comparison with recent successful studies in Buddhist and Epic Sanskrit. Chapter IX describes the akkharacchandas (akṣaracchanda) which appear for the first time in the later parts of the Canon, and their affiliation to the other metres. They are of

great interest as products of the transition process and on account of the special rôle they play later in the Classical Sanskrit literature. Classical Sanskrit itself, as a kind of synthesis of the old and the new (Middle Indian in the garb of Old Indian, drawing its literary and metrical techniques from both), might be regarded as a special product of the transition period. The Conclusion is concerned mainly with the results of the research from the point of view of the history of literature.

I wish to thank all those who have contributed in various ways to this piece of research, and in particular Dr. W. Stede, who initiated me into the mysteries of Pali, and who has always given me much encouragement, Professor J. Brough for constant sound advice and criticism, and Dr. A.A. Bake for guidance in the intricacies of Indian music and in the redoubled intricacies of its theoretical expositions, which at times were not understood even by those who wrote them.

CHAPTER I

Orthography and Phonology

In order to scan Pali verses, it is first necessary to ascertain the relationship between the orthography of the manuscript tradition and the phonology of the original language of the Canonical texts.⁽¹⁾ The Commentaries and Medieval Grammars, the 3rd century B.C. inscriptions and the ancient phonetic science of the Prāṭisākhya,⁽²⁾ comparison with the related phenomena in Vedic, Ardhamāgadhī, and Buddhist Sanskrit, all help to some extent in this task, but the decisive test in all cases arises from the metre itself. This is not a circular argument based on the mere probability of certain rhythms in the pāda: fortunately we are certain that the cadence of the vatta pādayuga ("half-strophe") in the period we are studying was invariably $\cup - \cup \underline{\cup}$ and that the cadence of the tuṭṭhubha pāda was invariably $\cup - (\cup) \underline{\cup}$. By collecting examples of doubtful cases in these positions it is possible to discover their rhythmic values.

The main problems to be solved here are:

- (i) whether 'e' and 'o' may be short in an open syllable;
- (ii) in words containing a svarabhakti⁽³⁾ vowel

(1).....cf. section 4 of the Introduction.

(2).....cf. Dr. Allen's valuable work: "Phonetics in Ancient India", London, 1953.

(3).....Pali equivalents, '*sarabhatti', and 'yama' do not seem to have existed, as the medieval grammarians apparently did not understand these phenomena: see Sd.p.621, para 69 for a statement that such alternatives as cetiya/cetya existed (in the orthography), with "loss of vowel", but without any explanation. The "sarabhatti" form is regarded as normal, and the (rarer) alternative is classified as a case of "saralopa".

(or a 'yama'), this vowel frequently does not seem to count as a separate syllable: in each of these words the correct rhythm has to be ascertained;

- (iii) alternative forms, with assimilation of the consonant cluster concerned, existed for some of the words with svarabhakti, and the tradition may in some cases have substituted one form for the other (contraction of vowels may also be noted here, as a parallel phenomenon);
- (iv) in a few words syncopated forms (with loss of a short vowel) existed, and again one form may have been substituted for another;
- (v) the process of samprasāraṇa,⁽¹⁾ or its absence, resulted in alternative possibilities in one or two words, with possible effect on the quantity of the preceding syllable;
- (vi) certain conjuncts sometimes do not make position.

Of these phenomena the most important are the second (svarabhakti) and the sixth (conjuncts not making position), which are of very frequent occurrence and are responsible for the majority of apparently non-scanning pādas in the Canon.

It may be noted that almost all the phenomena of this type concern the semi-vowels (including the nasals), which historically and grammatically had given rise to alternations of vowel and consonant forms. No doubt our difficulties result from the uncertainty in representing these sounds in the early days of evolution of a script. The ambiguity of the semi-vowels, with their imperfect occlusion, confused the opposition of vowel and consonant and the demarcation of syllables, (see Allen's discussion on the Prātiśākhya theories

(1).....This process also does not appear to have been studied by the medieval Pali grammarians.

of svarabhakti and yama, PAI-pp.73-8), and absolute clarity was not attained until the general practice of writing(1) had, by the artificial elimination of all fluidity, classified each phoneme of the language as unambiguously vowel or consonant, and assigned one letter to represent each phoneme. Furthermore, every syllable needed to be classified as either long or short. Evidently, the Pali tradition in the Canonical period, oral and written, had not attained such fixation. Our task is to infer as nearly as possible the correct, or the usual, pronunciation of each word, and further to ascertain the extent of the fluidity which still existed.(2)

(i) 'e' and 'o'

According to Aggavamsa (Sd.p.608, 11.19-21; cf. the 19th Burmese Nissaya on this passage quoted by Helmer Smith in the footnotes) 'e' and 'o' are normally short before a conjunct, e.g: 'ëttha', 'sëyyo', 'öttho', 'sötthi'. He also says (p.614, 11.7-9) that 'e' and 'o' are not normally produced before a conjunct in sandhi (since they are long vowels), 'i' and 'u' being retained: 'yass'indriyāni', 'lok'uttaram'. On the other hand, he gives two examples in which he says they are long before a conjunct, both in sandhi: 'cē tvam', 'puttō ty āham'. Of course the syllables are here long in any case

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- (1)....Or, in the Vedic tradition, an exact system of pronunciation worked out for ritual purposes which supplied an alphabetic fixation equivalent to a written system (again with a certain amount of distortion).
- (2)....When in Ceylon and Burma Pali acquired an absolutely fixed system of phonology and writing, used by the medieval poets, this system was an artificial one sometimes differing from the Canonical usage, and reflecting the shortcomings of the old orthography. Thus 'ācariya' in the Canon counts as three syllables, whilst in medieval verse it counts as four.

(unless, cf.(vi), the conjuncts here do not make position), but these remarks and the existence of short 'e' and 'o' in Pali according to the tradition lead us to ask whether they may sometimes be short also in an open syllable, which would have serious repercussions on our metrical studies.

On investigation we find indeed the word 'gehe' in the Petavatthu (III4.3) in such a position (vatta cadence: "natthi etaṃ māmā gēhē" that the first 'e' is required to be short by the metre. The verses in which this example occurs are, however, somewhat confused and irregular, so that this exceptional case may be the result of corruption ('māmā' m.c. is allowed in Pali, but its conjunction here with gēhe raises suspicions). A possible explanation, however, would be that since 'e' stands here for 'r' ('gr̥ha') it may be short, or that we should take the form 'gaha', which also exists in Pali (in compounds). In a survey of all the vatta cadences in the Sutta-nipāta, I found 'e' in open syllables long except for one case only: 'mēdassa' in verse 196 (restoring with Fausbøll: "sedassa <ca> medassa ca"). Here the Sanskrit equivalent also has 'e' ('medaḥ' m. or 'medas' n.), although the root is 'mad' and a form 'madassa' might have existed. The verse, however, is again not above suspicion, and moreover it belongs to a meditation on the foulness of the body very different in spirit from most of Sn., in which the attempt to include all the 32 constituents of the body (cf.Khp.III) enumerated by contemporary medicine probably interested the versifier more than poetic style and metrical correctness.

We may conclude that 'e' is regularly long in an open syllable.⁽¹⁾ 'o' is too rare, except as a final, to permit such a test: as final it is in any case sometimes shortened m.c., as we shall see in Chapter IV. As finals, both 'e' and 'o' may be shortened m.c., in which case they are generally altered to 'a', 'i', or 'u'.

(ii) Svarabhakti, yama, etc.

Whereas original conjunct stops⁽²⁾ were assimilated to each other in Pali, a semivowel, nasal or fricative, was frequently retained in a conjunct with a stop or with another semivowel. This peculiarity, in opposition to the 'true' consonants, resulted from the indeterminate nature of the presumed original 'semi-vowels' ('sonantes', meaning semivowels and nasals) in Indo-European, which were articulated as consonants or as vowels according to their context.⁽³⁾ This distinction in pronunciation, essential for clarity in quantitative metrics, was not fully attained in the Indian languages in the period we are studying, and fluctuations took place, such as: Vedic 'tūām' > Classical Sanskrit 'tvām'. The indeterminate nature of these phonemes persisted in Pali (it could only be

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- (1)....Jacobi in ZDMG 47 (1893), p.579, mentions 'eva' "with short 'e' " in Ardhamāgadhī, in explaining the presumed shift of the accent to the preceding word. Cf. Section(vi) below on '-eyy'.
- (2)....It may be noted that Aggavaṃsa, in opposition to the 'Saddasattha' (= Sanskrit Grammar), states that in Pali the term 'aphuṭṭha', "non-occluded", is applied to the non-aspirate stops. The Sanskrit term 'sprṣṭa', "occluded", applied to all the stops, has no equivalent in the Pali tradition.
- (3)....That 'svarabhakti' was a tendency present already in the Indo-European stage of the languages, is suggested by Meillet (IECLI-E.p.117), who quotes Vedic: d < u > váu, j < i > yā, and Greek: bi < y > ós.

eliminated by artificial rules, as in Classical Sanskrit), to the effect that the same phoneme might be pronounced as a vowel or as a consonant in the same word on different occasions of utterance, and clearly there was a strong tendency for the phoneme to decompose into the vowel articulation followed or preceded by the consonant articulation. This decomposition was often reflected in the orthography, thus 'tvam' was sometimes written 'tuvam' (vowel + consonant) and *'arhati' was written 'arahati', which doubtless represents a pronunciation *'arrhati' (consonant + vowel).

This problem of the semivowels and nasals in conjuncts was investigated in the Prāṭisākhya⁽¹⁾, which are perhaps contemporary with the Pali Canon (500 B.C.-150 B.C. according to Varma, "Critical Studies in the Phonetic Observations of Indian Grammarians", Introduction). In the transition from semivowel to stop or fricative they found that contemporary speakers inserted a "fragment of vowel", 'svarabhakti', equal in length to one half, one quarter or one eighth of a short vowel in different cases, and in the transition from stop to nasal they found a similar fragment of nasality which they termed 'yama', regarding it as a nasalised "duplication" of the stop. Both these 'prosodies' are reflected in the orthography of the Pali Canon, and even the variation in length of the svarabhakti seems to be reflected in the greater frequency of writing 'r' + fricative (-rah-) with svarabhakti as compared

(1)....Allen PAI pp.73-8.

with the other cases, such as r + semivowel ('-riy-') and r + nasal (usually assimilated). (1)

According to Dr. Allen, it appears that svarabhakti was limited in the Prātisākhya theory to cases of r + consonant and yama to stop + nasal, to which we may add the case of fricative + nasal. In Pali we find similar 'svarabhakti' vowels in the junctions of stop + semivowel (e.g. 'kileśa'), 'v' + semivowel (e.g. 'viyākar-'), fricative + semivowel (e.g. siyā), and nasal + semivowel (e.g. 'anveti' = ॐ—ॐ Sn.1103), which we may group together as 'consonant + semivowel' generally. We may say that in Pali any conjunct containing either a semivowel or a nasal (i.e. an original 'semi-vowel', 'sonante') is liable to this prosody, since any *semi-vowel is liable to decomposition. In the cases of nasal + consonant, however, the phenomenon appears in the form of the niggahīta (anusvāra), leading to metrical difficulties through the possibility of metrical shortening to anunāsika of the preceding vowel, which we have to consider in Chapter III.

We now have to determine the extent to which, in Canonical Pali, this peculiar prosody of semivowels and nasals had given rise to additional syllables in some words, changing their metrical value. We find that there is no general rule, no invariable relationship between orthographic svarabhakti and metrical, or syllabic, svarabhakti: it is therefore necessary to study individual words so far as we can

(1)....As examples of 'yama' we have: 'paduma' (= *pad^dma), 'sukhuma' (= *suk^{kh}ma, or *sukh^pma? - Allen 3.123), 'gini-' (= *g^ñni), 'supina' (= *sup^pna). On Allen 3.123 cf. also Pali: 'sineha' (= *s^tneha).

find them in positions where their metrical value is certain. We also find that in some cases the metrical value of a word varied, thus 'ariya' is usually "ārīyā" (ariya), but sometimes "ārīyā" and occasionally even "ārīyā". This may be due in part to dialectal variations within the Canon, but sometimes such variants appear within a single poem of apparently homogeneous composition. It must therefore be stated that certainty of scansion in all cases is not possible in Canonical Pali; that the language was not completely fixed but, being not far removed from a living dialect, had a certain amount of fluidity.⁽¹⁾ Our statistical counts of pāda structures will therefore be approximate only in most cases, although it seems possible to reduce the uncertainty, on the average, to not more than about 1%. In this connection we note here, anticipating section (iii), that a number of words had alternative forms with svarabhakti or with assimilation, having different metrical values.

After the partial interruption of the tradition in about 100 B.C., which we have discussed in the Introduction, it appears that the written language became the final authority on all questions. The current orthography was one which had been preserved with very little change from the 3rd century B.C. or earlier, as we see from comparison with the inscriptions, but, when the written Canon after the disasters of the 1st century B.C. became the sole authority (the oral tradition in so far as it was still maintained being no longer trusted, or rather being made dependent on the written texts), the written text came to be interpreted not according to the old usage but simply as it appeared to

(1)....See the Introduction and Chapter IV on the fluidity of the language.

the unwary reader, every vowel indicated by the orthography being counted as the kernel of a separate syllable. In this way all the svarabhakti vowels shown by the written forms of the words acquired full syllabic value in the tradition, and in all the medieval poetry they must be scanned as separate syllables (some forms written with conjuncts were also current, such as 'cetya', 'tulya', 'Sakya').

According to my investigation of the words in positions where their metrical value is certain, in the following cases the svarabhakti group counted metrically as a conjunct (for comparison with AM see Pischel para 131 and Jacobi ZVSIS ("KZ") XXVII, 1877, 594 ff; for comparison with BHS see Edgerton BHSg pp.29-30):

brahmacar¹ya (Sn 267, 274, Dh 267, U 1.4, 8.6, J IV 33; AM has 'bambhacera' beside the form in '-cariya', evidently metrically equivalent).

ācar¹ya (Bv II 19; 'ācera' occurs in Pali e.g. J IV 248 and J VI 563. 'ācāriyē'? S I 178 - corrupt verse)

dhammacar¹ya (Sn 263)

ekacar¹ya (Sn 821 - a very interesting pada! Scan: 'ekacariyaṃ dāḥaṃ kayirā')

-car¹ya in any other compound (Sn 700, J IV 362, 422, 483)

kay¹ra- (Sn 728, 821, 844, 1051, Th II 61, S I 100, U 4.3, 7.9, Dh 117-8, 292, etc., J IV 218)

pay¹rupāsati (Dh 64-5, Th I 1236, 1238)

(the 'metathesis' form -y¹r- is more definitely a conjunct in pronunciation than the normal form -r¹y-/-riy-)

- irīya- (Sn 1063, 1097)
accharīya (J IV 197; cf. 'acchera')
maccharīya (Sn 863; cf. 'macchera')
turīya (Th II 139; AM has 'tūdiya')
atitarīya (Sn 219)
anuparīyagā (Sn 447, S I 124)
avakirīyati (Pv. p.172 of Cy. Ed.; see also CPD
suggesting this metrical value in
several examples)
antakirīyāya (Sn 454, 725; AM: 'kiriya' - Pischel
para 131)
parīyāya (Sn 581, 588, J IV 218, 426 - where the
correct reading was suggested by
Fausbøll; cf. 'peyyāla'. The normal
rhythm is evidently 'parīyāya' as in
Epic Sanskrit)
parīyanta (Sn 577)
parīyesanam (U 7.9)
garāha - (Sn 313, 913, etc., the substantive,
however, has the conjunct divided:
garahāya, in Sn 141, where we also find
the gerund with metathesis: gārayha.
Note that arāha usually has the conjunct,
but with some exceptions: we should
therefore not be surprised to find
*garaha - as the verb stem if enough
examples could be found; AM has
'garāhio', Pischel para 131.)
rāhada (Sn 467)
carānavā (Sn 533, 536)
(a)tulīya (Sn 85; usually written 'tulya')
cetīya (Dh 188)

In the following cases the svarabhakti counts as a
separate syllable:

- viyañjana (SI p.38; often spelt 'vyañjana',
e.g. Sn 1017; some other words beginning
with vy similar -J IV 227, 371, etc.)
viyākar- (Sn 513 in opacchandāsaka cadence, 1052,
1075, Bv IX 13, J IV 116)

viya (otherwise (i)va) (Dh 334, Bv XVIII 27)

siyā (Sn 716, 944, Dh 160, 206, 218, 231-3, 302, 305, 376, U 6.2, J IV 156, 435, Th I 585, 982, etc.)

siyūṃ (U 7.9)

kileṣa (Sn 348)

supina (otherwise soppa) (J IV 84)

gini (Sn 18-9; AM has 'agaṇi', Pischel para 131)

velūriya (Vv VII 7, J IV 352 = 404, Pv II 7.5)

hāvyaṃ (Sn 463 ff. refrain = 490 ff.; not in the cadence, but the rhythm seems certain)

vyakkhissāṃ (Sn 600)

vyākhyātā (Sn 1000)

ātumāṇāṃ (when so written) (Sn 782)

pāpunāti (Sn 324)

In the following cases the metrical value is variable or uncertain:

- ariya { ariya (Sn 230, 330, 353, J IV 292; many more cases could be added, in the light of Chapters VII and VIII, when the word is initial in the pada)
- ariya { ariya (Sn 535, Dh 236, Th I 959) (ariya appears only in Medieval Pali).
- anariya { anariya (Sn 664 in vegavatī cadence)
- anariya { anariya (Sn 815, J IV 178; perhaps under the influence of the 'law' of de Saussure, this rhythm seems to be commoner than the alternative, whereas in the positive 'ariya' is commoner)

- viriya { viriya (Sn 68, 184, 353, 422, 528,
J IV 357, Th II 161, Th I 818)
viriyā (Dh 7, 8, 112, 144, Th I 962;
AM writes 'virīya')
- kariya- 'akāriyaṃ' (Dh 176)
cārāhī (Sn 988, 990? 999)
- araha- { usually araha- (Sn 765, etc., Dh 9, 10, 230,
S I 129, J IV 192 twice,
Th I 500, 969 ff.)
ārāhātāṃ (Na-vipula: Sn 186)
ārāhātō (Sn 590 - late?)
ārāhāntāṃ (Sn 644 - very late?)
ārāhā - (also S I p.51)
(AM has 'arīha-', Pischel para
131)
- bhariya { normally bhariya (J IV 319, 422, 428, 461,
probably Sn 290)
sometimes bhariya (Th II 225)
- sineha { sineha (Sn 66, 209, S I 134)
sīneha (J I 190 1.6, Sn 36 not making
position)
- n(a)hātaka (Sn 518 and 521, in opacchandāsaka,
apparently 'nhātako' not making position)
- nahāru (may be 'nāhāru' not making position at
Sn 194)
- paduma { paduma (Sn 71)
paduma (Vv VII 7), padumī (Sn 53)

suriya, "sun"
(cf. sūriya,
"valour")

{ suriya (Th II 87, Sn 687, S I 51 1.5,
J IV 139, 338-9)
suriya ≡ [—] meaning "sun" (S I 51 1.3,
1.6, J IV 61 1.8)
suriya ≡ [—] (Bv XVIII 27)

dve }
duve } usually pronounced as written (Sn 48, 896)

sve }
suve } probably also as written (e.g. Dh 229)

hiri (Sn 77, 253, 719)

siri- (sīrīmato (Vv VII v.22)
{ sīrī- (Sn 686)

tvam }
tuvam } usually as written (Th II 237-8, etc.), but
there are several exceptions: tvām (Sn 508, 833,
J IV 48 1.6)

ānvetī (Sn 1103)

issariya apparently [—] at Sn 112 and U 18

pasāriyam [—] at J IV 371

kadariya { kadariya (Dh 177, Pv II 7.7)
{ kadariya ?? (Sn 133, 362) (or kadariya?)

hadaya { hadaya ? (Sn 938 d= ThII 52b, J IV 419,
420)
{ (may be for 'hṛdi' > *hadi)
{ hadaya (J IV 127 1.18, 296 1.12)

{ paṭhavi ? (Sn 307)

{ paṭhavi (Sn 1097, Dh 41)

carato? (Sn 823)

Other words liable to svarabhakti seem usually to be pronounced as written (except words beginning with vy)

It is possible that both dialectal variants and historical variants exist within the Canon in some of these cases (e.g. 'araha-?'). The lists could be considerably extended and further clarified by a complete survey of the Canon, and knowledge of the metres will reciprocally increase our knowledge of the pronunciation of words of this type, but the above collection is sufficient for our present purpose of studying the metres.

Whilst it cannot be asserted that in every single case in Canonical verse these pronunciations must be restored, they nevertheless make metrically comprehensible many hundreds of pādas which otherwise would be inexplicable. Adopting Arnold's principle of admitting simple devices of interpretation which convert mere prose into verse on a large scale (VM p.8, paras 8 & 9), I believe, despite the many corruptions in our texts, that it is possible to discover the original system of metrics by thus reducing the area of uncertainty to very much smaller proportions than before, and that eventually it will be possible to make satisfactory editions of the verse parts of the Canon.

(iii) Assimilation & Contraction

Sometimes we may restore a reading which agrees with the metre by substituting a form with assimilation for one with svarabhakti, one with contraction for an extended form such as -aya-, or vice versa. In some such cases the change is

illusory, however, as in ariya/ayya, ācariya/ācera, except in medieval Pali (cf. the preceding section, pp.39-40). In some cases the unassimilated conjunct exists alongside the svarabhakti form. Examples of svarabhakti / assimilation:

rājin-	raññ-
supina	soppa
gini	aggi
mātiya	macca
Kātiyāna	Kaccāna (and Kaccāyana)
kāviya (& kāveyya)	kaḅba (& kaḅya, kaḅya)
tikhina	tikkha
kasira	kiccha
suva-	sa- (ssa-)

-svarabhakti / conjunct:

Sākiya

Sakya

(most others are metrically equivalent : tulīya etc)

tasiṇā

taṇhā (partial assimilation)

The following forms are liable to contraction as shown. Several have appeared already as 'svarabhakti', which is a closely related phenomenon:

aya / e	(especially causatives)
aya / ā	
ayi / e	(including ācariya > *ācayira > ācera where no metrical change occurs)
iya / i	
iya / e	
āya / ā	
āyi / e	

āyi / ī

oya / o

ayū / o

uri / o (purisa/posa: confusion quite common
in the Canon)

ava / o

avi / e

āva / o

avā / ā

upa / ū

apo / o

(iv) Syncopation (and Haplology)

A few unimportant alternatives appear in this category:

sarasara / sassara

bharabhara / babbhara

ciṭciṭāyati / cicciṭāyati (cf. the confusion
in Th II 24, where the possible original 'cicciṭi cicciṭi ti'
preserved in some Sinhalese manuscripts (not noted by Pischel)
has become corrupted into 'vicchindantī', the reading printed
by Pischel. This is an example of the most difficult problems
confronting the editor of a Pali text: the metre may be gīti
(first case) or uggīti: the preceding strophe, although even
more corrupt, suggests the former).

khalu / kho

udaka / oka (cf. Th II 236-245)

-mahe / -mhe

-haplology:

gacchissasi / gacchisi (?) (Th II)
sossasi / sossi (J)
pavisissāmi / pavissāmi
viññāṇaṇcāyatana / viññāṇaṇcāyatana

(v) Samprasāraṇa, etc.

In connection with svarabhakti on the one hand and with conjuncts not making position on the other, the phenomenon of samprasāraṇa has to be borne in mind when dealing with certain cases. We commonly find 'vīti-' for 'vyati-', for instance, which we presume have different metrical values. Now, in the cases we noted above, under svarabhakti, of words beginning with 'vy', we found the possible rhythms: 'vyakkhissam' (cf. 'viyākar-') and 'vyāharim'. In the second case, and in others like it, we appear to find a conjunct not making position (cf. the next section), but it is also possible that originally there was samprasāraṇa here too: '*vīharim'.

The alternation 'dvi'/'du', with possible effect on the quantity of the preceding syllable, may be noted here.

(vi) Conjuncts not making position.

Certain conjuncts in Pali appear sometimes not to make position. These are: 'br', 'vy', 'nh', 'sn', 'tv', 'dv', and possibly 'yy' and others with '-y'. 'lh' is not a conjunct.

'br' is the most important of these, and together with 'vy', 'tv' and 'dv' it was studied by some of the 19th century writers on Pali, in particular by Simon, ZDMG, 1890 pp.94-5. Conjuncts with '-r' sometimes fail to make position in the Epics and even in Classical Sanskrit. These cases, however, belong to a discussion on metrical licence rather than here, although in Buddhist Hybrid Sanskrit and probably to some extent in the Epics we are concerned with an archaising or Sanskritising orthography which misrepresents the original pronunciation. In Pali (where 'br' is the only representative of this class(1)) as in BHS the phenomenon is a regular feature of the language, belonging to the discussion on phonology and orthography, and does not appear sporadically as licence (based apparently on a vague recollection of old pronunciations).

Simon found that 'br' made position in 'brahā', 'brahmā', 'bravīti' and 'brūheti', and derivations and combinations of the latter, except 'anubrūhaye'. He also found that 'brāhmaṇa' did not lengthen the syllable which preceded it. In this latter case he suggested reading 'baṃhana', 'baṃbhana' or 'baṃhmana' as in the Asokan inscriptions at Khālsā, Dhauli and Girnar.

(1)...The others are represented by assimilated conjuncts which are further simplified in most cases when initial (e.g. pr > pp > p). As a rule they make position medially and in the seams of compounds, but initially, and sporadically in seams, the single consonant appears. This conforms to the rule in MI that only a single consonant can appear initially, but in close union with the preceding word, and especially in compound with it, the doubled consonant may reappear.

This suggestion is probably correct, in view of the abnormality of a conjunct appearing initially in Pali, and I would add that the 'restoration' of 'br' here may well have resulted from the tendency to archaise in the early stages of the tradition (discussed already in the Introduction). According to Bloch I.A. the forms 'bāmhana', 'bhambhana', 'bābhana', 'bambhana', 'bamhana', 'bamhmana' occur in the Eastern, Central, Western and Southern inscriptions, 'bramaṇa' (1) is restricted to the extreme North-West, but 'brāmhana' and 'bramhana' occur once each at Girnar (I.A. pp.98-9), which thus again shows a specially close connection with Pali. Girnar, however, fairly frequently preserves 'r' in 'pr', 'tr' (sometimes found in Pali: 'tatra', etc.), and 'sr'.

In connection with the other words quoted by Simon, I find that 'br' regularly does not make position in 'anubrūhaye' and 'brūhi'. (2) Elsewhere, as in 'subraha' (3) and in 'abravi', 'abravum' (4) from the same root 'brū' as before, 'br' regularly makes position.

'vy', 'nh', 'sn'. These conjuncts liable to svarabhakti sometimes fail to make position, as if in svarabhakti, even when there is no svarabhakti. The case of "cā nhātako" Sn 518 is doubtful, since there is a reading "ca nahātako" which we could adopt by omitting 'ca'. In "bhavantī snehā" Sn 36, however, there seems to be no alternative ('nh' being originally 'sn' might be expected to have the same metrical value). Note that 'sineha' occurs in the very same poem, Khaggavisāṇasutta, Sn 66. We have discussed 'vy' in the sections on svarabhakti and samprasāraṇa. Here we may add the examples of conjunct not making position: 'sūvyāvato' J III 315, 'khīṇavyappatho' Sn 158-9 (there are, however, many

(1)...once: 'bamaṇa'; once: 'bramaṇa' - misprint?

(2)...e.g. J IV 459. (3)...e.g. J IV 111.

(4)...Both in Sn (430, etc), J and Bv.

variants here: this one was adopted by Andersen and Smith, but without any certainty, and the interpretation of the whole compound is very doubtful - see PED s.v.)

'tv' and 'dv' very rarely do not make position. Simon gives J II 178 d, (1) J III 81 a and J IV 62 b, to which I am not able to add further examples. In the words 't^uvaṃ' and 'd^uve' these conjuncts are liable to svarabhakti, and they may therefore be compared with the preceding group.

Aggavaṃsa gives a rule (Sd pp.614-5, para 41) that long 'ā' may be formed in sandhi before the conjuncts 'vy', 'ññ', 'ggh' and 'ss' in certain words. In all the cases he gives the conjunct stands for an original consonant + y, which suggests that position was not strongly felt before such conjuncts, even after assimilation. Compare with this his rule referred to in the section on 'e' and 'o', where these vowels may be 'long' before 'tv' (see above) and 'ty'. In other connections we find the position of 'yy' felt to be weak, and perhaps 'Iy' > 'iyy' > 'eyy' (Geiger para 10) illustrates this. I find that it occasionally seems desirable to scan 'ëyy' instead of the normal 'ēyy', but usually some alternative form may be substituted. Thus in M I, p.386 l.21, we might scan $\bar{a}ssa\ veyy\ \bar{a}karaṇassa$, but here 'vyāk-' might be substituted, scanning ' $\bar{a}vy\bar{a}$ ', (2) whilst the metre (gīti) seems normally to insist on $|u-u|$ here, i.e. $\bar{a}\ veyyak$ with metrical shortening. In Sn.152 we find the variants 'vinaya'/'vineyya' together with '-seyyaṃ' in a verse which is very difficult to scan satisfactorily. On the whole, after spending considerable time on these gaṇacchandās verses, and still more time on those of the Tuvāṭakasutta (Sn 915-34), I think we have in fact to accept '-ēyy' in most cases, but it appears that the doubtful pronunciation of this syllable may have been partly responsible for the corruption and uncertainty in the tradit-

(1)...His references are to nipātas and verses, not volumes and pages.

(2)...cf. AM: 'vāgaraṇa'.

ion preserving these texts. Both here and in the case of 'e' generally (cf section (i) above) it seems that in the original texts 'e' was invariably long, although when final it might alternate with 'i' for metrical convenience (even this is quite rare in Pali: see Chapter IV; such forms as 'ramāmasē' (middle) are almost certainly mere archaisms for original '-i'). In the context of Prakrit dialects developing a regular 'ē' beside 'ē', however, the Pali tradition wavered at times, and its guardians who spoke such dialects were liable to introduce 'ē' into the Canon.

The orthography 'ḷh' does not represent a conjunct, but aspirated 'ḷ' in place of 'ḍh'. Evidently lacking a letter 'ḷh' the scribes wrote 'ḷ' + 'h'. As in the word 'dāḷha' (Sn 228, 357, 701, Th I 764, etc.), it does not make position, which is perhaps shown also by the possibility of writing a long vowel in front of it, as in 'rūḷha', 'mūḷha', etc.

It may be noted here that in Pali 'ch' need not make position (in Sanskrit it invariably makes position and is consequently written 'cch'); examples: Sn 42, 387, etc. 'cch' is, however, much commoner.

CHAPTER II

SANDHI

A detailed study of sandhi in Pali would not yield any very definite criteria for textual criticism, since clearly the usage was very fluid - in almost every case alternatives existed either of which might be used at will by the poets. Some account of Pali sandhi going beyond the incomplete or vague statements of the modern grammars is of interest here, however, in order to give a rough idea of the usage within which we may consider amending particular cases of orthography which seems unmetrical. This can conveniently be taken from the twentieth chapter of Aggavaṃsa's Saddanīti, which is based on a very thorough study of the Canonical texts. Any correction or limitation of these statements of the usage in the Canon, such as that a certain combination was preferred by the poets in the great majority of cases, can come only if and when we succeed through a knowledge of the metres in restoring the original texts as a sound basis for a statistical analysis of sandhi. Only occasionally can we add a point of detail from forms in the cadence of a vatta pada or elsewhere where we are certain of the rhythm and of the text.⁽¹⁾ We should also consider the "new sandhi rule" deduced by Jacobi on statistical grounds (I.F. XXXI 1912-13, 211 ff.).

Sandhi in Pali was evidently very simple and natural,

(1)...Thus a consideration of Sn.352a and 790d suggests that "tava-y-idam" and "na-y-idha" should be pronounced 'tavedam' and 'nedha'.

as in a living language. (cf. Mayrhofer H.P. I, p.72). The existence of alternatives freely substituted for one another resulted in the tradition being careless of sandhi, and very frequently it seems necessary to alter our texts in order to restore the rhythm.

Aggavaṃsa considers the whole field of phonology under the heading of sandhi, (we have already had occasion to refer to some of his statements on phonology) and his discussion leads up to the question of metrical licence, which we shall take up in Chapter IV. He begins by stressing the fundamental importance of 'sandhi', which he likens to the salt in a curry, and then sets out the alphabet and describes the manner of production of the various sounds (sadda > vanna > akkhara \approx sound > phoneme > letter). Short and long syllables are defined, and one consonant reckoned at half a short syllable in length.⁽¹⁾ Consonants ('vyañjana') are 'dependent on' ('nissaya') vowels ('sara' = svara) (cf. Allen p.80 - same doctrine), but in turn 'protect' or 'cover' ('paṭicchādeti') them.

Sandhi in the narrower sense is then analysed into the following ten elements or 'instruments' ('upakaraṇa'):

- (pubba (the phoneme which precedes)
- { para (the phoneme which follows)
- lopa (elision)
- āgama (transition phoneme, which replaces one elided, or is inserted in addition)
- sañño ga (conjunct)

(1)...As in the Vedic tradition - see Allen PAI 84. This 'natural' length must be carefully distinguished from metrical length: the terms for the former are 'rasa' (hrasva) and 'dīgha' (dīrgha) (Sd p.605), those for the latter are 'lahu' (laghu) and 'garu' (guru) (Sd p.632).

of. the { viyoga (the separation from its following vowel
'two of the 'dependent' consonant before
funda- making sandhi)
mental } paranayana (the guiding of a consonant by the
rules' } phoneme which follows it)
below }

vipariyāya (metathesis, = 'viparīta' of N.Ś. quoted
by Allen, p.77, f.n.9. Not the same
as 'viparyaya' of A.P.Allen, p.74,
f.n.2, meaning 'more back')

{ vikāra (modification by union with another phoneme)
{ viparīta (change into another vowel or consonant
without such union)

To these might be added the following, which perhaps
are intended to be deduced from them:

ādesa (substitution - cf. 'lopa': these two terms
are frequently mentioned together as typical
sandhi processes.
ādesa = lopa + āgama)

nimitta (the cause: the phoneme which determines
the application of one of the ten elements
or instruments)

sabhāgatta (assimilation, = saññoga + vikāra)

(dvitta (doubling - by 'vikāra', as in: ās > ass)

(visaññoga (simplifying)

ṭhānantaragati (displacement: the transfer of
nasalisation from one syllable to
another (1))

Some general definitions are given:

The four kinds of discourse:

gajja (prose),

pajja (verse),

geyya (mixed),

kaccha (commentary);

(1)...Only one case of this exceptional phenomenon is given:
imsu > isuṃ, which is regarded as 'sandhi' because the
form regarded as normal is changed under stress of metre
in the examples quoted. Sd. p.635.

The three (or four) classes of sandhi:

vowel sandhi,

consonant sandhi,

mixed or general sandhi (including euphony, stress of metre, etc.),

(niggahīta sandhi - otherwise included in the preceding class),

(Aggavaṃsa selects the threefold classification):

The purposes of sandhi, defined as: 'sampatti'

('success', 'happiness') in sound, meaning, metre, and 'alaṅkāra' (apparently 'poetics'), which (sampatti) is 'delightful' (manorama); as the protection of metre, in verse; and as 'euphony' (sukhuccāraṇa) in other kinds of discourse;

The dichotomy into external ('pada') and internal
(1)
('vaṇṇa') sandhi.

Before setting forth the individual rules according to the threefold classification Aggavaṃsa lays down two fundamental general rules:

(1)...In this chapter we need not concern ourselves with internal sandhi, which in any case is somewhat artificial in Pali. Aggavaṃsa merely lists the apparently irregular cases found in 'internal sandhi', together with dialectal curiosities, after the more regular combinations of external sandhi. We may ignore these artificial 'rules' here, since they belong to the discussion of phonology and in particular to the evolution of Pali out of 'Old Indian'.

1. In order to make sandhi, the (following) protected vowel must be separated from its (preceding) dependent consonant, so that the vowel may be determined by another phoneme which follows it (viyoga).
2. When sandhi is made, a consonant is guided (determined) by the phoneme which follows it (paranayana).

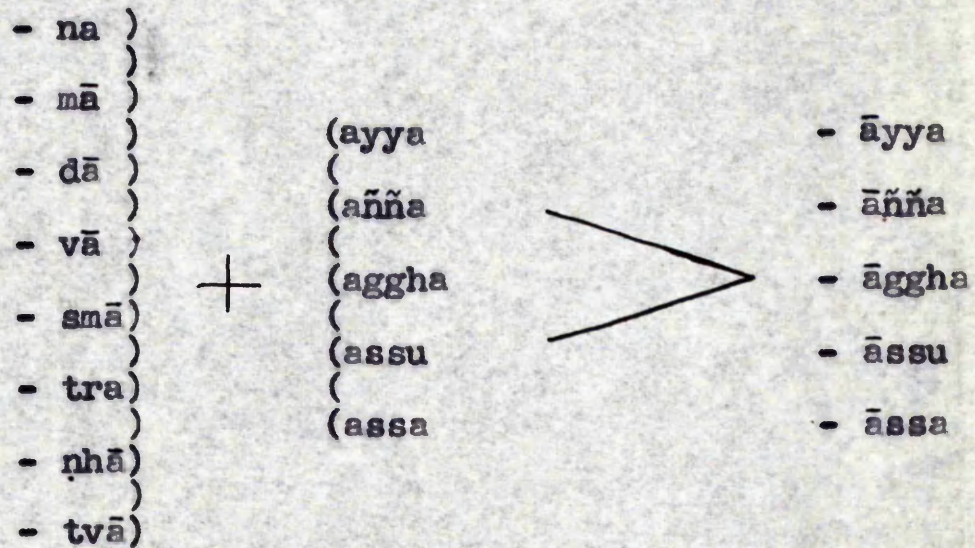
- in other words the syllable is split into its component elements, consonant(s) + vowel, before sandhi can take place (it takes place at the level of phonemes, not of syllables), and sandhi is 'progressive'.

Vowel Sandhi

This is defined as "the substitution or elision of vowels". Aggavaṃsa examines the 64 possible cases of the collision of vowels: elision of the preceding (pubba) vowel is the commonest result. Where the vowels are dissimilar the following (para) vowel may instead, but only exceptionally, be elided (the only regular cases of this are the loss of initial vowel in 'iti', 'idāni', 'iva', etc., where it is perhaps more correct to say that 'ti', etc., were in Pali independent words freely used, whilst the full forms were in fact rare survivals of older forms gradually dying out; the rule of lengthening a final vowel preceding 'ti', however, could be cited, in support of Aggavaṃsa, to show that the older form was still alive behind the new and that the new could be regarded as merely a sandhi

(1) form of the old).

When the preceding vowel is elided, the following vowel 'may' (not 'must') be lengthened, except before a conjunct. Sometimes when a preceding 'ä' is elided a following 'i' or 'u' becomes 'e' or 'o', but 'iva' never becomes 'eva', 'iti' never becomes 'eti', and 'o' is never elided before 'iti'. In certain exceptional cases long 'ā' may be produced before a conjunct:



- this might be given as evidence that these conjuncts with, or originally with, 'y' as second consonant were not strongly felt to make position (cf. the discussion in Chapter I, section vi). We also find,

(1)...Very exceptionally a similar following vowel may be elided after the prefix 'pa-' (very doubtful: the only cases given are from the Commentary on the Jātaka, not from the Canon).

however:

sa + (anta
(attha > sānta
sāttha

Sometimes:

e > y

o > v

u > v

ti > cc (not before i)

i > y

ā + eva > ariva

'g' appears as 'transition phoneme' after
'putha', 'pā' (> pāg), when a vowel follows

bhi > bbh

dhi > jjh (not before i)

The 'sandhi consonants', y, v, m, d, n, t, r, l, h,
are used as transition phonemes.

Before consonants, vowels normally retain their
original forms.

Consonant Sandhi

"The substitution or elision of consonants". In
Pali this is limited to the behaviour of the consonant in the

case of vowel + consonant, together with a few complications when a vowel becomes a consonant. Aggavaṃsa here gives a long list of sporadic consonant changes, most of which, as we have said, belong to the wider field of phonology or to artificial constructions of internal sandhi. Thus he considers the case: when three consonants come together in a conjunct, one of them (one of the same vagga as one of the other two in preference to one of a different vagga) is usually elided; exceptionally a cluster of three stands, e.g. 'tthy'.

The most important rule in this section is that after a vowel a consonant may be doubled. In fact in the Canon this is limited to cases where an original initial conjunct has been simplified, but where in close union with the preceding word or, more especially, in compound with it, the original (metrical) value of the conjunct is restored. Although he gives correct examples of this Aggavaṃsa apparently was not aware of the reason for it, or rather we should point out that he could not admit the possibility of the historical formation of Pali, which for him was the 'original language'. In the same way he notes, without explanation, that after the prefixes 'u', 'du', 'ni', a consonant may be doubled. In this way the original metrical value was again restored, which

resulted from these prefixes being originally 'closed syllables': 'ud', 'dus', 'nis', forming conjuncts with following consonants.⁽¹⁾

A similar phenomenon is the restoration or preservation of original rhythmic values by vowel lengthening before a consonant, as in *samma* > *sammā* (for *samyak*).

Both these processes are important from the point of view of the study of metre, since by analogy doubling of an initial consonant or lengthening of a final vowel were occasionally produced by stress of metre where there was no historical justification. These cases, together with the shortening of a final vowel, which Aggavaṃsa also notes here, will be considered in Chapter IV. (Aggavaṃsa himself notes that many of the cases discussed here and under 'mixed sandhi' - to which he adds some of the historical forms - were produced by stress of metre). We must mention here, however, that 'sa' (and 'esa') occurs quite regularly in Canonical verse as opposed to the regular prose form 'so', especially when followed by a consonant (as Aggavaṃsa observes, but further on, §187, he argues that these cases of o/a are not, strictly

(1)... cf. the case "m + p > pp" in 'cirappavāsiṃ' and 'hatthippabhinnam'.

speaking, sandhi), original visarga before surds being lost without compensation, and the resulting form being gradually extended in use to cases where a sonant or even a vowel follows.

In this section Aggavamsa also gives the following:

dy > jj in 'yajj evaṃ';

ti (ty) > cc in 'jāti -';

adhi > ajjha (only doubtful cases derived from 'ajjhāvasati');

adhi + √ bhu > 'addhabhūto', 'addhabhavati', etc.;

'evaṃ viya kho' > 'evaṃ vyā kho' (and several other cases of loss of a svarabhakti vowel);

putha + consonant > puthu + consonant;

'o' appearing as 'transition phoneme' before a consonant, as in 'parosahassaṃ', 'sarado sataṃ', 'pago -', 'pāto-';

neuters 'taṃ', etc. > 'ta(d)(a)', etc., in verse.

Mixed Sandhi

This includes everything which could not easily or conveniently be described under the other two headings, and especially the substitution or elision of niggahita. Further, it includes 'vuttasandhi', defined as the protection of the number and quantity of syllables in verse and as euphony in

prose, which is attained by means of elision, transition phonemes, etc.

Vuttasandhi belongs to Chapter IV. The sandhi of niggahita is as follows:

Sometimes:

$m > n, \tilde{n}$, etc., before k, c. etc.;

$m + l > ll$;

$m + \begin{pmatrix} e \\ h \end{pmatrix} > \tilde{n} + \begin{pmatrix} e \\ h \end{pmatrix}$, as in $\begin{pmatrix} (tam\ eva > ta\tilde{n}\ \tilde{n}eva) \\ (evam\ hi > eva\tilde{n}\ hi) \end{pmatrix}$ (1) ;

$m + y > \tilde{n}\tilde{n}$;

Usually:

	$\begin{pmatrix} (yam) \\ (tam) \\ (etam) \end{pmatrix}$	+ vowel	>	$\begin{pmatrix} (yad) \\ (tad) \\ (etad) \end{pmatrix}$;
neuter				
	$\begin{pmatrix} (yam) \\ (tam) \\ (etam) \end{pmatrix}$	+ vowel	>	$\begin{pmatrix} (yam) \\ (tam) \\ (etam) \end{pmatrix}$ (2) ;
masculine				
feminine				
All three genders	$\begin{pmatrix} (yam) \\ (tam) \\ (etam) \end{pmatrix}$	in compound	>	$\begin{pmatrix} (yad) \\ (tad) \\ (etad) \end{pmatrix}$;

in various other cases $m > m$ (in the Canon, before

(1)..This is no doubt due to the alternative form 'yeva' for 'eva', the sandhi being $m y n$. In Burmese mss. \tilde{n} is frequently written for $\tilde{n}\tilde{n}$, so that Aggavaṃsa perhaps had the result 'tañeva' in mind and regarded it as having a single consonant.

(2)..Feminines 'yām', etc., are not restored. A few cases of $-am > \tilde{a}m$ in sandhi do exist, however, such as: 'vaḍḍhatām eva' (G para 126, see also para 71.end), 'mām iva' (Mayrhofer I p.73). The metre, of course, is unaffected, and we should perhaps regard these cases as Māgadhisms, cf. AM '-ām eva', Pischel para 68.

vowels, but only optionally), or, in compound, 'm' may be assimilated to a following consonant. Otherwise it is occasionally elided altogether (usually under stress of metre). On the other hand it may be inserted as a 'sandhi consonant' ('transition phoneme'). Finally, a following vowel may be elided after niggahita (in which case a following conjunct may, exceptionally, be simplified). It is very important to note that this elision of a vowel after niggahita is the only case in Canonical usage where sandhi is allowed between the prior and posterior pādas of a pādayuga (with one possible exception in the Buddhavaṃsa, one of the latest additions to the Canon);

'm' may always remain before a consonant.

In this section Aggavaṃsa collects various other rules, including the following:

Sandhi is not made where the result would not be euphonious, or where the meaning might be obscured (this is the fundamental rule of fluidity

in Pali usage - the usage of a natural, living language);

metathesis sometimes occurs in sandhi, as in 'payirudāhāsi' ('pari-' > 'payir-') and in 'bahuābādho' 'bavhābādho';

after a pure vowel, 'iti' becomes 'ti' preceded by a slight pause (this rule is not observed in medieval Pali); (1)

some ambiguous combinations are noted, thus 'sāhaṃ' may be (i) 'sā ahaṃ', (ii) 'so ahaṃ' (iii) 'cha ahaṃ', "six days", digu (dvigu);

when hiatus is left between two vowels, the result may be written as one 'word' ('saṃhitāpada', i.e. any connected unit of speech such as 'tatrāyaṃ'), as in: 'suāgataṃ', or as two 'words' ('padas', including prefixes), as in 'tatra ayaṃ'.

(1)...This interesting statement suggests that in the older manuscript tradition a final vowel before 'ti' was not lengthened as in the extant manuscripts, and the present usage crept in from the practice of the medieval poets. The 'slight pause' equivalent to making a long vowel may well be the original pronunciation: a fine point slurred over by writing a long vowel to indicate the quantity of the syllable.

To Aggavaṃsa's doctrine modern scholars have added a few observations. Geiger (§ 68) notes that sandhi is applied especially to words which are closely connected syntactically: a further demonstration of the naturalness of the language. The historical origin of such phenomena as the sandhi consonants has been demonstrated (G § 72), but still more stress should, in my opinion, be laid on Geiger's remark (§ 67) on the origin of many compound words in an older period. It seems likely that the majority of compounds current in the language were a legacy from 'Old Indian', and they should therefore be explained according to the phonological transition from Old to Middle Indian, not according to 'internal sandhi' in Pali itself. It is for this reason that Geiger finds that on the one hand "internal sandhi on the whole follows the rules of Sanskrit" (§ 67), whilst on the other "external sandhi in Pali is fundamentally different from that of Sanskrit" (§ 68). True internal sandhi in Pali, in the minority of compounds which were new formations in the language, follows the usage for Pali external sandhi, selecting, very naturally, those alternatives which give the closest union between the padas concerned.

Jacobi has demonstrated a special factor at work in Prakrit sandhi, including Pali, namely the influence of the new

penultimate accent.⁽¹⁾ A long penultimate syllable weakens the final syllable involved in sandhi by reason of the stress which falls on it. In Ardhamāgadhī and Jaina Māhārāṣṭrī the sandhi vowel is regularly short after a long penultimate, even where a long vowel would be the normal result of the sandhi, whilst the long sandhi vowel appears when the penultimate is short. It must be noted that in these two languages a short following vowel is not lengthened to compensate for the elision of the preceding vowel, so that the rule applies only to the remaining cases in which a long vowel may be formed. In Pali this compensatory lengthening is the rule, but it is balanced by the effect of the penultimate accent, so that in the case of a long penultimate followed by a sandhi vowel which normally would be long, the probabilities are about equal that it may be long or short. In such a case the metre may decide the quantity.

(1)...See I.F. 1912-3, 211 ff. The problem of the accent will be fully investigated in Chapter III.

CHAPTER III

SCANSION

The rules of quantity in Pali are those obtaining generally in Old and Middle Indian, the peculiarities of the orthography having been allowed for as described in Chapter I:

A syllable having its vowel short and followed by not more than one consonant is short ('lahu');

A syllable having its vowel long, or followed by a conjunct, is long ('garu').

It must be added that the short vowels are 'a', 'i', 'u', and the long vowels 'ā', 'ī', 'ū', 'e', 'o', and, normally, 'am', 'im', 'um'. We have already investigated the problems connected with 'e' and 'o' (Ch.I, (1)), but some further notes are necessary here, together with a clarification of the question of the nasal vowels, if we may use this term for 'am', 'im' and 'um', which seem really to be vowels followed by nasality. (1)

These problems are complicated in Middle Indian by the effect of the so-called "Law of Morae", according to which a syllable should contain not more than two morae. (2) Undoubtedly

(1)...See Dr. Allen's interesting discussion on this point, PAI pp.39-46.

(2)...i.e. 'natural' morae. There is no question here, of course, of a syllable counting metrically as three morae.

there was a very strong feeling amongst Middle Indian speakers tending towards this simplification of the language by making the 'natural' length of the syllables correspond exactly to the metrical length.⁽¹⁾ Geiger's statement (para 5) that a syllable in Pali can never contain more than two morae is exaggerated, and his description of the exceptions as "learned orthography" (para 7) cannot be justified. Whilst there was a strong tendency to conform to this 'law', it never became absolute in Pali, and the usage recorded in the manuscript tradition seems quite natural. We have seen in Chapter I, (vi), and elsewhere, that Pali was never completely subjected to absolute, artificial rules, and the uncertainty whether some conjuncts made position shows the futility of trying to decide whether a syllable was allowed to contain three morae and whether in such a case it represents learned orthography. It would follow from the 'law' that 'e' and 'o' must be short in a closed syllable. Again this was undoubtedly a tendency in the language, but hardly a general rule, and it did not give rise to an 'independent' short 'e' or 'o' appearing in open syllables.

In para 5 of his Pali Grammar Geiger says that long nasal vowels do not occur. He means to say that long vowels are not found followed by niggahita in the traditional orthography. This orthography is part of the general usage of not writing

(1)...This tendency may be connected with the metrical transition to a system of exact quantitative oppositions.

long 'ā', 'ī', 'ū' before a conjunct, or, as one should say to be precise, in a closed syllable: niggahīta makes a closed syllable whether or not a consonant follows it. It is understood from this usage, and found in scanning the texts, that niggahīta normally makes a syllable metrically long.

As stated in the Chapter on sandhi, niggahīta usually becomes the consonant 'm' when followed by a vowel. The syllable then becomes metrically short except in those very few cases where an Old Indian '-ām' is restored. Quite frequently, however, niggahīta is retained before a vowel and the syllable remains long. The poets appear to have been free to make a final 'am/am̐', 'im/im̐' or 'um/um̐', followed by a vowel, long or short as convenient.

Whilst the normal practice, representing presumably the older usage derived from an earlier stage of the language, treated niggahīta as a nasality following the vowel, 'anusvāra', we find in the Pali Canon the earliest examples of the short 'nasal vowel' of Apabhraṃśa and the modern languages, which became a true nasal vowel, 'anunāsika', and was probably pronounced as such already in Pali. There is no special orthography for this vowel in Pali, and the syllable is written either with niggahīta, as in the case of ordinary anusvāra, or without it, as if the nasality were lost completely. This loss

of nasality metri causa (and the 'short nasal vowel' in Pali seems to appear only under stress of metre) was perhaps the origin, and the original pronunciation, of the 'short nasal vowel', the nasality having first been lost and afterwards retained in a different form by 'colouring' the vowel itself instead of merely following it.⁽¹⁾ In Indian Prakrit manuscripts the new sound came to be represented by the candrabindu, which is now usually transliterated by a tilda over the vowel in place of 'ṁ' after it.⁽²⁾

Besides clarifying the rules of quantity with a view to the scansion of Pali verse, it is necessary to enquire whether any other feature of the phonology may have been at work in determining the position a word might occupy in the pāda. There is only one such feature: the accent. In the Vedic language there appears to be no connection between the pitch accent, or 'tone', and metrical rhythm. A great deal of discussion has taken place, however, on the question of whether, and, if so, when, a stress accent replaced the Vedic accent at some time during the development of the Indo-Aryan languages after the Vedic period. Such a stress accent might affect versification, and we must therefore examine the results

(1)...On the origin of the true nasal vowel in Indo-Aryan cf. Allen P.A.I. p.40.

(2)...We cannot adopt such a convention in editing Pali texts. It is only a hypothesis that 'ṁ' in Pali was ever pronounced like 'ã' in Late Middle Indian. Where the short quantity is certain the editor may mark it as a guide to the reader.

of previous investigations of this question and endeavour to define the situation in the Pali period.

Westphal's attempt to found a science of "comparative metrics" of the Indo-European languages on the basis of Aristoxenus,⁽¹⁾ alongside their comparative linguistics and comparative mythology, resulted in the efforts of several Sanskritists to analyse Vedic, Pali and Sanskrit verse on the assumption that it was governed by the recurrence of an 'ictus', so that the pādas could be subdivided into feet composed of thésis and ársis.

Both the stress accent and the ictus have been rejected by some Sanskritists as not existing in the Indo-Aryan languages and metres. If they do exist, however, they are likely to be interdependent; that is, the ictus is likely to be carried by a stressed syllable. Let us summarize briefly the development of the stress and ictus controversies.

In 1883 G. Bühler described the modern pronunciation of Sanskrit in India, with a stress accent dependent on the penultimate syllable, in his "Leitfaden des Elementar Cursus der Sanskrit Grammatik". Jacobi in 1893 (ZDMG 47, 574 ff.) traced this stress accent back to Pali, Prakrit, and Epic and

(1)... "Aufsatze zur vergleichenden Metrik der indogermanischen Völker" in ZVS (KZ) IX, 1860. We have already discussed this theory in section 7 of the Introduction.

Classical Sanskrit on phonological evidence such as the shortening or weakening of vowels. An initial or 'expiratory' stress was also assumed to play a part. Enclitics were shown to behave as single word-units with the preceding word. Grierson (ZDMG 1895 and 1896) supported Jacobi by collecting evidence from the modern languages. In the Pali grammars of Geiger (1916 in German, 1937, revised, in English) and Mayrhofer (1951) the Jacobi accent is accepted.

Jacobi was opposed by Pischel, in ZVS(KZ) 34, 568 ff. and 35, 140 ff., who maintained that the Vedic tone still existed in Prakrit, or that at least the accent, whatever its nature, occupied the same positions as the old tone. This, he claimed, gave a more satisfactory explanation of certain phonological phenomena in Prakrit. (On the possible phonological influence of the tone in Vedic itself see Zubaty in VOJ, 1888, p.136 on accent and metrical lengthening in the R̥gveda. The statements that greater effort or greater tension were involved in producing a higher tone suggest a possible stress effect of the musical accent).⁽¹⁾ By 1900, however, in his Prakrit grammar

(1)...cf. Allen PAI p.90. Modern phoneticians e.g. Chiba: "A Study of Accent", Tokyo, 1935, seem to regard the two kinds of accent as essentially related and as mutually exclusive as the predominant accentual feature of any language. On the influence of tone on quantity see also Arnold VII p.145. Note also that the tone is often associated with a 'strong' syllable, as when in verbs the strong stem is used when the tone falls on the stem, Whitney para 556. Some modern stress accents in Indo-European languages occupy the place of the old tone, e.g.: Greek, Russian, Lithuanian (the latter two retaining a rise in pitch).

(para 46), Pischel had retreated from his former position and conceded a penultimate accent in Śaurasenī, Māgadhī and Dhakkī whilst maintaining his Vedic accent in Māhārāṣṭrī, Ardhamāgadhī and Jaina Māhārāṣṭrī.

Jacobi published a further article in IF, 1912-3, 211 ff., "Über eine neue Sandhiregel im Pali und im Prakrit der Jainas und über die Betonung in diesen Sprachen", in which he announced the new sandhi rule which we have referred to in Chapter II, whereby a long penultimate syllable weakens, through the stress which it carries, a sandhi vowel which follows it. That this rule is not fully, but only 50%, offset in Pali by the special rule that a short initial vowel may be lengthened after the elision of a final vowel he regards as confirmation of the theory.

Bloch rejected both theories, saying that nothing was known of any stress accent in ancient times and even that there was no stress in the modern languages: a position which he still maintained in 1934 (I-AVTM, pp.47-9), stating that the accent disappeared entirely after Pāṇini and that the facts adduced in favour of a stress could be explained in other ways. One wonders, however, what he understands by the expression "sommets rythmiques" on p.45. ⁽¹⁾ Perhaps the difference of

(1)...Banarsi Das Jain uses the term "syllabic prominence" as an alternative to stress accent in countering Bloch's rejection of stress in Indo-Aryan (BSOS vol.4, 1926-8, 315 ff.)

opinion or of feeling in regard to the accent between German and French investigators is due to the nature of their own languages.

In 1916 Professor Turner (followed in 1926-8 by Banarsi Das Jain) attempted a final solution of the problem by accepting Pischel's accent for Māhārāṣṭrī and demonstrating its continued existence in Marāthī whilst accepting Jacobi's accent for the other Prakrit dialects and their modern descendants.

In 1943 Poucha published an article "Vom Vedische zum Sanskrit-akzent" in Av.O., 129 ff., on the origins of the penultimate stress, adducing accent-shifts already in Vedic tending towards the position of the Sanskrit penultimate accent. He maintained that the Indo-European tone changed into a stress under the influence of the non-Aryan languages of India, and then conformed gradually to the penultimate rule governing its position in the word. He gives as the unanimous opinion of Indologists the statement that the decisive change took place between the 4th century B.C. and the 7th century A.D., although the beginnings of the transition are to be found, as he shows, in the earliest Aryan records in India. No references are given for the "opinion of the Indologists", and Jacobi's theory would seem to push

the transition back before the 4th century B.C., since by that time Pali already possessed its characteristic accent system.⁽¹⁾ From Lin Li-Kouang's discussion of certain traditions about the recitation of the texts, it appears that Early Buddhist recitation was very different from that of the contemporary Vedic tradition (see A-MVL p.222). The Vedic accent system is referred to with the gestures accompanying the recitation, and rejected, the contemporary pronunciation and manner of recitation of the various Indian dialects being approved. Even the schools which used Sanskrit rejected the 'chandas', the Vedic manner of recitation, but this must refer to a somewhat later period. One source quoted by Lin, the Vinaya-kṣudraka-vastu, allows that if the local usage of a country requires the musical accent (the Chinese text appears to be a translation of the term 'āyataka-gītasvara' frequently used for Vedic recitation) then it may be used. Perhaps this refers to the Buddhist practice in Mahārāṣṭra, or some other country in which, exceptionally we may infer, the old accent still survived.

If we accept a penultimate stress accent in Pali, with a secondary initial stress, we next have to take up the question

(1)...We may note here the occurrence of non-etymological initial 'h' in the Asokan inscriptions: 'hevaṃ', 'hemeva', called by Bloch 'h expressif', which is surely connected with the initial stress, and also evaṃ > eṃ resulting from a stress on the initial vowel.

whether this new accent system played any part in versification. If the stress was sufficient to produce phonological changes, it might be felt by the poets and influence their fitting of words into the rhythm of the pāda, but presumably only if the metre possessed or developed an element, such as an ictus, which answered to the stress and tended to draw the words into positions in which stress and ictus would coincide. We must therefore refer to the ictus discussion in the Introduction (pp.22-9).

It is significant that Westphal's ictus theory was applied first, by Cappeller in 1872, to the study of gaṇacchandās, the metre which is most closely connected with music. It is undeniable that in music the rhythmic periods are marked by a strong beat or ictus, and in a musical metre, if in any, we may therefore expect to find a 'measure' defined by an ictus. Cappeller's work will be discussed in Chapter VI.

Kühnau's "Die Triṣṭubh-Jagatī-Familie", 1886, gives a full exposition of the ictus theory in relation to the "comparative metrics" of Indo-European. It then takes up Indian metrics and selects the triṣṭubh as the best subject for analysis on account of the great length of its history, although other metres, particularly mātrāchandās, are referred to for comparison. Kühnau seems to admit that in the fixed metres of

Classical Sanskrit there would be no significance in an ictus (pp. v-vi), but he evidently regards this fixed or 'uniform' type of metre as artificial (presumably as resulting from the 'external' schematic analysis of the Indian theorists who failed to penetrate to the inner nature of metre). What is important, in his view, is the evolution of metres and the changes of rhythm, from which standpoint the perfected array of Classical Sanskrit metres is merely a lifeless fossilization of some of the products of metrical development. He admits, however, that his attempt to differentiate the musical and metrical forms of rhythm is not entirely successful (p.vii). The reason for this is that he attempts to bring all metres under the purely musical laws of the *thésis* and *ársis*. In poetry, repetition is sufficient to constitute metrical form, and it may be repetition of a whole *pāda* of considerable length which is not analysable into smaller units. Stress may be added, marking the recurrence of a particular measure, but it is not essential in a metre where the rhythm is supplied by the opposition of quantities in the word-material, or perhaps only by variations of tone in a language dominated by a musical accent. The "conditions of rhythmical movement" laid down by the comparative metrologists are thus adequate for music but not broad enough for metrics. The Indian theory of the

'cakravartana', in Apabhraṃśa and Gujerāṭī metrics,⁽¹⁾ is much closer to an adequate theory of metrical structure.

It is not necessary here to examine the methods of all the other workers in the field of metrics.⁽²⁾ Some, like Oldenberg, whilst criticising Kühnau's theory at some points, use ictus schemes in the study of Vedic and Sanskrit metre, and speak freely of 'iambic', 'trochaic', 'anapaestic', etc., rhythm in anuṣṭubh and triṣṭubh pādas. Others simply analyse the metres in pādas made up of long and short syllables variously arranged, with or without caesura, very much along the lines of the old Indian theory, sometimes using terms such as 'diambus', but in a so to speak arhythmical sense implying only a certain arrangement of longs and shorts and not a true 'measure'. We have seen that Arnold and Edgerton worked in this way. Others again, like Jacobi and Helmer Smith, do not seem to work consistently, so that it is difficult to tell whether they always mean a true 'measure' when they write 'foot' or whether the term is used arhythmically.

The tendency has been to revert gradually to the Indian system as a starting point for scientific^{research}, as has happened in other fields of study, and thus to get free from traditional European preconceptions. In this way a new science of

(1)...Discussed by Dr. Dave in an article on "Gujerāṭī Prosody" circulated in typescript.

(2)...See the Introduction, pp.24-9, on methods of scanning the triṣṭubh.

linguistics and related subjects is growing up on the basis of the highest achievements of both Indian and European science, but freed from the narrowness of both which had resulted from the absence of non-subjective criticism.

The modern attitude to the study of Indian metre has been best formulated by Belloni-Filippi in 1912 (SIFI-I vol. VIII part I, pp.5-6). Having rejected the *thésis-ársis* theory of Kühnau, he provisionally accepts Oldenberg's results for Vedic rhythm (pp.18-20, on the rhythmic structure of the *tristubh*), and looks to a future deeper understanding of Indian music for more light on the question of rhythm. Moreover he proposes a plan of experimental research and collection of material, accompanied by the study of the Indian metrologists, at the completion of which theoretical generalization about Indian metrics will become possible. Since 1912 Helmer Smith, probably, has done more than anyone else to carry out this plan. As for the music, the work of Dr. Bake, which it is to be hoped will soon be available in printed form, has cleared the way for the full utilization of the ancient musical tradition of India in theoretical research of this kind.

In Apabhraṃśa and Hindī both stress and ictus play an essential part in the metrics. The latter was recognised in the theory as the 'sam', the concept being introduced from the musical theory (in which it is called 'graha'); the former does

not seem to have been recognised by the Indian theorists, its effect no doubt entering into the feeling for good versification known as 'gati'. The musical theories were evidently introduced in connection with the 'tāla vṛttas', metres built up according to musical form from pādas of the 'mātrā vṛttas' which were the direct descendants of the old gaṇacchandās. Clearly, however, the ictus was already present in the mātrā vṛttas: Sinha says in his Thesis on the Historical Development of Medieval Hindī Prosody (London, 1953, p.102): "For example [of the earlier metres, used for "exclusively literary purposes", which preceded the more popular and more musical tāla vṛttas] , when one reads or sings a pajjhaṭikā, a metre frequently employed in Apabhraṃśa-Prakrit poetry, one unconsciously keeps time by stressing the first of every four tālā mātrās". The pajjhaṭikā as Sinha points out (pp.177-8), is directly descended from the mātrāsamaka of the ancient theory, which was a form of gaṇacchandās⁽¹⁾ or mātrāchandās unfortunately very rare in the extant ancient literature but very closely related to metres commonly used in Pali and elsewhere (see below in the Chapter on gaṇacchandās). In fact the pajjhaṭikā and the Pali gīti are remarkably similar in structure, both being formed of alternate ganas of $\underline{u} \underline{su}$ and $u \underline{su} u$. The question is: how far back in

(1)...We have already noted Cappeller's application of the ictus theory to gaṇacchandās, and suggested that it was no accident that this metre should have been the first to be analysed in this way.

Indian literature does the ictus or sam play a part in metres of this type? Was it present already in Pali?

I believe that although the ictus must have been present in the musical accompaniment to which the old gaṇacchandās metres were composed, it only gradually came to play a part in the arrangement of the words. The new stress accent was in Pali apparently not sufficiently felt by the poets to impose a conscious, or even an unconscious, putting together of stress and ictus. We do not find in analysing Pali verses the regular coincidence of stress accent and presumed ictus which we see, for instance, in the strophe quoted by Sinha (l.c. p.178) from the 'Mohamudgara' attributed to Śaṅkara:

nālinī-dāla-gata-jālavat-tāralam
tadvaj jīvanam ātisaya-cāpalam
īti saṃsāre sphuṭatara-dōṣaḥ
kātham iha mānava tava santōṣaḥ

(metre: pādākulaka)

In Pali it appears that any word can occupy any position in the pāda provided only that the succession of long and short syllables fits the metre. We have then to work on the assumption that the accent and ictus even in gaṇacchandās

did not yet play the part they played later in Hindī and probably already in Apabhraṃśa.⁽¹⁾ Future research may perhaps determine how far any tendency for accent and ictus to coincide had gone in the latest Canonical texts, and when in the history of gaṇacchandās this coincidence became essential. In the non-mattā metres we cannot expect to find an ictus in Pali. It may be noted that as the musical metres evolved towards the Medieval Hindī system the other metres, except for those which were assimilated to the musical structure, such as the varṇa vṛttas of Hindī (Sinha, 44 ff.), fell into disuse except in Classical Sanskrit (and indeed in the Medieval Pali literature, where they led a still more artificial existence).

(1)...The earliest gaṇacchandās rhythms, / 00 - / 0 - 0 /, do not lend themselves to a coincidence of stress and ictus. The stress falls on a long syllable much more often than on a short, so that the stress in such poems as the Upālisutta or the Mettasutta falls much more often in the middle or at the end of a gaṇa than at the beginning: / 00 + / 0 + 0 /. The early gaṇa rhythms are still based on the old type of metrical rhythm in that the alternation of quantities alone produces variation of rhythm, and we have not yet reached the stage where / 00 - /, / 0000 / and / + 00 / are rhythmically equivalent. These points will be developed in Chapter VI.

CHAPTER IV
FLUIDITY AND LICENCE

In pādas of more than eight syllables the earliest metres in Vedic, Avestan and Greek (and also the Latin saturnian) usually have a break consisting of an obligatory end of word at a defined place. This 'caesura', Meillet has suggested (IECLI-E p.137), differs essentially from that of, for instance, the French classical alexandrine, which includes a certain suspension of sense.

The end of a word in the early Indo-European languages seems to have been marked by special pronunciation, giving the word its phonic individuality in the sentence. Thus a consonant in absolute final position was, according to the Indian grammarians, only imploded ('pīḍita'), which doubtless facilitated the loss of final consonants in Middle Indian.

The syllable preceding the 'caesura' would not have a fixed metrical quantity. Like the final note of a musical phrase, it could be prolonged ('pluta') or followed by a pause ('cheda') without any effect on the rhythm. We find in Vedic that the final syllables of words, which often occupy the position preceding a caesura or at the end of a pāda, are frequently indeterminate in quantity.

The crystallization of the rhythmical form of words in Vedic and other Indo-European languages appears to have been influenced by the cultivation of verse form for the earliest literature, as was pointed out by Zubaty' (VOJ II, 1888, p.133). A polysyllabic word tended to take a form having the maximum alternation of long and short syllables, so that it could be fitted easily into anuṣṭubh and triṣṭubh verses. In making this sort of description of the situation, however, we must avoid the falsification of separating 'the language' or the 'word material' from 'the rhythm', as though the words were fitted to the rhythm. The rhythm we are speaking of has no existence apart from the words, and it is also true to say that the rhythms found in the verses are derived from the nature of the word material, and we have already referred to a transformation of the metres apparently arising from changes in the language.⁽¹⁾ There is some deeper rhythm in a language, which expresses itself, which expresses perhaps the general meaningfulness, the life and purposefulness, of the language, in certain metrical rhythms. The forms of sentences and words express chips of meaning, of which the possibility of being related to other expressions of meaning, and thus 'understood', is proclaimed by their consonance with this deeper rhythm. It is to this rhythmic pulse in the living

(1)...See Introduction p.29.

Vedic language that both the creation of the anuṣṭubh-triṣṭubh technique and the crystallization of particular words should be referred. Nevertheless, once the metrical rhythms are well established they seem to exert a direct influence on word forms through the deliberate selection of suitable forms by the poets. If the "Law of de Saussure-Wackernagel" that tetrasyllabic words tend to take the form $\bar{u}-\bar{u}-\bar{u}$ rather than $\bar{u}\bar{u}\bar{u}$ illustrates the deeper rhythm working in the Vedic language and in Early Middle Indian, some of the phenomena noted by Kurylowicz, such as the alternation of 'jūjuvuh' and 'juhve' according to metrical convenience (RO 1949, p.20), illustrate the direct influence of metrical rhythms on the choice of words and forms.

In Pali we find a number of indeterminate endings, such as the feminines in \bar{i} and \bar{u} or the perfect $\bar{vid}\bar{u}$, some of them involving the penultimate vowel, such as $-\bar{i}su$, $-\bar{u}su$, $-\bar{i}hi$, etc. The fluidity in Pali, which is not found in Classical Sanskrit, is of a similar nature to that in Vedic, and shows the historical continuation of the old rhythmic situation to which we have just referred. The rich variety of forms from such a root as 'dā', or in the aorist, exemplifies the selection or preservation of forms by the metre. Sometimes there is a confusion of actual archaic forms with metrical licence, which led later, in Buddhist Hybrid Sanskrit, to a great extension of licence. As

we shall see below, licence is not fortuitous in origin, but is based on what may be called 'morphological weaknesses'. The influence of the metre on the word material is based on the weak points left by the 'deeper rhythm' during the growth of the language.

In this chapter we have to define the limits within which fluidity and licence occur in ancient Pali verse. This is of particular importance for the study of mattā- and gaṇacchandas, where alteration of the quantity of a syllable affects not merely that syllable but frequently also the scansion of a whole pāda.

The situation in Pali is complicated by the fact that we find not simply the continuation of the old language-rhythm but the beginning of the transition to a new one: that of Apabhraṃśa. The "Law of de Saussure-Wackernagel" is in process of being reversed: instead of $\underline{u} \underline{u} \underline{u} \underline{u} > \underline{u} - \underline{u} \underline{u}$ we find the tendency $\underline{u} - \underline{u} \underline{u} > \underline{u} \underline{u} \underline{u} \underline{u}$ in some forms, notably in the future 'karissati' > 'karihiti' discussed by Smith (JA 1952 p.177). He describes such a quantitative reduction as difficult to admit in an epoch which still obeyed the Saussurian law, but surely his own distinction of a new 'rhuthmizómenon', P", appearing already in Pali, must imply the beginning of this reduction, so appropriate for the new metres, and the

rise of new rhythmic laws. It is this conflict between the two rhythms, the breakdown of the heavy Old Indian language-rhythm and the first vigorous sallies of the new one, or in metrics the superseding of —/◡ by —/◡◡ as the basis of rhythmic variations, which constitutes the special feature of Pali taken as the central topic in our study.

"Na hi Bhagavā chandañ ca vuttiñ ca rakkhati nā pi sukhuccāraṇatthaṃ akkharalopādikaṃ karoti, yo hi sāsāṅko sabhayo, so aññesaṃ paṇḍitānaṃ saṅkāya uppajjanakanindābhayena chandañ ca vuttiñ ca rakkhati sukhuccāraṇatthañ ca akkharalopādikaṃ karoti, Bhagavā pana nīrāsāṅko nibbhayo, Bhagavato pāvacaṇe khalitaṃ natthi, so kathaṃ parappavādaṃ paṭicca chandañ ca vuttiñ ca rakkhissati sukhuccāraṇatthañ ca akkharalopādikaṃ karissati, vuttaṃ h'etaṃ Abhidhammaṭṭikāyaṃ: 'Bhagavā pana vacanānaṃ lahugarubhāvaṃ na gaṇeti, bodhaneyyānaṃ pana ajjhāsayānulomato dhammasabhāvaṃ avilomanto va tathā tathā desanaṃ niyāmetīti na katthaci akkharānaṃ bahutā vā appatā vā codetabbā' ti". (Aggavaṃsa, Sd.p.640).

"The Bhagavā does not observe number and quantity nor make elisions, etc., of letters for the sake of euphony; he who is anxious and fearful, he, when amongst other learned men, observes number and quantity and makes elisions, etc., of letters,

for the sake of euphony, from anxiety and from fear of irrelevant (?) blame. The Bhagavā, however, being free from anxiety and fearless because there is nothing unsound in his teaching, why should he observe number and quantity and make elisions, etc., for the sake of euphony merely on account of quibbling? As it is said in a sub-commentary on the Abhidhamma: 'The Bhagavā does not consider short and long quantity in words; he controls his speech so that it should not disagree with the reality of dhamma whilst conforming to the mental dispositions of those who are capable of being enlightened. The abundance or paucity of letters is nowhere to be questioned.' "

Evidently the irregularities of the Canon had worried the Medieval Pali grammarians, who were not able to explain all of them by means of their linguistic science and metrical theory and therefore sought to evade the difficulty by invoking the Buddha's "fearlessness" in the abuse of the language. This attitude may partly explain the carelessness of the scribes in handing down the manuscripts on which we depend, such as the inclusion of obvious glosses in verses in defiance of the metre.

On p.843 of the Saddanīti Aggavaṃsa again refers to this difficulty, with the same quotation from a lost sub-commentary, and refutes an objection as follows:

"Yadi evaṃ, kasmā tattha tattha pubbācariyehi 'gāthāsu chandamabhedattham akkharalopan' ti ca 'vuttianurakkhaṇatthāya viparītatā pī' ti ca 'chandānurakkhaṇatthāya sukhuccāraṇatthāya cā' ti ca vuttan ti. Saccam, yattha chando ca vutti ca rakkhitabbā hoti, [kim] tattha Bhagavā chandañ ca vuttiñ ca rakkhati, yattha pana tadubhayaṃ rakkhitabbaṃ na hoti, na tattha Bhagavā chandañ ca vuttiñ ca rakkhati; taṃ sandhāya vuttaṃ; 'Bhagavā pana vacanānaṃ lahugarubhāvaṃ na gaṇetī' ti ādi. Chandañ ca vuttiñ ca rakkhanto pi hi Bhagavā na kabbakārakādayo viya savyāpāratāvasena rakkhati, atha kho aparimitakāle anekesu jātisatasahassesu bodhisattakāle akkharasamayesu kataparicayavasena padāni nipphannān'eva hutvā sassirīkamukhapadumato niggacchanti, tesu kānici chandovuttīnaṃ rakkhaṇasadisenākārena pavattanti, kānici tathā na pavattanti; yāni rakkhaṇasadisenākārena pavattanti, tāni sandhāya Bhagavā 'chandañ ca vuttiñ ca rakkhatī' ti vattabbo, yāni tathā na pavattanti, tāni sandhāya Bhagavā 'chandañ ca vuttiñ ca na rakkhatī' ti pi vattabbo, na hi Bhagavā paresaṃ codanāhetu sāsāṅko sappatibhayo, sāsāṅko yeva hi sappatibhayo chandañ ca vuttiñ ca rakkhatī ti daṭṭhabbaṃ".

"If so, why did the old teachers say in various places: 'elision of letter to avoid spoiling the metre in verse', 'change to observe the quantity', and 'to observe the number and for euphony'? - Certainly where number and quantity ought to be observed the Bhagavā observes them, but where those two

ought not to be observed the Bhagavā does not observe number and quantity. In this connection it is said: 'The Bhagavā does not consider short and long quantity in words...' etc. The Bhagavā does not observe them professionally like writers of kabbas (kāvyas) and so on observing number and quantity. However, during the limitless time as bodhisatta in many hundreds of thousands of existences, through acquaintance with spelling systems and becoming trained in words he came to have a glorious lotus-mouth. In some of these existences observation of number and quantity occurred and in some it did not: when it did occur it should be said that the Bhagavā 'observes number and quantity' and when it did not it should be said that the Bhagavā 'does not observe number and quantity', but the Bhagavā is not to be regarded as anxious and fearful on account of the criticism of others or as anxious and fearful in observing number and quantity."

I have not noticed that in those Jātakas where the Bodhisatta is presumably to be supposed to observe number and quantity the verses attributed to him are any freer from metrical difficulties than other Canonical verses. It might at first sight seem reasonable to suggest that the Bhagavā as Buddha, and the early Buddhists in general, were not concerned with perfection in the art of poetry but were content to use language in a less polished manner so long as they succeeded in

making their teaching clear; yet in fact the early Buddhists utilised the current arts of metrics and poetics to the full in their propaganda work, just as Asvaghōṣa did after them.. It is enough to refer to the elaborate techniques of the Suttanipāṭa to justify this view.

Still less can we accept the suggestion that the Buddha (or any of his followers) was above the rules and conventions of the language of the society in which he lived and used language in an arbitrary manner. We should continue Aggavaṃsa's own excellent research into Pali usage, "nīṭī sāsanaṣṣopakārāya yathābalaṃ amhehi ṭhapitā" (Sd.p.640),⁽¹⁾ in the hope of further reducing the area of uncertainty in the interpretation of the texts.

In his chapter on sandhi, which we referred to in Chapter II, Aggavaṃsa calls 'vuttasandhi' the alteration of sounds under the influence of metre or for the sake of smoothness or sonority. 'Chando' is defined as the determination of the number of syllables and 'vutti' as the determination of the quantity of syllables. Letters may be elided to observe the 'chando' or changed to observe the 'vutti'. In prose elision and change are made "for euphony". This in practice refers to certain ancient usages, and particularly to certain dialectal variants such as fragments of Māgadhi. Exceptional forms not otherwise understood by Aggavaṃsa are generally explained away as "for euphony". It will be useful to compare Aggavaṃsa's research in

(1)... "rules established by us, according to our ability, for the benefit of the teaching."

'vuttasandhi' (Sd.pp.632-40) with the observations of modern scholars, and to compare this Pali usage with that of other languages closely related to it.

The quantitative variations in Vedic have been the subject of extensive research, notably by Benfey,⁽¹⁾ Zubatý,⁽²⁾ Arnold,⁽³⁾ Meillet⁽⁴⁾ and Kurylowicz.⁽⁵⁾ General agreement does not seem to have been reached as to the exact nature of these phenomena, mainly on account of the uncertainty about the traditions of the Samhitā and Pada texts as we now have them. Whether the alternatives represent an indeterminate or fluid stage of the language or artificial poetic licence, or, as seems probable, a combination of the two, must be left to Vedic scholars to determine. Arnold's objections (VM xi-xii) to the second view surely exaggerate the opposition between the two phenomena. We should expect to find rather a limited use of licence sanctioned by at least the memory of indeterminate quantity in certain syllables. These changes in Vedic are clearly akin to those in Early Middle Indian and we shall examine some parallels, the Vedic examples being taken mainly from Zubatý.

For Epic and Classical Sanskrit parallels I have relied

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- (1)...Gött. 1874-80
(2)...WZKM 1888-90, publication not completed.
(3)...VM, especially Chapter VI.
(4)...MSL 1920, pp.194-5, etc. IECLI-E p.139.
(5)...RO 1949, 8f., etc.

on Zubaty' (ZDMG, 1889, 619 ff.) and Ballini (SIFI-I VIII, 1912, part 2, pp.7-8, 34,60).

Edgerton has made a very thorough study of the Buddhist Hybrid Sanskrit usage, as a result of which we are now well informed on the immediate post-Pali stage. The main outlines are given in an article in JAOS 1946, which has been subjected to careful criticism by Smith in KHVLA 1949-50, I, 1 ff, to which Edgerton has replied in his Buddhist Hybrid Sanskrit Grammar (Yale 1953, pp.5-6) where he adds many more examples. Further examples may be found in Smith's article, in Régamey, TCSR, 15ff., and in Lin, A-MVL, 1949, Chapter IV.

For Ardhamāgadhī we have only Jacobi ZDMG 1884, p.596 (cf. ZVSIS, 1883, p.320) and Banarsi Das Jain, "AM Reader", p.x, and for the Prakrit Inscriptions of the period 3rd century B.C.-2nd century A.D. Mehendale's remarks, HGIP xxii, etc. For Classical Prakrit there are a few notes in Pischel's Grammar, to which we might add those in Prthvīdhara's commentary on the Mṛcchakaṭika.

Let us examine first the types of variation which result from the fluidity of Pali in its grammar and lexicon, and afterwards consider, and endeavour to classify, the types of 'pure' licence which are not directly justified by such fluidity. There are of course many border line or transitional cases, through which we can see how ~~xxx~~ from a pair of variants,

that is originally from an ambiguous form, arose a normal form and a rare by-form kept alive by poetic licence.

Phonological Variants

In Chapter I we have discussed metrical variants arising from epenthesis and contraction. Aggavamsa lists some examples of this kind of 'vuttasandhi', such as:

sāmī / suvāmī

macco/mātiyo

padmāni / padumāni (same in BHS-Edgerton para 3.114)

āceraṃ / ācariyaṃ (! - these are metrically equivalent in the Canon: — — —, but in Medieval Pali they are used as metrical variants: — u —, e.g. by Aggavamsa himself, Sd. p.928).

We have also the futures noted by Smith, JA, 1952, p.169:

hessati / bhavissati (Bv 2.66)

jessati / jayissati (Vv 312)

(in both cases the two variants occur within a single strophe).

Alternative Sandhis

These have been discussed in Chapter II. Sandhi

is more frequent in verse, under stress of metre, than in prose. Often it has to be made in verse where the mss. leave the words uncombined.

Morphological Variants

These are the indeterminate endings apparently derived from the Vedic period of the language which we mentioned at the beginning of this chapter. Geiger gives a number of examples in his Pali Grammar:

- īnaṃ^u
- ūnaṃ^u (1)
- īhi^u
- ūhi^u
- īsu^u
- ūsu^u
- īto^u (abl.sing.)

- the last of these sometimes takes the long form in verse but the short in the commentary on it. The others are usually short in verse but long in prose. In Geiger paras 86-7 we see the confusion

(1)...In feminines with the suffix -nī from stems in -i and -u there is the same uncertainty. In some of the mss. of Th II, for instance, we find 'bhikkhūnī' in several places instead of the usual 'bhikkhunī'.

Syntactic Variants

Under this heading we may note the metrical expedient called by Smith the "split-compound", e.g.: 'amatatala-' > 'amataṃ tala-' (see CPD Epil. p.32). Further studies along the lines of Hendriksen's "Syntax of the Infinite Verb-Forms of Pali" would enable us to describe other variations in sentence > pāda construction.

Lexicographical Variants

A long list of these is given by Aggavaṃsa (Sd-pp. 921-2). Some of them do not seem to have been found in the Canon and may be merely Medieval usage. It is probable, however, that a good many such variants have been ignored or 'corrected' by modern editors, and excluded from the PED. Some of Aggavaṃsa's examples belong to our category of phonological variants (epenthesis/contraction), but others may conveniently be listed here. Of metrical importance are:

āgāraṃ

nimeso/nimiso

īriṇaṃ

elamūgo/elamukho

-many cases with or

without suffixes such as -ka, -na, and of variations of gender, are noted. An interesting case is:

upayānam/upāyanam, "approach"

- the first is from upa √yā, the second from upa √i. The second has normally the special sense "offering", "present".

A few examples may be culled from ^{the} PED, such as:

mahīsa/mahiṃsa

vireva/virāva

viliva/vilīva

vulha/vūlha

vyadhāti/vedhāti

Variations of Usage (rūlhibheda).

To complete this survey we might add Aggavaṃsa's category 'rūlhibheda', 'variation of usage' (Sd.pp.923 and 261-3), which overlaps the preceding three categories and includes the coining of new words and the use of alternative cases or numbers in declension to express the same relationship. The study of this vast field belongs to the future, although a start has been made by Hendriksen: "Syntax of the Infinite Verb-Forms of Pali" (Copenhagen, 1944), and by Smith,

in his examination of style and rhythm in Sanskrit sūtras, and in Pali treatises belonging to the same tradition, at the end (pp.31-7) of the remarkable article: "Retractiones Rhythmicæ" (SOESOP 1951).

Poetic Licence

Positio debilis, which is a form of licence in some of the other languages,⁽¹⁾ has been disposed of in Chapter I, section vi, since in Pali it is a regular phonological phenomenon in certain words.

Helmer Smith has observed (DP p.36, with reference to pp.6-8) that Pali orthography is very little sensible of metrical exigencies⁽²⁾ (licence is indicated by the orthography in a much smaller percentage of its occurrences than in Buddhist Hybrid Sanskrit). We have to assume licence in some cases of apparent irregularity, without the support of any manuscript. The cases quoted below where the quantity required

(1)...Epic Sanskrit (see Zubaty' ZDMG 1889, Jacobi R, Hopkins GEI, Ballini SIFI-I VIII, 1912, part 2 pp.7, 34 and 60); Classical Sanskrit (Bollensen ZDMG XIV, 291, Ballini l.c.7-8; Dāmodara, V, 1.6); Hindī (Sinha HDMHP p.10).

(2)...The emendations of some of the Burmese scribes (for instance in mss. of Sn: adopted and extended by Fausbøll, and to a lesser extent by Andersen and Smith) are not likely to have been based on any ancient tradition. Their lack of authenticity is clearly shown by such cases as the omission of 'ca' (Sn. second edition p.47, nn.1 and 5) to compensate the number of syllables after the medieval misreading of -cariyā as three syllables.

by the metre is not absolutely certain but only highly probable, have been indicated by a question mark.

Licence is rare in Pali, compared with the usage in Buddhist Hybrid Sanskrit, and where it occurs it is limited to certain 'weak points' (even Buddhist Hybrid Sanskrit resisted licence in internal or root syllables: DP pp.32-3). It is likely that in the earliest verses we possess there was least licence and on the other hand the greatest freedom in the structure of the metres: thus a short syllable might have been permitted before the caesura at the fifth of the tuṭṭhubha in early times, (1) but later we can be sure that the long was established, preparing the resolution allowed in Buddhist Hybrid Sanskrit.(2)

In the sections which follow about one hundred cases of metrical licence in Pali are classified. They are taken from Aggavaṃsa (A), Geiger (G), the PED and CPD, Simon (RS), (3) Mayrhofer (M), Smith (HS), Fausbøll (F) and Dhammapāla, supplemented by my own collections (not marked).

Final Syllable

The plasticity of final syllables was a legacy from Old Indian metrics. Zubatý in a series of articles (WZKM

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- (1)...But not before that at the fourth, unless early Pali was freer than Vedic.
(2)...See Ch.VIII on the evolution tuṭṭhubha > upajāti.
(3)...ZDMG 1890.

1888-90) quotes many Vedic examples showing the variation of quantity in such cases as:

conjugation: -tī̄ (rākṣatī̄, etc.)
-thā̄ (jīváyathā̄, etc.)
-hī̄
-ā̄ (perfect: āhā̄ 3s., vidā̄ 2p.)
-svā̄

declension: -enā̄
-asyā̄
-ā̄ (vocative)
-an stems > ā̄
sá > sā̄

adverbs and particles (here Zubatý finds a correlation with the position of the accent; the long ending is generalized when oxytone as in 'purutrā̄'):

-trā̄ (átrā̄, táttrā̄, etc.)
-thā̄
-dhā̄ (ádthā̄)
ca > cā̄ (twice only in RV)
ná > nā̄ (once only in RV)
caná > canā̄ (once only in RV)
ácchā̄
smā̄
adyā̄

kīlā[̣]

yādī[̣]

tū[̣]

sū[̣]

These variants were not generated 'metri causa', and according to Zubaty' (WZKM 1888 p.139) the long final appeared originally before a single consonant or in absolute final position and the short final before a double consonant or at the close of a grammatical or metrical unit: "am Schlusse eines grammatischen (...metrischen) Ganzen". The anticipation of the 'Law of morae' is interesting.

In Pali we find the following alterations of the normal quantity in order to satisfy the metre:

<u>lengthened final:</u>	nadatī	(Th I 832)	(G)
	bhāvayatī	(Dh 350))
	ravatī	(J I 77)	) (RS)
	saratī	(J II 127))
	passatī	(Dh 119))
	hajjhatī	(Sn 508)	
	ramatī	(Sn 985)	
	yajatī?	(Sn 509)	(F)
	passathā?	(Sn 177)	
	vadā?	(Sn 383)	
	pāmodī?	(Sn 476)	
	sambhontī	(Th II 329)	(RS)
	patthayasī	(M) (Sn 18 ff and Th I 51 ff in opacchandāsaka cadence)	

munī? (Sn 838)

tayī? (Sn 382) (F)

cā (1) (Sn 41, 677, 827, 4817)

nā (Pv 28) (Dhammapāla)

sū (Sn 181, 885, 970)

- the same result is in one case indicated by writing a doubled consonant after the final vowel:

sarati bbayo (J III 95) (G)

(= vayo)

- one case of nasalization has been found:

idham (Sn 151) (HS) (sandhi consonant?)

shortened final: akaramhasa (for -se) (J III 26))
okkantāmasi (for -se) (J VI 555)) (A)

siñcitva (Sn 771)) (chetva
) (HS) Sn 29 in
chetva? (Sn 66)) opacchand-
asaka
cadence)

puggala (Vv 617c) (Dhammapāla) (2)

nimmakkhō? (Sn 56)

okamokata (for -to) (Dh 34) (G)

(1)...On this see HS: DP p.7 '3.4'.

(2)...Followed by A. Hardy, however, in the PTS edition with the Commentary, 1901, prints as compound with the following word. A says (Sd pp.15 and 634) that the inflections, especially -o, may be left off nouns ('avibhattikaniddeso'), giving this illustration and "thera vādānam" (Dīp.), but remarking that others read "theravādānam"!

sīlavatātō (Sn 899)

kāmē? (Sn 464)

va ("or") (Sn 222) (G)

- the same result if also obtained by
denasalization:

pāpuni (Th II 91) (G)

phassetūṃ? (Sn 393) (F)

addhāna (Dh 207) (G)

jātīṃ? (Sn 462)

pañcannāṃ? (Sn 964)

paṭhamasmīṃ (Sn 233)

ayāṃ (Sn 594)

- "in sandhi": samatimaññi'haṃ (Th II 72) (G)

- several other examples of denasalization of final are given by A (Sd 630), who evidently regards it as a possible result of ordinary sandhi, not as 'vuttasandhi' or metrical licence. We noted in Chapter II, however, that the cases he quotes are mostly under stress of metre. In Chapter III we have discussed the possibility that such cases indicate not denasalization but the existence of short nasal vowels in Pali, the prototypes of those in Apabhraṃśa.

The final syllable was occasionally elided altogether under stress of metre:

chamā (for chamāya, loc.s?)	(1)	(J VI 89))) (A)
somana-(for somanassa-)	(Sn 67))	
acchodi (for acchodaka)	(D II 135)))) (HS in CPD)
aḍḍhake (for -esu)	(Ap 75,77,439))	
anussāvane (for -ena)	(V V 203))	
avijjā (for -āya)	(Sn 1033))	

In Buddhist Hybrid Sanskrit, as Edgerton has shown, alteration of the ends of words under stress of metre is very common. The licence already practised in Pali was greatly extended. The verb ending -ti is frequently lengthened to -tī and also -te and all other verb endings may similarly be lengthened or shortened. Any word, including indeclinables, ending in -a may be lengthened to -ā (cā', etc.) but much more often to -o ('tena' > 'teno', 'pañca' > 'pañco', etc.). The final vowels 'i' and 'e', 'a' and 'o', are generally interchangeable, and not only denasalization, but nasalization of the final, which is practically unknown in Pali, is common.

In Ardhamāgadhī, according to Jacobi, we find denasalization of finals m.c. throughout the declension (ZDMG

(1)...According to the PED, however, this is the instrumental used adverbially, cf. Vedic: lkṣamā.

1884 p. 596). According to Banarsi Das Jain AMR p.x the anusvāra is quite generally variable for metrical convenience. Jacobi further states that 'e' and 'o' may be long or short; in the manuscripts 'i', 'u', 'a', are often written for them.

Seam

The 'seam', whether between stem and suffix (in cases where the suffix was still felt to be something added to the stem), between words in a compound, or between prefix and root, was another weak point where the quantity of the syllable could be altered without offence to the ear. In Vedic Kurylowicz has noted a certain fluidity in the length of antesuffixal vowels, sometimes utilized for metrical purposes (RO 1949), whilst Zubatý in the articles already quoted has shown that the indeclinables ádhī, abhī, pári, atī, prati, ví, ánū, which normally end in a short vowel, may sometimes, but especially in compounds (in the case of the last four, only in compounds), end in a long vowel. Between two prefixes Meillet has noted 'anānukṛtyá-' m.c.,⁽¹⁾ and he has also noted nasalization in the seam, m.c., in 'dadhanti' and 'dadhantu'.

In Pali we find:

lengthened seam: satīmant- (SI 81, Dh 91, 181,
Sn 45, Th II 35) (A, G, PED)

(1)...But cf. anu- > ānu- in the next section.

jutimant-)
) (RS)
dhitimant)

matimant- (HS)
therike (Th II 1) (G) (1)
mutiyā (Sn 846)

sarabhāmiga (J VI 537)
kimādhikaraṇaṃ (J IV 4)

(but cf. -ā- in cp.: many similar cases are not
metrical lengthening, and these too are doubtful. See G para 33)

anūdake (J VI 499) (G)
anūpama (Ap 319 Bv VI 1)
anūpaya (Sn 786, 897)
anītiha (Sn 934, 1053, 1066, Th I
 331, etc.)
anānugiddha (Sn 86, 778)
anānupassi? (U 74)
anānupuṭṭha? (Sn 782)
anānuyāyi (Sn 1071-3)
anānuruddha (S IV 71)
anānuloma (D II 273)
anānuvajja (VI 359)

(1)...This, however, may be a recent Burmese emendation.

anāpara (Sn 1094) }
anāvāra (I 76) } (CPD)

(these and a number of others like them are clearly facilitated by the "Law of de Saussure - Wackernagel". Some do not occur with the short seam; they had become fixed in the language with the long form suited to the 'old language-rhythm').

In the words 'vitarāsi', (J II 14), 'garahāsi', (J IV 248), (G) we may have lengthened seams, or they may be genuine subjunctives.

-the same by doubling the following consonant:

paribbasāno (for -v-) (Sn 796) (G)
suggatiṃ (J IV 496) }
na ppajjahe (J III 14) } (A)

shortened seam:

paccanīkā (G)
purāṇo? (Sn 312)
gimhisu (for -esu) (Dh 286) (A & G)

-by simplifying the following conjunct:

ākiñcāṇaṃ? (Sn 1070-2)
dakkhisaṃ? (Th II 84) (G)
sikkhisāmase? (Sn 814) (F)

apaccīsaṃ (J VI 16) (A)

nīdoso (Sn 476)

āñāṇā? (Sn 839) (F)

dūkhaṃ (very frequent - by analogy
with 'sukhaṃ') (J VI 552,
Th I 734, etc.) (A & G)

-by denasalization:

jīvāto (J III 539) (G)

dīyānte (Th II 475)

In Buddhist Hybrid Sanskrit we again find this form of licence much extended, e.g. 'śonīta', 'sūrata' (but cf. Smith DP pp 12-3), 'Sūdhana', 'cajjino', 'mīdhaggiri', 'Sarvajjagābhimukharūpa' (Smith DP p 9 quotes this incorrectly), 'śīlamé^utajñāna-', 'bībhatsa'.

Lengthened Initial Syllable (especially Initial Vowel).

Meillet has noted that in Vedic 'anu-' sometimes becomes 'ānu-' before $-u$, e.g.: 'ānusūka-'. In Pali we find a few similar cases of lengthened initial vowel:

ānubodhiṃ (AV 46) (HS)

ūpanissaya (Sn 867, 901?)

ūbhayaṃ (SI 134)

There was a definite tendency to lengthen initial syllables in Pali and in Buddhist Hybrid Sanskrit, not so much for metrical convenience but as part of the phonology of the languages. If in the 'old language-rhythm' there was, besides the Saussurian $\cup - \cup -$ law, a 'law' which we might call after Meillet: $\cup \cup - \cup > - \cup - \cup$ (although clearly it had much less force than the other law), in the 'new language-rhythm' its place was taken by the more effective initial stress discovered by Jacobi (see Chapter III). (1)

In BHS Edgerton notes "presumably m.c." (BHS 3.11) 'ānubhāva', 'ātireka', 'pāripūrṇa', 'bhāvāmi', and others: clearly this form of licence too was much extended.

Words which had different rhythms in related dialects.

If the Vedic, Ardhamāgadhī or Apabhraṃśa equivalent

(1)...Edgerton, BHS 3.9, questions this accent-theory, which he finds in Geiger para 24, without stating his reasons (he questions the whole theory, including the penultimate accent - see BHS 2.77 n.). It seems to me, however, that sufficient evidence has been adduced to prove it (see the discussion in Ch. III), at any rate for Pali and Ardhamāgadhī. It would be surprising to find that it did not apply in BHS, and I consider that the onus is on Edgerton to disprove it if he can.

had a different rhythm from the normal form of a Pali word we need not be surprised to find that a poet occasionally lapsed into this alternative form under stress of metre.

Alteration to Vedic rhythm:

dutiyena > dutiyena (Sn 49, 450, 884)

tatiyaṃ > tatiyaṃ (Dh 309) (G)

Alteration to later Prakrit rhythms:

evam > em (J II 40) (A) (cf AM 'em')

-jīviṃ? (Sn 181-2) (this is in any case uncertain,

but cf. Ap. 'jiya', Alsdorf:

"Der Kumārapālapratibodha" p.54;

his glossary suggests that 'jīva' is,

however, still the more usual form in Ap.)

Haplology

accupatati > accupati (J IV 250) (HS in CPD)

Other types of metrical licence are very rare in Pali. (1) The root vowel appears to be shortened in these cases (cf. -jīviṃ? above):

mēdassa? (Sn 196) (cf. p. 35 above: √mād!)

ñānena (Sn 839 = 1078) (written long)

ēso?? (Sn 61 twice)

(1)...Even in BHS metrical alterations are much less common "in the interior of a word" - Edgerton JAOS, 1946 p.205.

Finally we have to read 'anusāyitaṃ' for 'anusayitaṃ' in Sn 355 (p.p. of 'anuseti').

The above lists could be considerably extended, but they are sufficient to indicate the types of licence which were accepted in ancient Pali verse. I have tried to limit them to examples which are clear from our knowledge that the vatta and tuṭṭhubha-jagatī cadences were fixed well before the Pali period. In the light of a fuller understanding of the metres it will be possible to detect many other metrical alterations. The present chapter, however, is intended as a preliminary to the study of the metres, independent of that study and serving as part of the basis for it.

We may formulate a general rule for licence in Pali (if not in all languages): that as far as possible the poets sought to disguise licence and to make the altered forms pass as regular ones. In this way, of course, they assisted in the establishment of new forms in the language and in later dialects. Smith (DP p 4) has noted that iha > ihaṃ in BHS is not pure metrical licence, but may be justified morphologically by comparison with 'kahaṃ', 'tahaṃ', etc. The same applies to idha > idham in Pali.

The fluidity of the language, persisting from ancient times, justified the majority of the alterations.

Although in most cases we can say that one alternative was normal in Pali, the other evidently passed without offence to the ear. In some of these cases an archaic form perhaps enhanced the effectiveness of the poetry, in others, where the fluidity was a new development in Middle Indian resulting from the confusion of declensions, etc., the form passed by analogy.

CHAPTER V
MATTĀCHANDAS

1. The mattāchandas were the first new metres to appear in the post-Vedic period. Although some changes took place in the anuṭṭhubha and tuṭṭhubha during their long history preceding the appearance of mattāchandas, there was no decisive break but only a gradual tendency towards more fixed forms of pāda. With mattāchandas, however, even if its origins can be traced in the Vedic techniques of verse making, we find a radical departure, the establishment of a completely new principle of verse building, which led on the one hand to the countless new metres of Classical Sanskrit and on the other to the musical metres of Apabhraṃśa and the modern vernaculars. The establishment of the principle of mattā measurement was decisive for the whole future history of Indian poetry, and this extraordinary event took place during the period we are studying, its first manifestations being found in ancient Pali verse.

In Indian music a twofold division is recognised: 'mārga' and 'deśī'.⁽¹⁾ The former is generally regarded as limited to

(1)...It is convenient to use the Sanskrit terms, although the Pali equivalents exist in both the ancient and the medieval literature and are sometimes of special interest, e.g. 'tāḷa' for tāla.

the Vedic tradition, although there has been a tendency in recent times to define all music which is said to be able to lead the soul to liberation as 'mārga'. As opposed to the sāman chant, all secular music, whether actual folk music or the 'classical' tradition of the professional city and court musicians (which was based on the folk music) appears in the medieval period, and perhaps earlier, to have been called 'deśī'. This interesting term indicates the folk music origin of all the secular, non-Vedic, music. Thus Mātāṅga, writing perhaps in the sixth century A.D., called his treatise on music the "Bṛhaddeśī." Modern writers such as Dāmodara have unfortunately obscured the matter by calling all classical music 'mārga' and using 'deśī' as a derogatory term for popular music.

The classical secular music was distinguished from the liturgical music of the Veda not only by its new scales and modes probably derived from folk music but also by its rhythms, or tālas. The Vedic chant had no tāla, since it followed the verse and derived its rhythm from the metre. As we have just said, the new metres, which we are going to study in this chapter and the next, are fundamentally different in structure from Vedic verse, and they differ precisely in that they are related to tāla. It is probably no accident that the earliest extant poems in the new metres are in a vernacular dialect and not in the learned language of the Vedic schools. The

vetāliya - perhaps the most important of the new metres - was also known as the 'māgadhikā', which probably indicates its origin amongst the poets and singers of Magadha. (1) The metre thus appears in Pali, at one stage removed from its native dialect, along with the literature and philosophy of Buddhism radiating westwards from the same country. The Ardhamāgadhī literature which is extant does not appear to be as ancient as the earliest Pali literature in which the new metres are represented (see Section 7 below on the vetāliya in the Sūyagaḍaṃ), but a pun in the Veyāliyajjhayaṇa (Sūy. 1.2.1, last verse) shows how close this dialect was to the original Māgadhī of the new metrical techniques:

veyāliyamaggamāgao = he who has entered the

road (leading to destruction (of karma).
road (described in veyāliya (vetāliya) metre.

- veyāliya means either the metre or "vaidālika", "destruction." This old Jaina literature seems to be directly descended from the original Māgadhī literature of perhaps the sixth or fifth century B.C., in which the new techniques were developed, a point we shall come upon again in discussing gaṇacchandas (the 'hypermetre' of the Varṇakas). Very probably the Ājīvikas were the first sect to use these

(1)...See the references given by Velankar, J p.28. (This book is useful, especially for the texts and references, but the introductory matter is highly erratic).

techniques in the verses used in their ritual song and dance, which appear to have played such an important part in their cult, (1) and the other sects such as the Buddhists and Jainas merely emulated and tried to outshine their rivals. The name *vetāliya* suggests some connection with music, although its exact significance has been forgotten. | 'Vetāla' at D I 6 is "some magic art, probably connected with music ("ghana-tāḷaṃ" = cymbal beating) such as raising the dead by mantras" (P.D. based on the Commentary). At *Sūyagaḍaṃ* 2.2.15 (p.87, Vaidya's edn.) 'veyāli' is probably the same magic art (Jacobi suggests punishment by spells, following the Commentary). 'Vetālika' in Pali means some office at court connected with music, etc. - a "bard"; hence *vetāliya* would be a metre to be used in such singing or chanting. The name 'gīti' of the earliest *gaṇa-cchandas* suggests a completely musical metre.

If we look at the first few syllables of a *mettācchandas* *pāda* (*opacchandasaka* or *vetāliya*) and compare them with those of several other *pādas* in the same metre, we see at once that besides the difference between the prior and posterior members of each *pādayuga* a number of variant structures are current, such as — —^{oo}, ^{oo} —^{oo}, — — —, —^o —^o, —^{oo} — and so on (prior *pāda*). These are followed by a cadence which appears to be

(1)...See Basham HDA 116-7, etc.

fixed: — — — — — (opacchandasaka) or — — — — — (vetāliya).
The first part of the pāda may contain any number from three to six syllables, but it seems to be constant (possible exceptions will be discussed below) in containing six mattā, or eight mattā in the case of the posterior pāda. Such a variation is quite incompatible with Vedic recitation, which depends on the number of syllables, but is entirely compatible with tāla, since the length of the whole group of syllables remains constant. This is the new principle, referred to in the Introduction, of the exact equivalence of two short syllables to one long one. (1) Whereas in the old metrics — — — — — may be equivalent to — — — — — and even — — — — — to — — — — —, in the new metrics we find — — — — — ≡ — — — — — ≡ — — — — — etc.

The new metres are further distinguished by being aḍḍhasamavutta (ardhasamavṛtta), having the two components of the padayuga of different structures. This feature greatly complicates their study, in that we do not find a simple

(1)... It is worth noting in this connection that the tendency to exact oppositions of long and short syllables seems to develop especially when a number of people recite or sing in unison. Dr. Allen has obtained a remarkable recording of Vedic chanting in unison in which this exact opposition of quantities is maintained, giving a striking quasi-tāla effect. It appears to have been most unusual in the Vedic tradition for the brahmans to sing in this way, only solo recitation being required in the performance of the ritual. In the non-Vedic traditions such as Buddhism, Ajivikism and Jainism, on the other hand, recitation of the Canonical texts by large gatherings ("saṅgīti"), in unison, is an essential feature of the life of the communities. This practice may well have been a contributory cause, or 'catalyst,' in the development of the new metres in the period of the rise of these communities.

repeating musical rhythm as in, for instance, the Apabhraṃśa pajjhatikā, which is what we might have expected on the first introduction of musical rhythms into the poetry. What we find resembles rather the result of an attempt to combine musical and metrical rhythms, which on further reflection we might expect as the first step in introducing a new or unfamiliar technique into the metrical tradition: a combination of new and old may be understood and accepted where a totally new form of versification may not. This observation applies particularly to the cadence, which resembles those of the old tuṭṭhubha and anuṭṭhubha, but the combination of pādas of different lengths also was not unknown to the old metrics, being in fact an important feature of Vedic versification in the so-called 'lyric metres.' These points will be studied in detail below, but we may make the general observation here that the history of Indian literature shows the successive appearance of more and more fully musically articulated metres - mattāchandas - gaṇacchandas - mattāvutta (mātrāvṛtta, not the same as mattāchandas!) (1) - tālavutta.

This process of musical infiltration of Indian metrics

(1)...The term 'mātrāvṛtta' was applied to the Apabhraṃśa and Hindī musical metres derived from gaṇacchandas after the true mattāchandas had long been extinct in India. The same word is also used generically to cover all metres in which the mattā count is an essential feature of the structure, including all four classes mentioned here (cf.p.23).

began at a definite stage in the evolution of the Indo-Aryan languages. The interconnection of language and metrics has been noted in the Introduction (p.29) and at the beginning of Chapter IV. The appearance of musical metres in Pali should not be interpreted as indicating that the deśī music (as opposed to 'Vedic music,' if such a term has any meaning outside its application to the chanting of sacred texts) originated in about the fifth century B.C., although the nature of those metres may be expected to throw some light on the history of the music by establishing the existence of a particular tala in that early period. It is probable that the Vedic chant itself was derived from the deśī music of a very ancient period, but that owing to the nature of the language the tālas of that music could not be reflected. With the beginning of the transition to Apabhraṃśa, however, the language and metrics became susceptible of penetration by musical tālas, and Canonical Pali shows Indo-Aryan in that critical stage. As the language became more supple (> Apabhraṃśa) its metres became more musical.

The two main mattāchandas metres are opacchandasaka (aupacchandasika) and vetāliya (vaitāliya). It should be noted that the classical metres which bear these names are not mattāchandas but have fixed schemes, although they are evidently

descended from mattāchandas and retain the same numbers of mattā per pāda. Like pupphitagga (puspitāgrā) and aparavatta (aparavaktra) they are merely particular cases of mattāchandas pāda structures. We can identify other mattāchandas and metres of mattāchandas origin by their being aḍḍhasamavutta. Besides those mentioned, we find in our texts svāgatā (still in the mattāchandas stage, but not so fluid in structure as the main metres) and vegavatī (also approaching its classical fixed structure). In addition to all these we find samavuttas which appear to be of mattāchandas origin, being particular cases of mattāchandas (including vegavatī) pādas generalized: rathodhatā, dodhaka (meghavitāna does not seem to occur in the Canon). Finally we may note that the visamavutta upaṭṭhitappacupita (upasthitapracupita) with its variant structures appears to be derived from mattāchandas. This wonderful invention of the old Buddhist poets, which was perhaps the first tālavutta in Indian literary history, is analysed in Chapter IX on akkharacchandas. In their fixed forms all the metres considered here belong to that chapter, where they are accordingly reclassified, but their origins are discussed in the present chapter, since they help to illustrate the nature of mattāchandas structure.

Some particular pāda structures of opacchandasaka and

vetāliya have names, such as bhaddavirāja, pavattaka, and others (see the tables below), but it does not seem necessary to discuss them as separate metres since they are found only in conjunction with the two main metres. The two main metres occur either independently or in mixed strophes. In the latter case the mixing is normally not haphazard as in tuṭṭhubha-jagati but is a regular alternation of vetāliya and opacchandasaka pādas. We should perhaps regard this mixed strophe as a third main metre, but its structure does not differ in any respect other than the cadence from the first two. (1) In the tables its pādas have been counted under opacchandasaka and vetāliya.

2. No detailed discussion can be given in this and the following chapters on the metrical interpretation of particular pādas according to the rules given in chapters I - IV, and no account is given of the hundreds of emendations which had to be made to the printed texts (usually with manuscript support) in order to scan them, except in isolated cases of special interest. It is hoped to publish a new edition of a typical text (the Therīgāthā) in illustration of the metrical interpretations.

(1)...See Section 7 below on strophe structure for an account of the mixed strophe.

The present piece of research is of a preliminary nature, and aims at understanding the main usages as a basis (itself liable to modification as our knowledge of ancient Pali increases) for further detailed and more accurate investigations. The extent of the uncertainty in scanning old Pali verses which results from the fluidity of the language and a certain use of licence, as we have already seen, makes it impossible to arrive at precise figures - quite apart from textual corruption. There is thus some scope for the exercise of subjective judgment, the amount of which, and the resulting amount of possible distortion, I have tried to estimate. The figures I arrived at indicated that the general picture of mattāchandas, for instance, given here, might be about 3% in error, whilst in some of the details, particularly the permissibility of certain pāda structures, a much greater local error might be made. I can only say that, after some years of studying these metres and trying to acquire a 'feeling' for them, I am offering the analysis which seems to me nearest to the truth and which I believe can be justified, in its main outlines but probably not in all details, by the study of ancient Pali metrics as a phase in the history of Indian literature. Many doubtful structures have been recorded and considered, although my conclusion is that all forms defective

in quantity (mattā count) should be emended. This conclusion cannot be assumed in these preliminary tables.

The following tables show the structure of the great majority of the opacchandasaka and vetāliya pādas in the Pali Canon (a few stray strophes in the Vinaya and other predominantly prose texts are not noted here; I have, however, tried to scan everything I could find in these metres in the Canon, although I have no doubt overlooked a few verses). The schemes show the first part of each pāda, consisting of 6 mattā in the prior and 8 in the posterior, the cadence being assumed to be fixed: — u — u — u (op.) or — u — u — u (vet.). This is the form of the cadence as given by the Indian theory (e.g. Piṅgala IV 32), and the deviations from it are so rare as to be almost certainly corruptions. It must be noted, however, that some mattāchandas or metres of mattāchandas origin had a different cadence, which we must attempt to explain, and that a certain amount of rhythmic interplay between the free and fixed parts of the pāda sometimes seems to involve an overlap in which the first syllable of the cadence belongs to both parts or even to the free part and not to the cadence at all. It is possible that in these exceptional cases, which I have called 'syncopated', this syllable could be altered, as long as the mattā count of the pāda was maintained, and I have therefore recorded the few

examples I found where such an alteration appears.

A number of pādas which I could not scan satisfactorily owing to extensive corruption, have been omitted. Prior pādas were more liable to corruption than posterior pādas: whereas posterior pādas were protected by the prior pādas preceding them, prior pādas were sometimes remoulded into other metres which were presumably more familiar to the reciters and copyists. The same thing happened in the gaṇacchandās verses. These missing pādas belong mainly to Sn (26 cases), which I studied first: in working afterwards on the other texts I made greater efforts to obtain some kind of probable scansion except in the most desperate cases, or when the substituted pāda in some other metre left no indication at all of what originally stood there. It will be noticed that owing to this corruption of prior pādas the total number of posterior pādas scanned in the tables is $5\frac{1}{2}\%$ greater than that of the prior pādas. Owing to the greater length of the posterior pāda and the consequent larger number of possible structures, the discrepancy is no doubt partly due to the accepting of corrupted posterior pādas which merely seemed to fit the mattā count. A third cause which increased the proportion of posterior pādas - especially in Sn - is the occurrence of large numbers of repeated pādas as refrains in the fourth pāda of the strophe.

These were less liable to corruption than the multiform prior pādas which accompanied them. All figures should be taken as approximations or estimates only.

Table 1

Opacchandasaḥa

Remarks	Prior Pāda	D III	Dh	U	Sn	Vv	Th I	J	Total
bhaddavirāja	— — UU	1	3	2	58 (74)	1+ 4	8? (9)	31? (32)	107 (125)
vasantamālikā	UU — UU	1?	1		20	1	2 (4)	7	32? (34)
	— UU —			2	6	2	1 (5?)	3	14 (23)
pupphitagā	UU UU UU	21?			1	5+ 1??		3	30
x 4 = mayūrasāriṇī	— U—U — UUUU — — — UU — —	2		1? 2? 1	9? 3? 6	1 5? +1		4 2 6 3?	16 17 14 4
'syncopated'	(U—UUU (U—U— (— — U—/U (> — — UU?	1?				2 (3) 3? 1 (6) 2		2 1? 2?	5 (6) 4 3? (8) 2
?	— — UUU				1	1?			1
?	UU — UUU					1			1
?	UUU — —					1			1
	(— UU				1				1
a word lost?	(— —				1				1
= posterior pāda	(UU — — UU (— — — — ?? — — UU —/U					1		1?	1 1 1
= prior yava-mati	— U—U—U				2				2
?	UU — — U				1			1?	1
?	— — — U				1				1
?	U — — U—				1				1
'syncopated'	U—UU—/U					1?		1?	1
Total		24	4	7	118 (139)	22 (23)	14 (20)	64 (70)	259 (293)

+6

Explanations for Tables 1-4

- ? doubtful.
- ?? very doubtful.
- () includes repetitions of identical pāda.
- /U first syllable of the cadence is short ('syncopated')
- +... additional figures from very confused verses partly remoulded into another metre.
- /UU first syllable of the cadence is resolved into two shorts.

On account of the difficulty of assessing the "doubtful" cases the totals given in the right hand columns are approximate only and do not agree exactly with those at the bottom.

Table 2

Opacchandasa

Remarks	Posterior Pāda	D III	Dh	U	Sn	Vv	Th I	J	Total
bhaddavirāja	— — — UU	1	3	5	35	7+	10	23	86
					(39)	2	(14)	(28)	(99)
vasantamālikā	UU — — UU	2	1	3	35	2+	3	15	62
				(4)	(62)	2??	(6)	(19)	(98)
pupphitagga	— UU — UU	1?		1	4	4		4	14
	UUUU — UU	16?				6?			22
		(17)							(23)
	— — U — U				3?			3	6
	— — UUUU				6 +1		1		8
	— — — —				4 +1?			4	9
	UU — — —		1		(20)				(25)
					5 1			1	8
	— — UU —				6 +1?				7
					(8)				(9)
	— U — — UU				4 +1				5
	— U — UU							1	1
	— U — U —							1	1
'synco-	UUU — UU					1?			1?
pated'	UU — — U / U							1	1
	— — — U / U				1?			(4)	(4)
	UU — UU —				(2)				1
					2				(2)
	UU — U — U	1?			2	1			4
	U — U — UU				1	1		1	1
	— UU U — U				(2)				2
	— UU — —					+1?		1	(3)
	UUUU — —							1	2
	U — U — —							1	1
	— — — — U				3				3
	— U — UU				1?			1??	1
	— — U — / U				1				1
	UUUU — UU				2				2
	— — UU				1				1
	UU — — — U				(2)				(2)
	UU — U — UU				1				1
	UU — — U				1				1
	— — U —				1				1
	— — U — / UU				1				1
	— — — UU — UU				2?				2
	U — — — —				1?				1
> — — — UU?	U — — UU				1?				1?
	— UU — — UU				1				1
	— — U — — UU				1				1
	UU — — — UU		1		1				1
	UU — UU							1	1
	UUUU — UU					1			1
	— — UU					1			1
≡ prior	UUUUUUUU					+1			1
pāda /	UU — UU							1?	1?
	— — — UU — / U							1??	1??
	— UU UU							1?	1
	— U — U — U							1?	1
	UUUU — U — / U	1?							1
	U — UU — U	2?							2?
Total		23	6	9	128	26+	14	62	277
		(24)	(10)	(180)	9(10)	(21)	(74)	(351)	

Table 3

Vetāliya

Remarks	Prior pāda	SI	Dh	U	Sn	Vv ⁽¹⁾ Pv	ThI	ThII	J	Total	
aparavatta	— — UU	3	22	7	35	10	3	10	16?	56	162 (166)
	UU — UU	8 (10)	14 (16)	5	11	1	4	8	15 (16)	13?	79 (84)
	— UU —	2	4	1	4	1?		3	5	9?	29
	UUUUUU						1? (2)	3	1	2	7 (8)
	— U — U	1	7 (8)	4 (5)	1					7	20 (22)
	— UUUU				1			1	9?	5 (6)	16 (17)
	— — — —		2		2	3?	1?		3	8	19
	UU — —			1				1	2	3	7
'syn- (udi- (cop- (cca- (ated (vutti( (	U — UUU			1	1				3?		5 (6)
	U — U —					1	1??		1	3?	5
	— — U — /U								1	3?	4?
	> — — UU ?	1			1?				2?		3
> — — — ?	— — — U	1			2						3
	U — — U				1						1
	— U — UU	1				1			1?	1	4?
	— U — U —			1							1
> U — UUU ? cf. ekarūpā	U — UUUU	1?	1?								1
	UU — UUU/U								1?		1?
	— — — /UU								1		1
	— — UU — /U								1		1
> — — — ?	UUUU —								1		
	U — —								1		
	U — UU —					1			1	1	3
	— U — —								1?		1?
ratho- ddhatā	UU — U —	2									2
	— U — UUU	1						1			2
	UU — UUU									1	1
	— UUU —									1??	1??
= posterior pāda	UU — — UU									1?	1
	— — — —									1?	1
	— — — UU					1					1
Total		21 (23)	52 (58)	19 (21)	58 (66)	18 (12)	11 (12)	27 (66)	65 (115)	114 (398)	385 (398)

(1)...Vv = J449 + 4 odd prior pādas.

There are nearly 400 verses in opacchandasaka and vetāliya in the Canon. The other metres we have mentioned occur much less frequently. Vegavatī is represented by 25 verses, or 34 if we count those which appear in both S I and Th I each time they appear. There are 12 verses predominately of pupphitagga (which have been included in the tables of opacchandasaka) and 2 of aparavatta. Svāgatā appears in at least 9 verses. Of the samavuttas, dodhaka seems to be limited to 3 verses in Vv, but rathodhdhatā is fairly common; I have counted 46 verses. (1) There are 15 strophes of upaṭṭhitappacupita. Some of these metres are still fluid in the Canon, the alternation — /uu being apparently allowed in certain positions, and sometimes uu—/u—u and other variations. On account of the small numbers of examples, however, one can hardly formulate exact rules. The normal schemes of these metres are as follows:

pupphitagga uuuu uu—u—u—u/uu uu—uu—u—u—u x 2
 aparavatta uu uu uu—u—u u/uu uu—uu—u—u u x 2
 vegavatī uu—uu—uu—u/—uu—uu—uu—u x 2
 svāgatā — uu—u—uu u/—uu— —uu—u x 2
 dodhaka — uu—uu—uu—u x 4
 rathodhdhatā — u—u uu—u—u u x 4
 upaṭṭhitappacupita — — — uu—u—u—uu— —/u—uuu—u—u— —/
 uuuuuuuuu—(uuuuuuuu—) /uuuuuuuuuu—uu—u x 1

(1)...Pādas of rathodhdhatā also occur in vetāliya verse as a regular variation (at least 20 examples).

3. Before proceeding with our analysis of mattāchandas structure and taking up the question of the origin and history of these metres, we may make some general observations about the texts in which they occur. It is part of the purpose of this study to deduce a chronology for some of the Canonical texts on metrical grounds, and little weight is attached here to any of the speculations on Canonical chronology which are based on such criteria as the development of the doctrine. It has been suggested, for instance, that texts containing "highly systematized" doctrine such as the 'eightfold path', and even the 'four truths', are later in origin than texts of a more poetic nature. The strongest argument in favour of this criterion is that the Abhidhamma texts, which are pure systematization, are indisputably later compilations than the 'Dhamma-Vinaya' in all the Schools of Early Buddhists, and are largely recognized as such by the traditions. This argument, however, cannot be extended to the analysis of the Dhamma-Vinaya texts, and in any case the Abhidhamma compilations are almost certainly based not on, or not directly on, surveys of Dhamma (Sutta) texts but on old lists or Mātikā (Mātrkā) of elements, categories and phenomena, which cannot be proved to be later than the Dhamma-Vinaya and may well have formed part of the earliest collection of Dhamma. As for the subjective

argument that a religious movement necessarily starts on its career with beautiful and inspiring poetry, and afterwards loses its creative élan and produces only dry manuals of doctrine, one can equally convincingly argue the other way round: that Buddhism, for instance, began as one of the countless sects of early philosophical enquirers in India, each with its own system of elements and so on (much of it held in common by many of them), and afterwards grew into a great popular movement with poets and preachers using all the literary arts to arouse and persuade the lay people on whom the success of the movement depended. The History of Buddhism was clearly much more complex than any such over-simplified scheme can indicate. The chronological arguments in this study are advanced on purely metrical grounds, although interesting correspondences with some of the speculations referred to have been found. Some of these may provisionally be indicated here, subject to detailed confirmation in the analysis which follows.

The pre-Pali literature possessed a very small number of metres, whilst the post-Pali literature used a very large number of metres, the new ones being constructed on principles quite different from those of the old metres. We may therefore expect to find Pali texts standing at different stages in this development in their use of metres, unless all the texts were

composed at the same time and show only one stage. An extreme case is the Lakkhaṇa Sutta in D III, which contains a greater variety of metres than any other Canonical text, all of them, moreover, being either new 'Classical' type metres or Classical forms of old metres. In the latter category we find rucirā and vaṃsaṭṭhā (vaṃśasthā), in the former, rathoddhātā, upaṭṭhitappacupita, uggatā and pamitakkharā (pramitākṣarā). Besides these six metres we find verses which are predominantly pupphitagga, sprinkled with pādas of the more common forms of opacchandasaṅgā, some or all of which may be corruptions. These metrical considerations justify the conclusion that this is a late text standing on the threshold of Classical Sanskrit metrics. It is therefore of great interest to note that in content this sutta is an elaborate piece of 'Buddhology' describing in minute detail the 32 physical characteristics of the Buddha. In the histories of the religion this iconographic development has often been supposed to be a late development in Early Buddhism, tending to Mahāyāna, and this more or less subjective argument can now be supported by the objective evidence of the metre. Finally, on turning to the commentary on this sutta, we discover that the orthodox tradition records that the verses are not so ancient and authentic as the bulk of the Canon by attributing them to Ānanda: "etā pana gāthā porāṇakatherā Ānandatherassa ṭhapitā vaṇṇagāthā ti vatvā gatā"

(DA p. 922).

The earliest stratum of Pali verse is not so easy to locate, since the use of only one or two metres is not in itself proof that the others were unknown. There are, for instance, such uninspired compositions as the Cariyāpitaka and the Apādāna, which may be shown to be derivative from the Jātaka and Theratherīgāthā and entirely devoid of originality or poetic interest. (1) Apart from three garbled verses copied from ariyā verses of Th II, the metrical outlook of these two texts is limited to pedestrian vatta composition with a very few tuṭṭhubha strophes. In these cases we may safely conclude that the pious monks who compiled the texts had no knowledge of metrics beyond the two commonest metres and no poetic aspirations. These texts tacked on to the end of the last Nikāya of the Canon may represent a final decadent phase of Pali composition, later than the great period of innovation and creation of new techniques which culminated in the Lakkhaṇa Sutta, when the Theravāda Pali poets were supplanted by those of newer schools with new ideas to express (see e.g. the Mahāvastu).

The Suttanipāta contains a high proportion of mattāchandas, fairly homogeneous in structure and not characterised by successions of short syllables or other techniques of classical metrics. The collection as a whole, however, is far from

(1)...On Cp cf. p. 6 above.

homogeneous, as we shall see when we analyse the vatta poems in it (cf. also p.21 above), and whilst it may contain some of the earliest Pali verses we possess, its composition extended over a long period. Its metrical techniques do not include those of the latest phases, although they do include gaṇacchandā and vegavatī, so it would appear that it represents an early, or at least an intermediate, period preceding that which ended with the Lakkhaṇa Sutta. An inscription of Asoka appears to refer either to the whole collection at some stage in its growth or to the Muni Sutta (tuṭṭhubha) which concludes its first vagga.

A large part of the Therīgāthā, and part of the Theragāthā, seems to be specially characteristic of the later creative period leading up to the Lakkhaṇa Sutta. Here we find the tendency to successions of short syllables and certain other 'classical' techniques. We are fortunate in possessing the Subhā Jivakambavanikā poem in vetāliya, which is an excellent example of proto-classical 'kabba' composition, not only in its metrics but also in its vocabulary and 'alaṅkāra':

madhurañ ca pavanti sabbaso,

kusumarajena samuddhatā dumā/

paṭhamavasanto sukho utu,

ehi ramāmasi pupphite vane//

kusumitasikharā 'va pādapā,
abhigajjanti 'va māluteritā/
kā tuyhaṃ ratī' bhavissati,
yadi ekā vanam ogāhissasi//
(1)
vālānigasaṅghasevitaṃ,
kuñjaramattakarenulolitaṃ/
asahāyika gantum icchasi,
rahitaṃ bhīṃsanakaṃ mahāvanam//
tapanīyakatā va dhītikā,
vicarasi cīttarathe va accharā/
kāśikasukhumehi vaggūhi,
sobhasi vasaṇavarēhi 'nūpame//
ahaṃ tava vasānugo siyaṃ,
yadi viharemasi kānanantare/
na hi m'atthi tayā piyātarō,
pāṇo kinnarimandalocane//Th II 371-5

The Sagātha Vagga of the Saṃyutta (S I) is another collection which is rich in metrical innovation and in poetic content. The vegavati verses (2) ascribed to the famous poet Vaṅgīsa or Vāgīsa Thera occur in both this collection and the

(1)...Or perhaps 'viyāḷa-' (udiccavutti), cf. Sanskrit vyāḷa.

(2)... "Arati" and "Pesalā-atimaññanā."

Theragāthā.⁽¹⁾ Other mattāchandas verses in S I attributed to Vaṅgīsa include the vetāliya strophe ("Pavāraṇā") and the remarkable "unpremeditated" verses of the "Parosahassa" section in which Helmer Smith (Sd 1171) sees the fusion of old rhythms from which will spring the caupāī of Apabhraṃśa and later vernacular poetry. Elsewhere in S I we find the svāgatā metre. Both the advanced nature of these metres and the tradition that some of the poems were composed by a disciple and not by the Buddha (cf. the Lakkhaṇa Sutta) point to a late period: indeed a large part of the Sagātha poetry is assigned to persons and beings other than the Buddha, although as is usual in such cases in the Canon he is supposed to have been present to approve the verses. In folklore this is perhaps the richest part of the Canon, and we seem to have a glimpse of the Early Buddhists working to spread their teachings in a popular milieu through the medium of a popular style of composition akin to folk music and dancing. The name 'geyya' for this type of composition (tradition of the commentaries, referring to S I) may indicate some kind of performance of these short dramatic scenes with musical accompaniment. The study of this geyya literature should help us to understand the 'deśī' (folk music) origin of the new metres in the vernacular languages, to which we

(1)...Note also the connection between S I and the Therīgāthā (Bhikkhunī-saṃyutta).

referred in the first section of this chapter. Indian folk music and popular poetry, defying systematization, continuously created new techniques, which re-fertilized the more artificial 'classical' literature from the time of Vaṅgīsa down to that of Puṣpadanta and Jayadeva.

The Jātaka used folk stories to popularize the teaching in a way similar to the use of folklore by the Sagātha. A large part of it, like most of the Sagātha, may tentatively be associated with our 'later creative period', but other parts of this vast collection may be at least as old as anything in the Suttanipāta, since they exhibit similar styles of composition to the latter. The bulk of the Jātaka mattāchandas resembles that of Sn in structure, whilst we shall see that the gaṇacchandās resembles that of Th II; this apparent discrepancy is due to there being no connection between these Jātakas in different metres other than their inclusion in the same collection, which probably took place at different periods.

The Vimānapetavatthu may be entirely late in composition. It has been pointed out that it includes a reference to events which took place about two centuries after the

Nibbāna, (1) and its level of literary inspiration is well on the downward path to the piety of the Apadāna and the Cariyāpitaka. Only rarely do we come across anything of interest, such as a story which is told in a different version but with some of the same verses (mattāchandas) in the Jātaka.

The remaining mattāchandas verses are scattered strophes about which we can say very little as yet, since the anthologies (Udāna, Dhammapada) and prose texts (D II, Vinaya, Udāna) in which they appear have not yet been subjected to serious historical analysis. There seems to be no reason to suppose that any of them are very early, with the possible exception of one or two 'udānas'.

Although there are no hard and fast boundaries between the periods or phases of Pali literature to which we have referred, and most of the Canonical collections overlap at least two of them, it is worth noting here that this tentative survey of some of our material would suggest, when placed against the historical background (see our Introduction and

(1)...Piṅgalaka being king of Suratt̥ha; see PvAp.244. The Theragāthā includes verses ascribed to at least six theras who are recorded by the Commentary to have been ordained after the Nibbāna, three of them in the Moriyan period (Tekicchakāni, Vitasoka and Ekavihāriya). I believe Vv and Pv to be still later than this, i.e. considerably later than the traditional date of Piṅgalaka.

the story references in the texts mentioned above), that it might be useful to assume three phases:

(i) An earlier period, during which *mattāchandas* and *gaṇacchandas* first appeared, represented by most of the *Suttanipāta*. This is a pre-Moriyan period, but we have not found evidence to indicate whether it includes anything as early as the 5th century B.C., and, if not, whether any extant Pali literature belongs to a still earlier period.

(ii) A later period, during which both new classes of metre became markedly transformed in structure in accordance with the tendency to Apabhraṃśa rhythms, and new metres of the fixed classical type appeared in increasing numbers; represented by a large part of the *Therīgāthā*, part of the *Theragāthā* and the *Lakkhaṇa Sutta*. This approximately coincides with the period of the Moriyan Empire.

(iii) A period of decline in literary creation, represented by most or all of the *Petavatthu* and the whole of the *Cariyāpitaka*. This decline may have begun under the Moriyan Empire, at the end of the 3rd century B.C., but coincides roughly with the 2nd century B.C.

4. In the ZDMG of 1884 (vol.38) pp.591-5, Jacobi outlined his conceptions of the origin of *vetāliya* (i.e. of *mattāchandas* generally), its further development giving rise to *aparavatta* (through what he calls the "victory of the

quantitative principle"), and the evolution of gaṇacchandasa. (1)
Hopkins (GEI p.337, etc) gives a different theory contradicting
Jacobi's (although he does not seem to have known Jacobi's work),
on the basis of his study of the Epics.

Hopkins bases his theory on the fact that opacchandasa
and vetāliya are almost unknown in the Mahābhārata (except for
what he calls a "sporadic approach to vaitāliya.... in a late
passage of Vana and in Śānti") whilst pupphitagga and
aparavatta occur more than 90 times ("chiefly in later part of
the epic" - also in Harivaṃśa, where pupphitagga is sometimes
mixed with upajāti, 3,6,10). If Hopkins is right in assigning
the main composition of the present MBh to about the second
century B.C. with additions until the fourth century A.D.
(GEI 398, etc.), then it is later than the Pali Canon, which we
saw in our Introduction to have been composed between the fifth
and the second centuries B.C. Oldenberg's researches on the
vatta, which led to the conclusions we have stated on p.21 (see
Chapter VII for more details), are in complete agreement with
these deductions on the relative ages of the Canon and the Epic.

(1)...See also Kühnau, T-J-F pp.178 ff. and 206, etc., on
apparent correspondences between mattāchandas and tuṭṭhubha
and virāja (virāj) and the probable origin of mattāchandas.
These researches seem to have been quite independent of those
of Jacobi, although they were published two years later.
Ballini, SIFI-I vol.8, 1912, part 2, 73 ff. simply reports
the conclusions of Jacobi and Hopkins without adding new argu-
ments.

Some verses in the Epic may be earlier than the second century B.C., being taken literally, or perhaps with linguistic adaptations (Sanskritization?) not always affecting the metre, from the old "Itihāsa" mentioned in the Canon, but probably none of the pupphitaggā or aparavatta, which Hopkins associates with the later parts of the Epic, are so old. We can therefore refute Hopkin's theory that op.-vet. evolved out of pupph.-apara. simply by placing the Pali evidence beside that of the MBh, whatever the reason for the preference for the latter metres in the Epic.

Hopkins is apparently on stronger ground with the Rāmāyaṇa, where he finds pupph.-apara. tags in Books I-VI but op.-vet. tags in Book VII. Unfortunately he overlooked the fact that these op.-vet. verses are in the fixed classical form of the metres, not in the true mattāchandas form of the Pali Canon. In any case it is certain that the Rāmāyaṇa in its present form is not only later than the Canon but, on the average, later than the Mahābhārata, although the latter probably had some additions made to it down to a still later date. The argument deriving pupphitaggā directly from tuṭṭhubha-jagatī (GEI p.337) by the resolution of two long syllables to give a posterior pupphitaggā (the derivation of the prior pāda along similar lines would be still more arbitrary) is thus entirely fanciful, and

Hopkins was completely mistaken in supposing that the fully fledged pupphitaggā (with its long successions of short syllables) appeared first and was followed by a reversion to a metre much closer in structure to the tuṭṭhubha.

Jacobi regards pupphitaggā as a development from a "pure" mattāchandas (early opacchandāsaka), and derives vetāliya (which he takes as the basic type - Hopkins takes opacchandāsaka as the type and describes vetāliya as "catalectic") from the Vedic satobṛhatī (2 x 12 + 8 syllables). This is plausible in that the appearance of successions of short syllables can be followed stage by stage through the transition to classical metrics. In our earliest op.-vet. the principle of mattā measurement was perhaps not yet fully established (this is Jacobi's view), so that only the unevenness of the prior and posterior pādas is the essential characteristic which distinguishes metres belonging to the mattāchandas family. The derivation of vetāliya from satobṛhatī, however, is unconvincing owing to the great gap in time between the Vedic and Pali periods of Indian poetry. Jacobi's idea of ritual tampering of Vedic metres leading to metrical experiments which resulted in vetāliya is even less happy than Hopkin's forced derivation of pupphitaggā.

The theory that the new metres were a continuation of the Vedic 'lyric metre' tradition of the combination of unequal pādas (which otherwise has to be regarded as having disappeared completely without being replaced by any new technique) can in fact be improved. It is not necessary to divide the first "foot" of the satobṛhatī and to transfer three of its syllables to the posterior pāda as "anacrusis", for in the Suttanipāta we find two poems having a strophe structure closely paralleling the Vedic lyrics. This is the

mixed vetāliya-opacchandasaka, in which the vetāliya always takes the prior position and the opacchandasaka the posterior:

baddhā bi bhisī susaṅkhatā,
tiṇṇo pāragato vineyya oghaṃ/
attho bhisiyā na vijjati,
atha ce patthayasī pavassa deva// Sn 21

-let us compare this not with the satobṛhatī but with what Arnold calls the 'uneven lyric': anuṣṭubh + triṣṭubh (instead of anuṣṭubh + jagatī):

ágne tvam̐ no ántama,
utá trātá sívo bhavā varūthyah/
vásur agnir vásusravā,
áchā nakṣi dyumáttamaṃ rayim̐ dāh/
sá no bodhi śrudhī hávam,
uruṣyā no aghāyataḥ samasmāt/
tam̐ tvā sociṣṭha dīdivah,
sumnāya nūnam̐ imahe sakhibhyah // RV V 24

— — — — —
— — — — — Sn 21
— — — — — (1) — — — — — (2)
— — — — —
— — — — —
— — — — — RV V 24

- the general similarity here is at once apparent. Other pādas in the Pali poem appear to

(1)...nō short metrically when followed by a vowel: Arnold VM pp.6 & 7.

(2)...The accent would indicate that this 'y' counts as a separate syllable: Arnold VM p.83. But exceptions are possible.

coincide exactly with individual Vedic pādas: compare "puttā ca me samāniyā arogā" (Sn 24b) with the final Vedic pāda, or "sutvā devassa vassato" (Sn 30c) with the penultimate Vedic pāda.

Although this bringing together of texts so widely separated in time and in manner of recitation cannot show a direct correspondence, it does seem possible that both groups of metres belong to the same class (a class of specifically 'lyric' metres having special connections with music?) at different stages of development, and that the coincidence is not accidental. We may suggest that the combining of the Vedic lyric metres with a musical accompaniment (including tāla) led to changes in rhythm (groupings of syllables) within the framework of the ancient pāda structure (number of syllables and quantity of each syllable, where this was fixed, especially in the cadence). Eventually, with a firm musical basis established of $14 + 18 \times 2$ mattā corresponding to the average duration of the old syllabic strophe, the number and quantity of the syllables may be varied without disturbing the flow of the verses. The new metre would then be not a curious and apparently arbitrary combination of 14 and 18 mattā pādas, but the result of a natural historical development: the supplanting of an old metre by a new one on a new basis but conditioned by its origin within characteristic limits. We shall have more to say on the relationship between mattāchandas and the older metres in the following sections, since, whatever their past interconnections may have been, they certainly seem to have interacted on one another during the Pali period.

To summarize the discussion in this section on the origin of mattāchandas we should first stress the importance of its special connections with music and the musical organization

of its rhythmic structure. (1) There is no proof of any connection with the metres of the Vedic tradition, and the new metre may have had its origin in 'deśī' (Māgadhī) (2) folk song: its rhythms may even be non-Indo-Aryan in origin, coming perhaps from some Munda tradition in Eastern India. The arguments for a Vedic origin are the unevenness of the pāda structure, the use of vetāliya prior pādas and opacchandasaka posterior pādas, and not vice versa, in the mixed strophes, and the apparent similarity between the shortest pāda and anuṭṭhubha and between the longest pāda and tuṭṭhubha. These three points suggest a connection with the Vedic lyric metres, which Arnold believed to have special musical affinities when he so named them. The internal chronology of the Veda, and the development of its metres, is still uncertain (apart from such obviously later developments in speculation as a large part of the Tenth Book). Arnold assigns the majority of the lyric verses to the earliest period, but one of his arguments for this is their "being practically unknown in later literature" (VM p.9). He also says that in several cases of apparent lyric metre occurring "in the late Rigveda the metre seems to be confused rather than lyric" (p.50). It may be suggested that in this confusion we might seek the beginning of the transition to mattāchandas, and that if they are connected with mattāchandas the argument for their great antiquity is reversed, and they may represent a late development in Vedic metrics.

5. Relationships with other Metres.

The poem in mixed vetāliya-opacchandasaka quoted above in comparison with the 'lyric' metres commences with a

(1)...The alternation ॐ/- . The structure will be discussed in detail below, and its musical affinities will then be seen more clearly.

(2)...Note the alternative name 'māgadhikā' for vetāliya.

tutṭhubha pāda:

pakkodano duddhakhīro 'ham asmi Sn 18a

-this is almost certainly a substitution for or corruption of the original vetāliya pāda, but it is not altogether accidental, for as we have seen the two metres may be related through the opacchandāsaka, which sometimes is very similar to the tutṭhubha in its posterior pāda. There is some metrical evidence in the Canon which suggests that poems have been altered slightly, perhaps to adapt them to Theravāda doctrine, and plenty of evidence of substitutions by careless repeaters or scribes: in any case we have good reason to suppose that some of the ancient Theras responsible for the formation and preservation of the Canon had very little knowledge of metrics and were quite capable of mistaking a mattāchandās poem for tutṭhubha, or a gaṇacchandās for vatta, even before the partial interruption of the tradition in the first century B.C. Similar substituted pādas occur elsewhere in Sn, especially in the Sabhiya Sutta (510-40), which includes jagatī pādas.

We have noted the resemblance between the posterior opacchandāsaka pāda and the tutṭhubha, particularly in the case where the latter forms the posterior pāda of an "uneven lyric" metre: in the case quoted it is interesting to observe that the whole mattāchandās cadence is regularly paralleled in the older metre (—o—o—) although only the last four syllables are normally reckoned as cadence in the tutṭhubha. Of still greater interest, however, is the structure of the 'break', the middle part of the tutṭhubha pāda, in its more regular forms in both Vedic and post-Vedic metrics. In the early form of the metre with caesura after the fourth syllable

(Oldenberg NG 1915 p.490 = Arnold's "primitive trimeter verse") we have $\underline{u}-\underline{u}-, \text{uu}-\text{uu}-\underline{u}$. Less often, but increasing in frequency until it displaces this form altogether in the post-Vedic period, we find $\underline{u}-\underline{u}-, -\text{uu}-\text{uu}-\underline{u}$, which is very close to the alternative early form with caesura after the fifth syllable $\underline{u}-\underline{u}- (\underline{u}), \text{uu}-\text{uu}-\underline{u}$, and eventually coalesced with it to form the classical upajāti which has no caesura. In these forms the break always contains a pair of short syllables which gives the metre its characteristic ring: a kind of syncopation cutting across the rhythm of the opening, the tension thus created being released in the cadence. Although such a pāda is a single integrated rhythmic unit, and cannot be subdivided into 'feet' (cf. the discussion/the 'ictus' ^{ON} in the Introduction), we see that in the Vedic metre the conflict of rhythms which gives life to the pāda may be produced in different ways by the different forms of the break: $\dots \underline{u}-/\text{uu}-\text{uu}-\underline{u} \dots$ or $\dots \underline{u}-\text{uu}/-\underline{u} \dots$ or $\dots \underline{u}-\text{uu}/-\underline{u} \dots$. The pair of short syllables seems to oppose itself to the single short syllables of the opening and the cadence, but it also opposes itself, one feels, to the long syllable which precedes or follows it: u/uu but also $-/\text{uu}$. In other words we seem to find in the tuṭṭhubha break an anticipation of the new technique of variation of rhythm by the opposition of two short syllables to one long one, and even a kind of proto gāṇa $\text{uu}-$ or $-\text{uu}$ anticipating the 4 mattā gāṇa of gāṇacchandās. This gives us a further indication of the way in which the musical technique could penetrate into the old metrics and find there an element with which it could combine to form the basis of the new metrical technique, once the other conditions (linguistic changes, etc.) were favourable for such a development.

The Pali tuṭṭhubha seems never to have a pāda structure which coincides even superficially (i.e. in the mere succession of longs and shorts) with any mattāchandas pāda structure. Such ambiguous forms were probably disliked, and we may surmise that there was a direct connection between the development of the new metres and the limitation of the old ones. The Vedic triṣṭubh could take almost any form, although some forms were more popular than others, and could even coincide superficially with the opacchandasaka, as we have seen. The successive limitations of its structure until in the later parts of the Mahābhārata, in the Rāmāyaṇa and in the Classical Sanskrit literature we find only the fixed forms upajāti and vaṁśasthā, together with fixed derivatives such as rucirā, would be very difficult to account for except by noting the appearance and development of new metres, in ever increasing numbers, many of which tended to coincide with it. The triṣṭubh was thus narrowed down to its most characteristic form $\underline{\text{u}} - \text{u} - - \text{uu} - \text{u} - \underline{\text{u}}$, which is least like any other metre.

In the case of the vatta a similar process of restriction of the Vedic anuṣṭubh pāda took place, although it did not go so far. The anuṣṭubh itself was not broken up into a series of fixed forms, and very few of the new metres had ^apāda of as few as eight syllables which might coincide with it. The 'invention' of the vatta, or epic siloka (śloka), and its adoption as the epic narrative metre in which it was practicable to compose poems of epic length, prevented the process from going any further. The epic metre had to be variable in structure to avoid monotony and also to satisfy the need for a flexible siloka into which a simple straight-forward narrative would fit easily and naturally.

We have noted that the Vedic anuṣṭubh could coincide with a prior vetāliya. In Pali the form ----u-u may occur in either metre, and, as we shall see in the Chapter on the vatta, the form with initial resolution u----u-u may also occur in either. These forms, however, are not of frequent occurrence in either metre, except in the posterior pāda of the vatta, where of course there is no coincidence since the posterior vetāliya is longer. u----u-u is fairly common in the prior vetāliya, although it disappeared in Classical metrics, whilst ... u-u in prior position, as 'vipulā', although common in the earlier Canonical verse, died out rapidly in the later phase of composition, very probably under the impact of vetāliya, and afterwards gave place to the classical vatta with only the pathyā and four vipulā forms excluding ...u-u from the prior pāda.

The relationship between mattāchandas and gaṇacchandas is of a much closer nature, and is best considered as part of our study of the origins of gaṇacchandas in the next chapter. When gaṇacchandas had developed fully and produced the flexible ariyā, it appears that mattāchandas rapidly lost favour. True mattāchandas does not seem to have been used at all after the period of the early Buddhist and Jaina literature, and its fixed derivatives became part of the general classical stock of metres, not specifically restricted to musical performances as gaṇacchandas was (apart from certain technical treatises).

We now proceed to a detailed study of the structure of the mattāchandas pāda and strophe.

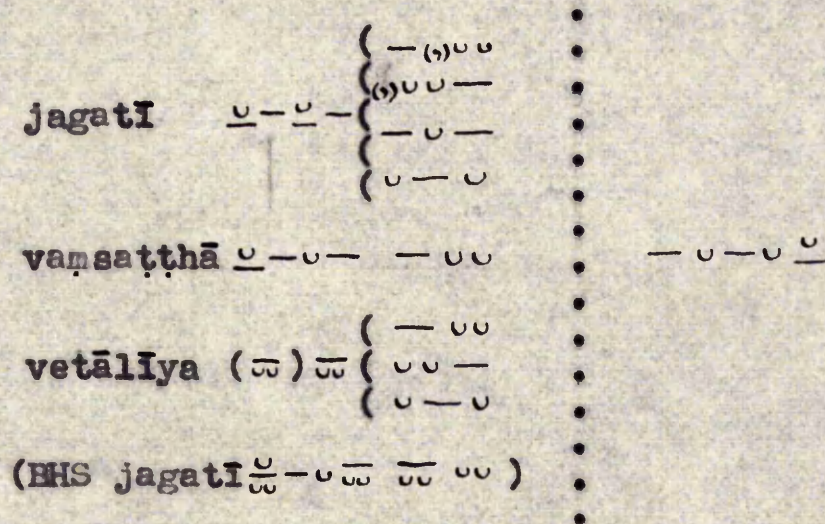
6. The Mattāchandas Pāda

We have noted that the pāda falls into two parts, the cadence, which is fixed (apart from the alternation of vetāliya and opacchandasaka), and the variable opening part.⁽¹⁾ European scholars (e.g. Fausbøll, Jacobi, Smith) have for some reason (comparison of vetāliya with vatta?) generally described only the last four (or five in op.) syllables as the cadence, and treated the preceding syllable as part of the opening. They have then divided this opening into two or even three 'feet' or 'ganas' in various arbitrary fashions. If the pāda is to be subdivided for convenience of analysis, and in order to understand the mechanism of its variations, we must make more careful tests on the basis of our statistics concerning the usage. In regard to the cadence, we find in practice, as in the Indian theory (noted by Jacobi, ZDMG 1884 p.594),⁽²⁾ that the fifth (sixth in op.) syllable from the end is regularly long, the exceptions amounting to less than 2% of our collection. We may assume, then, that the fixed cadence was normally —○— (◡) (◡), although it remains possible that our exceptions, or some of them, are not mere corruptions but a rather rare form of variation of the pāda (see the discussion of 'syncopated' structures below).

Since the cadence appears to resemble that of the tuṭṭhubha we may now make a closer comparison of the two metres than

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- (1)...There is no caesura in the mattāchandas pāda.
(2)...The Indian scheme for vetāliya when classified as a 'jāti' metre is 6/8 mattā + ra la ga (when classified as a 'vutta' metre the fixed scheme is sa sa ja ga/sa bha ra la ga x 2; it is then sometimes termed 'viyoginī'). In fact this jāti form of the metre does not seem to have been found in the extant classical literature, and it is probably merely a scheme taken over by the classical metrists from earlier treatises or traditions relating to the pre-classical period. This of course gives it greater authority for us (Piṅgala IV 32).

we did in studying the origins of mattāchandas. This may help us to understand the articulations of the pāda:



(Whereas tuṭṭhubha and upājāti drop the last syllable of this cadence, opacchandasaka adds a syllable: —u—u/—u—uu /—u—u—u).

- the apparent anticipation of mattāchandas rhythms in the 'break' of the jagatī is striking.

For the free part of the pāda we obtain the following statistics from the tables given in section 2. It might appear at first sight that there would be no difference between opacchandasaka and vetāliya except in the cadence, and that to obtain larger samples as a basis for statistical discussion we should simply combine the tables. Although it is useful to do this, and it does indeed give a sharper outline to our statistical charts, the usage in the two metres differs in some important details. Thus the form of vetāliya posterior pāda used also as the samavutta rathodḍhatā is very rarely

paralleled in opacchandāsaka. Evidently there is a close union of the two parts of the pāda, which was always felt as a unity despite its contradictory rhythms. In our analysis we must never lose sight of this unity.

The variations in the free part of the pāda suggest a kind of articulation into groups, or 'proto-gaṇas', normally of 2/4 mattās in the prior and 4/4 in the posterior. The normal variations are then as follows:

Prior Pāda

commonest form...	2	.	4	42%)		
substitutions...	—	.	—	41%	)	83%	88½% of the sample
	—	.	—		)		(probably 93-4%
	—	.	—		)		if we could rest-
	—	.	—		)		ore all the corr-
	—	.	—		)		upted pādas)

Posterior Pāda

commonest forms...	4	.	4	72%	)		(probab-
substitutions...	—	.	—	78%	)	82%	ly well
	—	.	—	79½%	)	85½%	over
	—	.	—		)	83%	or 90% if
	—	.	—		)	86%	we could
	—	.	—		)		restore
	—	.	—		)		all the
	—	.	—		)		corrupted
	—	.	—		)		pādas)

Quite regularly, although very infrequently, we find what appears to be a syncopation of these articulations identifiable through the shifting of the last substitute shown above in the 4 mattā groups (—) into a position overlapping the usual groups, and even overlapping the first syllable of the cadence, which is sometimes resolved:

Prior Pāda

4	.	2?	4?	(—	—	(—))	
—	.	—	—	(	—	—	(	—	)	)	just over 4%
etc.	.	—	—	(	—	—	(	—	)	)	(probably over 5%)

-the whole strophe consisting of 12 gaṇas organized in four groups of three marked off by the cadence-rhythm $\overset{!}{-}0-0$. Such a description would avoid the difficulties we experience in dealing with mixed pādas in binary (the free part) and ternary (?-the fixed cadence) rhythms. There is no justification, however, for thus assimilating mattāchandas to gaṇacchandas by scanning it in gaṇas throughout with the same alternation of a gaṇa of special (fixed) rhythm to mark off the 'bars' or 'phrases' of a fully musical structure. Had the distinction between the two metres been simply the difference of tāla, not merely the theoretical descriptions but the whole subsequent history of the musical metres would surely have been quite different from what we find. It seems most natural (and in all science we have to prefer a simpler description to a more complicated one, provided that it accounts for all the facts) to regard mattāchandas as the semi-musical forerunner of the fully musical gaṇacchandas.⁽¹⁾ We can then account satisfactorily for the disappearance of true mattāchandas after the development of gaṇacchandas, without having to explain the absence of tryasra tāla from the musical metres of later times. Mattāchandas and gaṇacchandas are indeed very closely related, but in a much more organic way than they would be if they were merely the reflection of two different musical tālas, one having twelve 6 mattā gaṇas and the other sixteen 4 mattā (or eight 8 mattā) gaṇas. The strongest argument for the explanation of mattāchandas pāda structure adopted in this section lies in the analysis of the origins of gaṇacchandas which is set forth in Chapter VI and partly anticipated at the end of this section.

(1)...(Cf. pp.120-121).

With reference to section 3 of this Chapter, we may make a comparison of earlier and later mattāchandas texts in the Canon with a view to tracing the tendencies in the development of the metre. We have suggested that the Suttanipāta verses belong to an earlier period (i) whilst those in the Therīgāthā belong to a later period (ii). Let us compare the techniques used in these two texts:

Table 7a

Prior Pāda

	Sn	Th II	Sn	Th II
---UU	93(109)	15 or 16	53%(55%)	23 or 25% (23 or 24%)
UU-UU	31	15(16)	17½%(16%)	23%(24%)
--UU-	10	5	5½%(5%)	7½%
UUUUU	1	1	½%	1½%
-U-U	10	0	5½%(5%)	-
-UUU	4	9	2½%(2%)	14%
---	8	3	4½%(4%)	4½%
UU--	1	2	½%	3%
U-UUU	0	2 or 3	-	3 or 4½%
U-U-	2 or 3	1	about 1½% (1 or 1½%)	1½%
--U-/U	1(6)	1	½%(3%)	1½%
UU ? U-UU	2	0	1%	-
-U-U-U	2	0	1%	-
UU ? -UU	1	2	½%	3%
-- ? --U	2	0	1%	-
UU-UUU/U ?	0	1	-	1½%
---/U	0	1	-	1½%
UUUU-	0	1	-	1½%
--- ? U--	0	1	-	1½%
U-UU-	0	1	-	1½%
-U-UU	0	1	-	1½%
defective	7	2	4%(3½%)	3%
Total	176(197)	65(66)		

Table 7b

Posterior Pāda

	Sn	Th II	Sn	Th II
— — — UU	45(49) or 47(51)	23(25) or 24(26)	28 Or 29% (23 or 24%)	37 or 38% (38 or 39½%)
UU — — UU	47(75)	23	29%(35%)	37%(35%)
— UU — UU	6	8(9)	3½%(3%)	13%(14%)
UUUU — UU	0	4	—	6½%(6%)
— — — —	5(21)	1 or 2	3%(10%)	1½ or 3% (1½% or 3%)
UU — — —	7	0	4½%(3½%)	
— U — UU	1?	0	½%	
— — UU —	6(8)	0	3½%(3¾%)	
— — UUUU	7	0	4½%(3½%)	
— — U — U	3	0	2%(1½%)	
UU — UU —	2	0	1%(1%)	
UU — U — U	2	0	1%	
—UUU—U	1(2)	0	½%(1%)	
— — — U — U	1(2)	0	½%(1%)	
— — U — UU/U	1	0	½%	
—UUUUU	0	1	—	1½% (1½%)
defective	28(29)	2	(17%)(13½%)	3%(3%)
Total	162(215)	63(66)		

It is clear that a considerable change has taken place. Whereas in the older text --uu in the prior pāda accounts for more than half the verses and uu--uu for only about one sixth, in the younger text this ratio of 3 to 1 between the two commonest forms has changed to one of approximate equality. In the posterior pāda the corresponding commonest forms do not show this change, presumably because apparently for reasons of balance and contrast the form uu--uu is already at least as common there as --uu. The contrast between the prior and posterior pāda has given place to a closer parallelism between them, certain forms being regularly associated with one another no doubt as a prerequisite for the formation of new metres such as aparavatta. This point will be further developed below in considering the strophe structure.

The historical tendency to resolve the longs into pairs of shorts and so to produce successions of short syllables can also be seen in some of the other forms. Thus -uuuu increases from about 2% to 14% and four cases of posterior uuuu--uu (aparavatta) appear which are not paralleled at all in the older text (one pāda only of the associated prior form uuuuuu appears in each text). In single examples only several other new forms appear showing the same tendency: uu--uuu/u, uuuu-- , --uuuuu. We may note also in the udiccavutti pādas the tendency u-u- > u-uuu. A curious counter example is the disappearance of --uuuu (about 4% in Sn). If we count the actual number of syllables in the tables above we find in Sn 657 (849) longs against 791 (966) shorts and in Th II 243 (252) longs against 371 (387) shorts, a change from 55(53)% shorts to 60½% shorts.

The complete disappearance of $-u-u$ prior, which accounts for at least 5% in the Sn cases is very striking, although there is a slight increase in the forms of the udiccavutti, which also contains $u-u$, but in the initial position (from about 1½% to about 5 or 6%). This change probably reflects the tendency to group the mattās in pairs referred to above (2/2/2½/2). In the posterior pāda likewise the 4 or 5% of forms $2/4/u-u$ have disappeared. Paccavutti proper does not appear in either text except for one doubtful rathodhdhatā pāda in Sn; (1) we find $---u-/\u$ once (twice) in Sn. Finally the form $--u-/\u$, which I take to be a variety of udiccavutti, occurs in one pāda in either text, but is in Sn a refrain which appears 6 times (3%).

The Th II vetāliya, we conclude, shows a definite development in the direction of the classical metre which has the fixed scheme $uu -uu -u-u\u/uu -uu -u-u\u \times 2$. (2) it also shows the proto pādas of aparavatta in the period immediately preceding the separating out of aparavatta as an independent metre.

Glancing at the other later texts, we see in the Lakkhaṇasutta (D III) the stage immediately following Th II, in which pupphitagga (cf. aparavatta) appears as an independent metre. A dozen pādas of pupphitagga are found in the Vimānavatthu. This is about 1/5th of the pādas found in that text, so that these verses may perhaps be reckoned as showing an intermediate stage between Th II and the Lakkhaṇa. The vetāliya verses in Vv are borrowed from the Jātaka. The few verses in the Petavatthu are similar in structure to those of

(1)...Note that in Th II rathodhdhatā is an independent metre which has separated off from mattāchandas (Ambapāligāthā).

(2)...The proportion of longs to shorts in the formerly free parts of the pādas is 3 to 8, i.e. 73% shorts.

Th II. In the Theragāthā, although again it contains only a few mattāchandas verses, there seems to be a clear distinction between the opacchandasaka verses and the vetāliya. In the former we find the initial long in a higher proportion of pādas than in any other text, not only in the prior but in the posterior pādas also. These opacchandasaka verses therefore appear to be very old. In the vetāliya, on the other hand, the initial long in both pādas is more frequent than the shorts, but only as 10:8 (or 15:12 including all structures, not merely the two commonest) in the prior and as 13:7(8) (or 17:9(10)?) in the posterior. This arrangement is very different from that of Sn, since in Th I the shorts are most frequent in the prior pāda, whereas in Sn they are as common as the long in the posterior pāda but less than one third as common in the prior. I consider that the high proportion of shorts in the prior pādas of the Th I vetāliya is the most significant feature here, and I would conclude that these verses are a good deal younger than those of Sn and only a little, if at all, older than those of Th II. This conclusion seems to be confirmed by the occurrence of three aparavatta prior pādas in Th I, against only one in Th II in more than twice as many verses, Th I having also one posterior aparavatta against four in Th II. Finally, the Sagātha Saṃyutta has a great preponderance of shorts in the prior pāda but approximate equality in the posterior. In this collection, as in Th II, all the verses are vetāliya, and in structure they appear more advanced than the Th I vetāliya, although there are no aparavatta pādas.

We still have to consider the verses in the Dhammapada, the Udāna and the Jātaka:

Table 8

Prior Pāda

	Dh	U	J	Dh	U	J
— — UU	25(28)	9(10)	86(87) or 87(88)	45%	35% (36%)	48-9% (47%)
UU — UU	15(17)	5	20	27%	19% (18%)	11%
— UU —	4	3	11(16) or 12(17)	7% (6½%)	11½% (9½%)	6½% (9%)
UUUUUU			5			3%
— U — U	7(8)	5(6)?	11	12½% (13%)	19% (21%)	6%
— UUUU		2?	7(8)		8% (7%)	4% (4½%)
— — —	2	1	14	3½% (3¼%)	4% (3½%)	8% (7½%)
UU — —		1	5 or 6		4% (3½%)	3%
U — UUU	2?	1	2	3½% (3¼%)	4%	1%
U — U —			4?			2%
— — U — /U			4 or 5			2½%
U — U U — /U			1?			1%
— U — UU			1			1%
U — UU —			1			1%
defective	1		about 5	2% (1½%)		3%
Total	56(62)	26(28)	178(185)			

Table 8a

Posterior Pada

	Dh	U	J	Dh	U	J
---UU	24 (25)	9	56 (61) or 58(63)	40% (37%)	33% (31%)	33-4%
UU---UU	19 (25)	9 (10)	29 (33) or 30(34)	32% (37%)	33% (34½%)	17-17½% (18%)
-UU-UU	1	4 (5)	23(24) or 27(28)	13% (1½%)	15% (17%)	14-6% (13-5%)
UUUU-UU	2			3½% (3%)		
-----		1	6	4% (3½%)	4% (3½%)	3½%
UU-----	1		4	13% (1½%)		2½% (2%)
-U-UUU	2		11 (12)	3½% (3%)		6½%
UUU-U-	1		1	13% (1½%)		½%
-U-U-		1?	2		4% (3½%)	1%
-----UUUU			1?			1% 2½% (2%)
---U-U			4			1% 2½% (2%)
UU-UU-			1			1% 2½% (2%)
UU-U-U			1?			1% 2½% (2%)
UU-UUUU			2?			1% 2½% (2%)
UU---U/U			1 (4)			1% (2%)
-UUUU-	1?		1	13% (1½%)		2% 2½% (2%)
-U-UUU			3			2% (1½%)
-U---UU	2 or 4		3?	6½% (6%)		2% (1½%)
-UUUUU			1			2%
---UU? U- -UU	1			13% (1½%)		
U-U--			1			½%
UU-U-U-	1			13% (1½%)		
--U-U-	1			13% (1½%)		
-U-U-U	1		1	13% (1½%)		½%
U-U-UUU		1	1		4% (3½%)	½%
-UU---		1	2 (3)		4% (3½%)	1% (1½%)
U-UUUUU		1			4% (3½%)	½%
UUUU---			1			½%
defective	1		4	13% (1½%)		2½% (2%)
Total	60 (67)	27 (29)	170 (185)			

In the prior pāda the frequencies in J are very close to those in Sn, but in the posterior pāda the long opening syllable is twice as common as the two shorts, whereas in Sn these alternatives are about equally common. Other differences in the posterior pāda include the much greater frequency of —uu—uu in J and also of the various paccavutti forms. These discrepancies may be due to the considerably higher proportion of vetāliya in J (nearly twice as frequent as opacchandasaka) as compared with Sn (only about one quarter as frequent). We must conclude that the great majority of the Jātaka mattāchandas texts belong to the earlier period, but we must also note a tendency in the direction of the later style: in the posterior pāda —uu—uu is as common in J as it is in Th II (although uuuu—uu is absent in J). The large porportion of rathodddhatā pādas in J may also be reckoned as a tendency leading into the later period when rathodddhatā became an independent metre. This is the kind of evolutionary process which tends to confuse our picture of the metres based on our preliminary rough distinction of earlier and later styles: between the periods of the Sn verses and those of the Th II we now have to postulate an intermediate stage in which rathodddhatā pādas had become very popular, leading to the formation of a new metre and the subsequent avoidance of rathodddhatā pādas in mattāchandas. In J these three periods are all represented, since the independent rathodddhatā appears in the Kuṇārajātaka (no.536).

The Dhammapada verses may belong largely to this intermediate period, although —uu—uu appears only once. This structure has a high frequency in the Udāna, although since there are only some fifteen mattāchandas strophes in that collection it is not a satisfactory sample for our calculations. Probably the U verses too belong to the intermediate period

between (i) and (ii).

We must now study the differences between opacchandasaka and vetāliya pāda structure which have come to our notice several times in the preceding discussions. Tables 5 and 6 show the total occurrences of each form of prior and posterior pāda as opacchandasaka and as vetāliya.

In the prior pāda and the posterior pāda the bhaddavirāja (suddhavirāja) type is about equally common in both metres. This type appears to be the fundamental rhythm of mattāchandas from which the others had been derived by resolution. In the second most important type there is already a sharp distinction between the two metres, which seems too great to be mere chance: in the prior pāda the opacchandasaka shows only 12% of the vasantamālikā type against the vetāliya's over 20%; in the posterior pāda if we count the repetitions there is very little difference (28%/30%), otherwise without repetitions only 22% of opacchandasaka but 29% of vetāliya. In the third type (—uu— /—uu—uu — if it is correct to bracket these prior and posterior forms) there is little difference in the prior frequencies, but in the posterior there is a great increase in the frequency in vetāliya (op: 5%/vet:12%). The greater frequency of pupphitagga as against aparavatta is due to the inclusion of the Lakkhaṇa verses which are almost pure pupphitagga and should perhaps have been excluded along with the poems in rathoddhatā. In the other opacchandasaka texts the frequency of pupphitagga is no higher than that of aparavatta in the vetāliya texts. The inclusion of the Lakkhaṇa verses lowers the percentages of the other opacchandasaka types very slightly as compared with those of the vetāliya (the bhaddavirāja type would in fact increase by 5% in the prior pāda, the vasantamālikā type by 1½%, the others by not more than 1%: the present discussion is not appreciably affected by this correction).

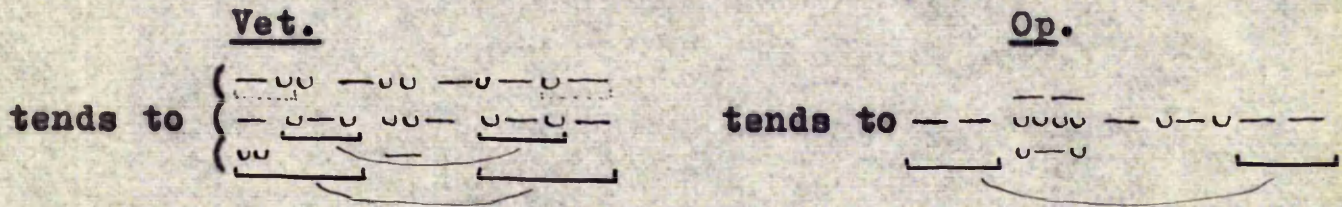
The other prior types do not show any marked difference between the two metres. In the posterior pāda the fifth type (----), which appears in only about 1½% of the vetāliya sample, rises to more than 7% in the opacchandāsaka, if we include repetitions. The rathoddhatā, which is extremely rare as an opacchandāsaka pāda (only one clear case, some cases of -u- -uu may be corrupted rathoddhatā or intended to be given the rathoddhatā rhythm by licence), accounts for nearly 5% (perhaps considerably more if we are right in correcting all cases of apparent -u- -uu) of the vetāliya. In this connection we may note that the other udiccavutti types, though rare everywhere, show a slightly higher frequency in vetāliya. -- uuuu is twice as frequent in opacchandāsaka as in vetāliya, and -- uu- , which accounts for 2½% of the opacchandāsaka, does not appear at all in the vetāliya sample. -- u-u , which may be compared with these two forms (and they may all be compared with -- --), is likewise much commoner in opacchandāsaka (2%/½%). The other types are too rare to be compared, except perhaps in the light of conclusions drawn on the basis of those we have already examined.

Our findings may be summarized as follows:

Prior Pāda

Little difference except that uu -uu -u-u- is considerably more frequent than uu -uu -u-u-- and that if we disregard the Lakkhana -uu -u-u-- is more frequent than -uu -u-u- .

Posterior Pāda



The only explanation which I can offer to account for these differences in the handling of the two metres is the apparent parallelism between the cadences and the favoured openings: op: $\text{---} \dots \text{---}$ and vet: $\text{---} \text{u} \dots \text{u} \text{---}$ (when not 'syncopated' we might suggest that $\text{---} \text{u}(\text{u}) \dots \text{u} \text{---}$ is the nearest approach possible to such parallelism or interplay between opening and cadence). It seems that there was a strong tendency of this type in the posterior pāda because the cadence of the pādayuga was prominent, compared with that of the prior pāda, and also, I suggest, because, according to the proto gāṇa-division implied by other features of the versification, the complete 4 mattā group at the beginning of the normal posterior pāda was felt as a unity which, in opacchandāsaka, could answer to the final group of the cadence: $\text{---} \text{---} / 4 / \text{---} \text{u} \text{---} \text{u} \text{---}$ (compare: $2 / \text{u} \text{---} \text{u} / 4 / \text{u} \text{---} \text{u} / \text{---}$ rathoddhatā-udiccavutti). In the prior pāda there is a weaker tendency to $\text{---} / \text{---} \dots \text{---}$ which perhaps checked the rise of the initial resolution in opacchandāsaka (but not in vetāliya) to some extent. In the next section we shall develop this discussion further in connection with the interplay of the pādas in the strophe.

To conclude this section we have to say something about the development of the other metres and clarify one or two

other points concerning the pāda structure which bear on this development.

Jacobi suggests (ZDMG 1884 p.592) that the first syllable in mattāchandas is anceps just like the last. This is his reason for accepting the opening —u— (/—...), which if included in our scheme would constitute a kind of 5 mattā 'gana'. In my earlier research on mattāchandas I accepted this 5 mattā gana and incorporated it in the schemes as a kind of 'cyclic dactyl' or at any rate as being equivalent to a 4 mattā gana. I rejected the 'anceps' idea and accepted /—u—/ medially as well as in the initial position. In the light of my study of metrical licence and of the origins of the rathodhatā I have now abandoned the "5 mattā gana" and consider it much more satisfactory to regard any pāda opening with —u—... as being in fact an original —u—u..., uu—... or —uu—... . I found that practically all the examples of this in the Jātaka contained syllables which elsewhere are regularly shortened by metrical licence, so that the pādas could be scanned in the alternative ways quite naturally. Other cases (which are recorded in my tables) I now believe to be corruptions, and in some cases inferior readings accepted by editors such as Fausbøll himself and others who like him and Jacobi regarded —u—... as a normal mattāchandas opening.

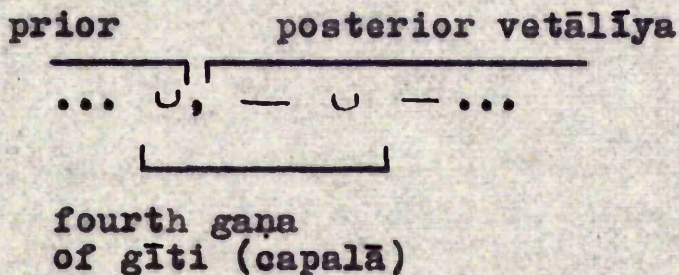
It should be noted that the anceps initial syllable was essential for Jacobi's theory of the origin of the posterior vetāliya through the dropping of the first syllable of a jagatī pāda:

(u) ↓ u—...
becomes anceps

-having rejected this theory we do not need to assume the anceps syllable. However,

in common with all Vedic period verse we may assume that the pre-Pali metre from which mattāchandas evolved had the anceps initial. In this case there may be traces of such a usage in the earlier Pali verses, or at least the initial syllable of a pāda may be more liable to metrical alteration than the other syllables, that is, a syllable of a Pali word which is not normally liable to metrical lengthening or shortening may be altered if it happens to occupy this position in the pāda.(1) This would of course apply to such cases as $u/-uu... > --/-uu...$ and others, besides $-u- > uu-$.

In discussing the origin of gaṇacchandas Jacobi again makes use of the posterior opening $-u-$:



- it is true that the gīti

seems to have appeared in the earlier period (a fact not known to Jacobi) and may have owed its origin partly to this anceps syllable, but it should be noted that the last syllable of the prior pāda is much more certainly anceps and that we find $\dots/-, uu/\dots$ also as the fourth gaṇa in some of our earliest gīti verses. This junction gaṇa linking the pādayuga may therefore have been more flexible than Jacobi supposed, so that his scheme of derivation may be too artificial, or may be only a special case.(2) It is easy to see why $u-u$ was the favourite

(1)...There appear to be similar cases of exceptional licence in the initial syllable in the oldest gaṇacchandas verses.

(2)...In the following chapter we present an improved theory of the origin of gaṇacchandas including intermediate stages, or perhaps parallel lines of development, not noted by Jacobi, which, besides accounting for the displacement of the 'cadence' rhythm, allows us to see the possibilities of variation in the fourth gaṇa.

form for the fourth gaṇa in early gaṇacchandās, without insisting on this exact correspondence with a mattācchandās prototype.

We now come to the following statement by Professor Smith (Sd.p.1155): "Devant cette ligne impaire... on place aux endroits pair... une 'base': normalement $\cup\cup$ ou $-$, anciennement aussi $-\cup$ ou $\cup-$, base, qui, nonobstant l'autonomie des gaṇa, formera plus tard, avec la mesure suivante, une unité à six mores..." -He instances the samavutta forms aparantikā, rathodhatā, and also svāgatā and the fused types resembling it: $-\cup-\cup(\cup-\cup-)$. Now in his study of mattācchandās Smith employs as far as possible the gaṇa-division: $\cup\cup-/\cup\cup-/\cup-\cup-//\cup\cup/-/-/\cup\cup-/\cup-\cup-//$. We reject this, except for the rare 'base' pādas which we have termed 'syncopated', and give as the normal form: $\cup\cup/-\cup\cup/-\cup-\cup-(\cup-)//\cup\cup-/-\cup\cup-/\cup-\cup-(\cup-)//$. The 'base' here appears in the prior pāda ("ligne impaire"). (1)

In the syncopated pādas (according to our analysis) the 'base' in the prior pāda is absorbed into an opening gaṇa and a second gaṇa overlaps the cadence as in Professor Smith's scheme: $\cup-\cup/\cup\cup-/\cup-\cup-$. This perhaps originated through beginning 'sama' with the musical accompaniment, the first syllable coinciding with the graha instead of anticipating or following it (cf.p.160). In the posterior pāda the same shift takes place: $-\cup-\cup/\cup\cup-/\cup-\cup-$. This pāda now begins 'viśama' with the musical accompaniment, instead of sama, and

(1)...cf. Fausbøll, followed by Jacobi: $\cup\cup/-\cup\cup-/\cup-\cup-//\cup\cup-/-\cup\cup-/\cup-\cup-$ with the tetrasyllabic 'feet' supposedly inherited from Vedic metrics: it may be seen from the schemes given at the beginning of this Section, and in the preceding Section, that the tetrasyllabic 'foot' is not the rule even in Vedic triṣṭubh.

a 'base' appears. As before the cadence is overlapped. In the 'pavattaka' of the metrical theory both pādas of the yuga are syncopated:

u-u/uu-/u-u:-, -/u-u/uu-/u-u:-

-notice how the gaṇa division may here be carried right through the pādayuga, which is impossible in the normal form. This point will be developed in the following chapter, in discussing the origins of gaṇacchandās.

The "unité à six mores", if it is of any significance, is normally a feature of the prior pāda and not the posterior both in the texts and in the Indian theory. It would appear in the posterior pāda in the syncopated forms. It is correct to say that the openings -u and u- are early, but already, and not merely at a later stage, they would show a probable 6 mattā unity with the following syllables, as in the common Sn prior pāda -u-u... (u-u-... occurs once in Sn). On our analysis, of course, these forms are regarded not as 6 mattā 'gaṇas' but as respectively normal and syncopated openings involving a proto gaṇa-division: -/u-u or u-u/- .

In the light of this discussion we may consider briefly the ways in which the other metres belonging to the mattāchandas family appear to have originated.

In the first place we have seen how the tendency to successions of short syllables gave rise to pupphitaggā and aparavatta and to the fixed classical forms of opacchandāsaka and vetāliya (pp.166-7).

In the second place we find the samavuttas produced by the repetition of a single pāda-structure in place of the adḍhasama pādayugas. Of those formed directly from the two

main metres the rathodhdhatā is the only one which occurs in the Canon: as we have seen it originated from the syncopated form of the posterior pāda of vetāliya known as 'paccavutti':

uu uu/ uu uu/- u-u- ... posterior vetāliya

uu /u-u /uu -/u-u- ... paccavutti

- / u-u/ uu -/ u-u- x4.. rathodhdhatā

- it is possible that the alternative forms of the paccavutti were still allowed in the Canonical rathodhdhatā:

- / u - u / - - / u - u -

sā jarāya bhaggā vināsitā Th II 262c

but there are no examples of this in the other texts, J V 452-4 (Kuṇārajātaka) and D III (Lakkhaṇasutta). (1)

The dodhaka (and the meghavitāna, which does not occur as an independent metre in the Canon and is merely anticipated in J III (VII th nipāta, 149 a) and possibly in a corrupt vetāliya strophe in Dh) is formed by repeating a vegavati pāda (dodhaka = posterior vegavati x 4, meghavitāna = prior vegavati x 4). The vegavati and svāgatā appear to have resulted from an attempt to simplify the structure of mattāchandas by bringing

(1)...A score of useful examples of metrical licence may be adduced from these texts in a fixed metre.

the cadence into line with the opening of the pāda. They doubtless originated in the same period as the gīti, when various ways of making mattāchandas more singable were being tried:

$\overline{UU} : - . UU : - . U - U . - , \overline{UU} . \overline{UU} : - . UU : - . U - U . -$ vetāliya
 $U - U . UU : - . U - U . - , - . U - U . UU : - . U - U . -$ pavattaka
 $- : \overline{UU} . \overline{U} : - . - : \overline{UU} . - ; - . \overline{UU} . \overline{U} . - : - . UU . -$ svāgatā
 $UU : - . UU : - . UU : - . - ; - . UU : - . UU : - . UU : - . -$ vegavatī
 $UU : - . U - U . - - . U \overline{U} / U . - : - . U - U . UU . -$ gīti

- it should be noted that

these three metres all have the cadence $UU--$ to the pādayuga.

The vegavatī may have been the earliest, being based on a

normal vetāliya pādayuga: $UU / - UU / - U - U - // - UU / - UU / - U - U -$
 $> - UU / - - > - UU / - -$

The svāgatā is based on the paccavutti, i.e. it has the

posterior pāda syncopated. It is thus related to the rathodd-

hatā. In the svāgatā the pādas thus all open in the same way

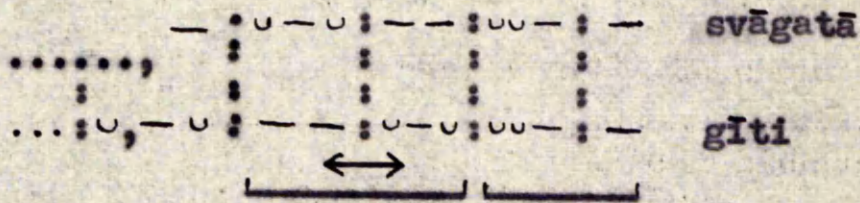
and the aḍḍhasama form is maintained only by an additional long

syllable at the end of the posterior pāda: $- / \overline{UU} \overline{U} / - - / UU - (-)$.

Later, the classical fixed svāgatā has the form $- / U - U / - - / UU -$

$/ - \times 4$ derived from the posterior pāda. Its structure should

be compared with that of the gīti:



The vegavatī as well as the svāgatā may not be a completely fixed metre in the Canon, i.e. it may still be a mattāchandas in the proper sense of the term:

— / — u u / — u u / — —
yo lobhagūṇe anuyutto,
— u u / — u u / — u u / — —
so vacasā paribhāsati aññe/Sn 663 ab

u u / — u u / — u u / — u
mukhadugga vibhūtamanaⁱya,
— u u / — u u / — u u / — u
bhūnahu pāpaka dukkatakāri/Sn 664 ab

(the initial long occurs several times
in Sn 663 - 678)

u u / — u u / — u u / — —
atha saṭṭhisitā savitakkā,
u u u u / — u u / — u u / — —
puthujanatāya adhammanivittā/SI 187 - Th I 1217 ab

The svāgatā, whose posterior pāda resembles that of the gīti (as we have just seen), originally opened in a very similar manner to the vegavatī. It may perhaps be regarded as a modified form of a proto vegavatī mattāchandas:

uu / uu uu / — uu / — — , uu uu / — uu / — uu / — — proto vegavatī
— / uu uu / — — / uu — , — / uu uu / — — / uu — / — svāgatā

- the cadence although

apparently similar in the posterior pāda probably had a different rhythm: $\frac{1}{-uu}/\frac{1}{--} > \frac{1}{uu-}/\frac{1}{-}$. The Pali svāgatā is a true mattāchandas in the sense that it is to some extent variable within the mattā count. Unfortunately there are so few verses in the Canon that their analysis is extremely precarious and it is hardly possible to go beyond Smith's description, Sd1169, which is supplemented by, if it was not originally based on, his analysis of the svāgatā verses in BHS (DP p.26). Smith has pointed out the significant affinities between the ancient svāgatā as represented in S I (together with the metres of Th I 382-4, 1242-45, and the vegavati and ariyā) and the Apabhraṃśa > Hindī techniques which culminated in the caupāī (Sd 1171, DP 40). His demonstrations are not invalidated by his assumption of a 6 mattā gaṇa, although there does not seem to be any good reason to postulate such a gaṇa in either Pali or Hindī metrics (cf. Sinha p.180). We should merely alter his scheme for the svāgatā (Sd 1169) to:

$$\frac{-}{(uu?)}/\frac{u-u}{uu-}/\frac{-}{-}/\frac{uu}{-}/\frac{-}{-}/\frac{u-u}{uu-}/\frac{-}{-}/\frac{uu}{-}/\frac{-}{-} \times 2$$

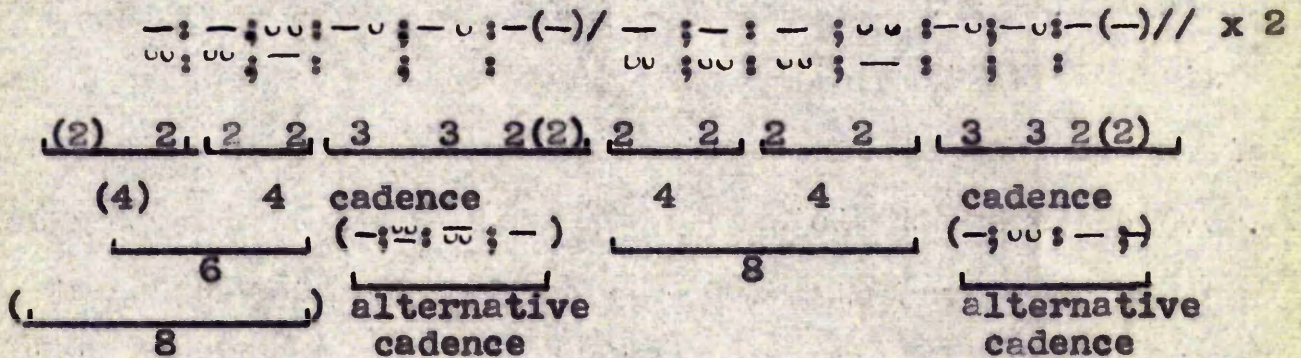
The last of these metres belonging to the mattāchandas family which are found in the Canon, the visamavutta upaṭṭhitappacupita, should be considered with the svāgatā and the other associated metres mentioned by Professor Smith in tracing in the later ancient Pali metrical techniques the origins of the Apabhraṃśa - Hindī system. The analysis of this

metre must be deferred until after we have studied the rhythms of gaṇacchandās, since there are striking parallels between these two and our study of the latter will enable us to dissect the complicated upaṭṭhitappacupita strophe. It will therefore be convenient to consider the metre in Chapter IX, which is in any case appropriate since already in Pali it shows its three fixed forms as classified in the Indian theory and is not a true mattāchandas. We may anticipate here, however, by saying that this complex metre appears to have been based originally on the mixed vetāliya - opacchandāsaka strophe structure as exemplified in the Suttanipāta.

7. The Mattāchandas Strophe

In the last section we reached the conclusion that the prior and posterior pādas unite in a pādayuga which normally opens 'viṣama', with an incomplete proto-gaṇa, and follows through 'sama' with the presumed tāla accompaniment in the posterior pāda, which has a complete initial proto-gaṇa. We do not seem to be justified in speaking here of 'gaṇas' in the strict sense, since such an articulation of the pādas has not yet fully crystallized, especially in the cadence, and mattāchandas may loosely be described as a 'semi-musical'

metre. (1) Two pādayugas form the mattāchandas strophe (2) (the strophe of three yugas does not seem to have been used in our texts, but it was probably known and very likely used in these metres, since it appears in gaṇacchandas):



- the grouping of the cadence in three-mattā segments is suggested by Smith's characterisation of the rhythm of the metre as "binaire - ternaire" (Sd 1155), but he would presumably divide the cadence differently: (—):u—;u—:(—). The structure indicated for the free part of the pāda is not absolute and may be syncopated. Moreover its rhythms interact with those of the cadence not only in that they may overlap but also in that they tend to

(1)... See the discussion at the beginning of this chapter. All Indian metres are of course 'musical' in the broad sense that they are usually sung, but these metres are further 'musical' in a stricter sense to the extent that they are organised on the musical basis of tāla. According to the old Indian theory (reported by Weber UM 281, etc.) the distinction between gaṇacchandas and mattāchandas is that in the latter the mattā are not divided in a fixed number of gaṇas.

(2)... The term 'strophe' seems most convenient in place of 'gāthā', which is a vague general term often meaning a whole poem. "Stanza" is not a good name for the Indian unit, which is usually a quatrain and is sometimes built up into larger

reflect or compensate one another (op/vet/veg/svā). The extra syllable at the end of the opacchandāsaka was perhaps felt to be awkward in the prior pāda, especially as the desire for a more fully musical metre developed, hence the extensive use of the mixed vetāliya - opacchandāsaka pādayuga. In the vetāliya the final syllable may have been pluta or followed by a cheda, making three mattā as in the preceding segments of the cadence.

The use of the different structures of the free parts of the pādas in the composition of strophes does not appear to have been governed by chance. The various prior and posterior pāda structures are related to one another by the similarities and oppositions of their rhythms, and a strong feeling for imitation, contrast and balance in the interplay of these rhythms manifests itself in the structures of the pādayuga and especially of the strophe as a whole which are found in our texts.

Turning first to the Suttanipāta, we notice at once in the first poem (1) (in opacchandāsaka) a regular strophe

(Page 183-(2) contd.)....'pādas'. 'Strophe', with its strong implication of a completed unit or division (a 'turn' in a dance), seems happiest for musical metres which were probably closely connected with dancing.

(1)...The Uragasutta.

structure A2A2⁽¹⁾ unbroken throughout verses 1-6, with the resulting contrast between the openings —/uu. Verses 7-15 then show many different structures (apart from the refrain pādayuga A2 continuing from the opening verses), which, however, resemble one another in that all the pādas open with a long syllable. The concluding two strophes (verses 16-17) then revert to the structure A2A2.

The next poem (Sn 18-34, Dhaniyasutta) is in the mixed vetāliya-opacchandasaka metre (strophe: VOVO normally, with a number of irregularities probably due to corruption) with three 'tag' verses in pure vetāliya. The sutta is a dialogue in which the two speakers utter alternate strophes (str 1-12), followed by a narrative strophe (13), two strophes (14-15) in which Dhaniya makes known his resolve to become a disciple of the Sugata, and an altercation (str 16-17) between

(1)...It may be convenient to repeat here the letters and numerals used as shorthand for the more important pāda structures:

<u>Prior</u>		<u>Posterior</u>	
A	— —uu	1	— — —uu
B	uu —uu	2	uu — —uu
C	— uu —	3	— uu —uu
D	uu uuuu	4	uuuu —uu
E	— u—u	5	— — u—u
F	— uuuu	6	— — uuuu
G	— — —	7	— — — —
H	uu — —	8	uu — — —
		9	— — uu —
X	u—u uu	10	—u— —uu
Y	u—u —	11	— u—u uu
Z	— — u—/u	12	uu u—u —
		13	— u—u —
		14	uu — — u—/u
		15	— — — u—/u

Māra and the Bhagavā. It is possible that the last three strophes in vetāliya (15-17) were added later to make up the same total as in the Urugasutta. The first twelve strophes - the dialogue - have a constant refrain pāda: 'atha ce patthayasi pavassa deva', which appears also in Th I 51-4. The poem is apparently not so well preserved as the preceding one: besides some op. pādas where we expect vet., spoiling the mixed metre, we find two tuṭṭhubha pādas (1a & 2a). The last two strophes seem to have been borrowed from SI 6 (para 2), where they also occur, or from a source common to both collections. Strophes 3-8 are of the same type as those of the middle section of the Urugasutta; 9-11 (or 12) form a separate group, united by their subject matter, in which the first pādayuga resembles the type of str 3-8 whilst the second pādayuga has the structure B2. It is possible that in both these poems the middle sections (Sn 7-15 and Sn 20-25) were the original kernels to which other verses were later added.

The next two mattāchandas poems in Sn (83-90 and 359-375) are in opacchandasaka. No particular strophe structure repeats over any number of these verses, but the second poem, the Sammāparibbājaniyasutta, has a refrain pāda of structure 7 throughout: 'sammā so loke paribbajeyya'.

The Sabhiyasutta (Sn 510-540) is in the mixed metre with seven vattas tagged on (541-7). There is a prose introduction and conclusion, together with a few explanatory sentences amongst the verses. The forms A, B, 1 and 2 predominate, especially with the opening long, A and 1 (but these are not as prominent as in the previous poems), with an occasional E and one pupphitaggā pāda. This poem and the Jarāsutta (Sn 804-813), which although in vetāliya otherwise resembles the Sabhiyasutta in its forms, appear to be of later composition than the others analysed above, tending towards the style of the later period (Th II, etc.).

The following is the structure of the Subhājivakambavanikāgāthā (Th II 367 - 399; 366 is an introductory vatta):

A1B2	(367)
B1B1	
C2A1	
B7C3	(370)
B4D' 3	(D' = uu uu -)
D2A2	
X3B2	(a may be A instead of X)
B4F6'	(6' = -uu uuuu)
X6B1	(375)
B2A2	
F2F2	
X3D3	
(379	very uncertain)
A4C1	(380)
A1B1	
F2B1	
B3B2	
B1G1	

C1H2 (385)
A2H2
C?1A7?
C2F1
A1C1
A1A2 (390)
A1?G1 (or first yuga: Y 0-000-...)
Y2A1
X?3B1 (or...F1)
A2B2
F1B2 (395)
A2C?3 (or..H3)
F1C2
C1Z?2 (or...G2 by sandhi)
A2F1 (399)

The mattāchandas strophes in the Dhammapada are constructed as follows:

B11A1 (15)
B 2A1
E11E1
B2E1 (18) a group of verses very similar in content. B...l constant with interplay of rhythms 11,A,2,E in between.

A2E10 (24)
A2A2 (44)
A2A2 (45)

B2A1 (80) cf. 15-18 above, especially 16.

E11?B1 (95)

(B2A1 145) (=80)

C8?A2 (179) A2 is refrain

E1A2 (180)

A1B2 (184)

C4A1 (235)
E1A1
E11A1
E1A2 (238)

E17A2	(240)	
A2E1	(284)	
A2E1	(285)	
E12A4	(324)	
E1C72	(334)	
B27A1	(341)	
B2A3		
B2A1		
A2A1	(344)	
C1A2	(348)	
X710G11		(or X11.. - can gen. in -assa be shortened to -asa m.c.?)
X2E1	(350)	
F767A1	(362)	(?of. 'lalitā')
...1A6	(371)	(of. SI 200, Th I 119 & J III 412, line 6, for the corrupt first pāda)
C2A1	(388)	

(note frequency of a strophe or a group of strophes opening with C)

An interesting group of strophes in the Jātaka is the following (Udayajātaka: vol.IV 111-2):

D1E14	(54)	
B1A14		
A1A14		(the syncopated pāda '14'
A1C14	(57)	is a refrain)

Most of the texts show some feeling for strophe structure and for the grouping of strophes and the agreeable variation and interplay of rhythms in longer poems. We may have a regular strophe A2A2 (Sn) or a basic form B2A1 more or less freely varied (Dh 15-18 and many other Dh verses); A1 is favoured as the concluding pādayuga of a strophe or a group

of strophes (Dh, J IV 99-105: Maṭṭakunḍalijātaka, U III 7-8 and VIII 5-7). Sometimes the form C is used only to begin mattāchandas poems and not in the interior of a poem (Dh and U). Elsewhere we find complete freedom of structure (e.g. Sn 83-90, 510-540), sometimes with excellent craftsmanship in the association and contrast of the various pāda forms: this more refined art was probably a later development in mattāchandas composition, it is well illustrated in the Subhājīvakambavanikāgāthā. Not only are the normal variations used frequently (as in the vatta, but without the great preponderance of one form found there and with a larger number of common 'vipulās'), but extremely rare variations may be introduced, probably with a conscious feeling for the special effect produced. Thus we have the refrain '14' in the Udayajātaka, Z in Sn, and others. The rare udiceavutti and paccavutti (including the rathodhatā '11', which sometimes is quite common) are used in this way, and apparently occasional pādas of metres other than forms of the opacchandasaka and vetāliya: meghavitāna (Dh 371a? and parallels cited above), lalitā (? Dh 362), vijayanandinī and perhaps others, but in such isolated cases it is very hard to tell whether we have true mixing or mere corruption. Unfortunately it was impossible to make a thorough investigation of such mixing/corruption of metres within the limits of the present study. This is an interesting problem awaiting research.

The composer in mattāchandas had great resources at his disposal for shaping and varying his style and for rousing the attention of his hearers by an unexpected turn. Perhaps the name 'opacchandasaka' was adopted on account of the

flexible structure and sinuous pāda-rhythm of the metre (upa
chhand = 'coax', 'entice', 'persuade').

It is interesting to compare the technique of
Ardhamāgadhī mattāchandas with that of the Pali Canon. The
first section of the Veyāliyajjhayana in the Sūyagaḍam (Sū 1. 2.
1) scans as follows (vetāliya):

A1A3
H1A1
A3A1
B7B7
G2A1
A3'A1 (3' = -uu ---...)
A3B7
B2C7
D4C7
B2A1
B8B7
H1?A1
B7A8
B2H2
B4A6
F2B2
B2H1
D'2B1 (D' = uuuu ---...)
A3A3
G1B1
A1B3'
A4'G1 (4' = uuuu ---...)

-this style is reminiscent of the Th II poem:
it contains aparavatta pādas and pādayugas (D4) and other forms
having successions of short syllables (F,D',6,4'). The
pādayuga B7 is strikingly frequent, however, and on the whole
this style appears to represent a period a little earlier than
that of Th II. There are no syncopated forms.

We may distinguish phases in the development of strophe
structure corresponding to those already noted for pāda
structure and further clarifying the history of mattāchandas.
In the earlier period we find the long-opening pādas tending to
form regular strophes A1A1, but frequently combining with the

resolved-opening pādas to form the very popular strophes A2A2 and B2A1. This inaugurates the transition to the later period through the further increase in the use of short syllables and the rejection of the tendency to rigid strophe structures found in the earlier period. The poets now seem to delight in the interplay of the numerous pāda structures which have become familiar. This transition is well under way in the Sabhiyasutta (Sn 510-540) and with the Sūyagadam we seem to have entered the later period, which is seen at the peak of its development in Th II. In the preceding section we postulated an intermediate phase of development represented by parts of J but especially by Dh and U. This seems to be confirmed by our analysis here, in which we have been led to describe the strophe structures A2A2 and especially B2A1 as showing the beginning of the transition to the later period. B2A1 is characteristic of Dh and ...A1 of U and parts of J. Dh and U are also related in their use of the opening C. Finally a new development puts an end to the free style of the later period: rigidity in the pāda appears in place of the old tendency to rigid strophe structures, and the more popular forms become separate metres. Gaṇacchandas has taken the place of mattāchandas as the flexible musical metre, and the fixed vetāliya and opacchandasaka B2B2, together with the aparavatta and pupphitaggā D4D4, take their places as aḍḍhasamavuttas amid the galaxy of classical metres deriving their beauty from the exact quantitative opposition of long and short syllables in fixed pādas.

In the Pali Canon we have thus distinguished five phases of mattāchandas, represented by the texts as follows:

(1) Earlier period characterised by A1A1 (Sn 1-34) but

more generally by the predominance of long syllables (Sn 83-90, 359-375, parts of J).

(ia) Intermediate period of transition B2A1, etc. > increasing successions of shorts; origin of rathodhatā (Dh, U, parts of J).

(ii) Later period of free style characterised by the predominance of short syllables (Th II, parts of Th I, SI).

(iia) Further development towards classical metrics with fixed pādas (Lakkhaṇasutta, with Vv showing the transition from ii to iia in a few verses).

(iii) Period of decline in Theravāda literature; borrowings from (Vv vet.) and imitations of (Pv vet.) earlier literature leading to the complete abandonment of the new metres and pedestrian compilation of edifying legends, seldom rising to epic narrative, in the familiar epic vatta with occasional tuṭṭhubhas (Vv, Fv, A, C).

(The Sūyagadam may belong to ia or ii)

The feeling for strophe structure which we have observed in our texts indicates that the Pali mattāchandas was a 'lyric' or 'strophic' metre (as opposed to an 'epic' metre), as we should expect from its connection with music.⁽¹⁾ In Classical Sanskrit vaiṭāliya and aupacchandasika were used as canto metres in the mahākāvyas, unlike gaṇacchandas which was not so used, but their musical origin had then long been forgotten and they were simply fixed metres having certain structures

(1)...In section 5 of the next chapter we shall suggest that the adoption of the aḍḍhasama structure was the first stage in the transition to fully musical metrics which was consummated by the invention of the visama structure in the ariyā: the strophe thus became a clear metrical unit, satisfying the urge for its unity felt in mattāchandas.

like any other classical fixed metres. (1)

In the early texts the strophes sometimes seem to be associated in groups or 'pādas' by the use of structural patterns linking the series or of actual verbal refrain. In any case the technique of building up larger structures more complex than the mere succession of pādas is well established, even if we are not justified in describing it as the prototype of the Apabhraṃśa pada. The mattāchandas strophe, the mixed strophe, the complex upaṭṭhitappacupita with its sometimes doubled third pāda, and above all the system of chaining verses through verbal and rhythmic repetitions and patterns: these are so many techniques of Middle Indian lyric poetry which were well known in the ancient Pali literature and lived on to produce new blossoms in the scintillating strophes and padas and the supremely musical tālavuttas of Apabhraṃśa literature.

(1)...In apparently epic type literature such as the longer Jātakas and the Th II 'ballad', the mattāchandas strophes are still 'lyric' or 'strophic'. They are usually dramatised dialogue, not narrative, often organized in groups with refrains, as when in J No.458 the four opacchandasaka strophes constitute the moral 'ovāda' delivered by the Bodhisatta at the end of the episode (with a refrain common to all four). In the Subhājīvakambavanikā ballad, although the whole story is in vetāliya (with the significant exception of a preliminary narrative vatta which sets the scene and introduces the speakers), refrains are frequent and - as often in Pali ballads - the episode tends towards drama rather than epic: it consists almost entirely of dialogue and the speakers sing rather than declaim their parts. A 'performance' would resemble that of a Classical Sanskrit drama, in which the verses are sung, but without the prose speeches since everything necessary to the action is included in the verses, which are not more or less adjuncts to the action (however relevant) as in Sanskrit, but integral parts of it despite the elaborate descriptions in which they anticipate the descriptive verses in the Sanskrit drama.

CHAPTER VI

Ganacchandras

1. During the period which we are studying, all the arts experienced a rapid development in India, and acquired the main forms which remained their basis throughout the 'classical' period. By the end of our pre-classical period the Nāṭyasāstra had systematised the conventions of the drama, music, dancing, poetics, and other related arts. At about the same time the Piṅgalasūtra had probably received its present form, incorporating the fixed syllabic metres characteristic of the classical kāvya. In the course of this development new combinations of the different media of expression were tried and all the arts interacted on one another, the drama, it seems, being the unifying goal in which successful experiments found their consummation, with an appreciative audience. In the popular arts, folk music and vernacular poetry, in which this classical art had its ultimate source, the different means of expression, such as rhythm, mode, versification, mime, costume, banners, combined naturally and were never really separated.

As we saw in the last chapter (pp.116-121), the new musical metres were closely related to instrumental music, which had developed in India prior to our period and no doubt continued to evolve its complex system of tālas and scales, through experiments on the vīṇā, throughout the pre-classical

period until its fundamental conventions were codified in the Nāṭyaśāstra. We know, from the history of Indian science and its technical applications, that mathematics was highly developed by the Koriyan period (e.g. in astronomy and architecture). It is against this sort of intellectual background that we have to chart the rise of the musical mathematics of rhythms and scales, and of the metrical mathematics of gaṇacchandās and of metre in general which we see worked out astronomically in Piṅgala.⁽¹⁾ When Varāhamihira selected the āryā as his medium he was perhaps inspired not only by the flexibility of its structure, into which any technical term could be fitted without difficulty (I owe this observation to Professor Smith, DP p.14), but also by a sense of the fitness of a metre which could be governed by mathematical principles.

The principle of exact quantitative opposition (uu) having been established with the development of mattāchandas, the next step in the adaptation of deśī verse for songs with instrumental accompaniment was to make the entire strophe subordinate to the new quantitative principle. We saw in the

(1)...See e.g. IV 53, on how to calculate the number of long syllables in a strophe (given the length in mattā of the strophe and the total number of syllables it contains), and book VIII for the rules for calculating the permutations possible in any metre. Thus in a strophe containing 4 pādas of 26 syllables the number of variations is 20,282,388,000,000,000,000,000,000,000,000.

last chapter that this was tried within the framework of mattāchandas by means of a new cadence (vegavatī, svāgatā), but at the same time, or perhaps even earlier, experiments had been made involving the reorganisation of the whole strophe. Whereas the simple reduction of the cadence to the prevailing rhythm, as in vegavatī, produces a rather monotonous metre, the flash of genius which invented the division of the strophe into equal gaṇas (perhaps suggested by the vegavatī) realized also the possibility of varying the rhythms of these gaṇas: every second gaṇa has a rhythm opposed to its neighbours, which appears in fact to have been derived from the old mattāchandas cadence ($(-\underline{u}-u)-(-)$). Thus originated the earliest recorded gaṇacchandas metre, called appropriately the 'gīti', "song". We shall examine this transformation of the mattāchandas strophe in detail below (section 4). It may be noted here that the svāgatā was a kind of compromise between mattāchandas and gaṇacchandas, in which, the cadence having been assimilated to the prevailing rhythm, as in vegavatī, the old cadence-element $(-)\underline{u}-u$ was introduced in the opening part of the pāda by way of diversifying the rhythm, without, however, reorganizing the strophe in a system of gaṇas.

By the end of the period we are studying the old gīti, with its rigid 'capalā' alternation of the two gaṇa-rhythms, had been superseded by an ariyā in which almost endless variation of

rhythm within the limits of exact quantitative opposition and the gaṇa organization was practised, as a glance at the tables will show. The new technique of versification thus evolved did not remain limited to the musical metres, however, for the entire repertoire of Indian metrics, with the single exception of the epic vatta, was assimilated to the new principles. Not only is exact quantitative opposition the very basis of all the classical fixed syllabic (vṛtta) metres as well as of the musical (jāti) metres, but phrases or segments of rhythm clearly taken from the gaṇacchandās system, and familiar in the Pali ariyā, abound in the fixed syllabic metres, and probably the majority of them will be found to have favourite gaṇacchandās phrases, rather than modifications of the tuṭṭhubha, as their basis, just as in our period it was mattāchandās which gave rise to the majority of the early fixed syllabic metres.⁽¹⁾ The tuṭṭhubha was assimilated to exact quantitative opposition, as we shall see in Chapter VIII, before taking up its special duties as sophisticated narrative metre in the classical repertoire (tradition represented by Aśvaghoṣa) with the alternative forms upajāti and vaṃsaṭṭhā.

We have already mentioned the two forms of gaṇacchandās which predominate in the Pali Canon, the gīti and the ariyā, which appear to represent successive stages in the evolution of the metre rather than alternative structures used contemporaneously. A few strophes of uggīti (udgīti)(inverted ariyā) and upagīti (the two short pādayugas) are found, which presumably belong to the later stage. The samavutta pamitakkharā

(1)...I would suggest that the mysterious 'dhruvā' metres of the drama, which are 'syllabic' but apparently derived from music (being opening strophes of songs), have the same origin, and may illustrate the formation of the classical syllabic metres, but I have not studied them (see Nitti-Dolci, GP.pp.84 ff).

(pramitākṣarā), the visamavutta uggatā (udgatā) and other fixed syllabic metres derived from gaṇacchandās will be studied in Chapter IX, although some references to their origin will be made here. The discussions in Chapter IX are in fact a continuation of the present Chapter, since we have to regard the formation of the classical fixed metres as an extension of gaṇacchandās technique. The more direct continuation of the musical metres which led to the Medieval mattāvutta (cf.p.120) is not discussed in this study. The gaṇacchandās form of musical metre, especially the ariyā, remained in use for some centuries (Māhārāṣṭrī lyric, for instance) before the transition to mattāvutta took place when the Apabhraṃśa stage of the language had been reached.

Besides the distinctions based on the lengths of the pādayugas, gaṇacchandās is classified in other ways: according to the position of the caesura at the end of the prior pāda (pathyā/vipulā) and according to the presence (capalā) or absence of the rhythm 0-0 in every even gaṇa. These distinctions are of very great importance in Pali gaṇacchandās, whereas in the classical literature they are secondary refinements whose significance is not very clear. The ancient theory which describes them is thus more closely related to the Pali metre (although the rules do not apply exactly to the Pali examples, and are evidently based on the literature of a somewhat later period) than to the classical metre, which rarely deviates from the standard ariyā pathyā and merely adheres to the rules without fully exploiting the resources they offer, the rhythmic variations which they reflect having no doubt disappeared from the living practice. The traditional total of 80 forms of gaṇacchandās represents the possible combinations and permutations of pathyā, vipulā and capalā in the two pādayugas of gīti, ariyā, uggīti, upagīti and ariyāgīti (this last has not been found in the Pali literature). Finally

we have to examine the "gurviṇī" (= gabbhinī in Pali??) metre, which possibly occurs in the Canon (or the apparent examples may be mere corruption), in which the rhythms of the odd and even gaṇas are simply interchanged. The early gaṇacchandās was in fact a single metre which underwent gradual modification and was capable of various alternative structures, the most important of which were named.

Before examining Pali gaṇacchandās in detail and discussing the evolution of the metre it is desirable to give a fuller account of the traditional theory and its terminology.

2. We have already remarked that the Indian theory seems to have been based on a stage of gaṇacchandās a little later than that represented in our texts, but nevertheless closely akin to our stage and following many of the same rules. We may therefore adopt this terminology, bearing in mind, however, that it is not the original terminology and views the metre from a different standpoint: the ariyā pathyā non-capalā is taken as the norm, whereas in our texts the capalā is everywhere the predominant structure, the gīti vipulā capalā is the original form of the metre, and the vipulā is as important as the so-called pathyā. In fact the whole theory is standing on its head as far as we are concerned, but it represents the perfected metre for which our poets were preparing the ground. Sometimes our verses seem tentative and experimental in character (this is a purely subjective judgement hard to substantiate with the badly preserved material at our disposal), as if new rhythms were being tried out in various combinations and a classical norm of usage had not yet been arrived at. We must therefore beware of imposing the later rules throughout the Pali verses in attempting to restore them out of the chaos of

the manuscripts copied for two millenia by scribes who did not understand the metre. One is constantly in danger of 'over-restoring' - as we might call it when freer verses or a more fluid language is forced into some classical norm. We should remember Professor Smith's remarks (DP p.9) concerning the reduction of Pali and BHS tuṭṭhubha verses to the "banale" upajāti rhythm by the classicalists:

"...on doit assigner une date assez reculée à la versification propre au style mixte, laquelle, usant abondamment des équivalences... --/uu-/uuuu, que pratiquait avec virtuosité le Buddhavaṃsa, a suivi, non sans y contribuer peut-être, le développement de la technique sanskrite, en soumettant aux normes rigides de Piṅgala une matière sonore bien plus souple que n'était celle du haut moyen-indien. [He goes on to quote Rückert on the same problem in studying Persian verse based on Arabic models]... On renchérit donc sur les licences prosodiques en faisant scander (Mv)... *arthadaśī matinām* au lieu de... 'vīyākare arthadaśī matinām' ~ 'sevetha naṃ atthadaśī matinā' 'Sn 385d (ici la v.l. 'atthadaśo', comme atthadaśā' J VI 260.4 au même endroit du vers, remonte peut-être à un *atthadaśa-, bâti comme 'duddadaśa-'... 'durdāśa', et introduit ici par quelqu'un qui affectionnait la triṣṭubh banale et classique)"

The terms used by the Sanskrit writers on gaṇacchandaa are as follows:

the 5 metres described by the early writers from Piṅgala onwards.

{ gīti (30 + 30 mattā)
āryā (30 + 27 : the short 6th gaṇa in the second half)
udgīti (27 + 30)
upagīti (27 + 27)
āryāgīti (32 + 32: full 8th gaṇa)

From these five with vipulā and/or capalā in both pādayugas, in either, or in neither (= pathyā) we obtain the traditional eighty kinds of gaṇacchandās. The later theoretical writers worked out and labelled all possible combinations of two pādayugas of 30, 27, 32 or 29 (short 6th. and full 8th. gaṇas) mattā, making altogether sixteen metres and 256 kinds of gaṇacchandās. Cappeller decided (G p.25) that the 29 mattā form is quite artificial and never existed in the literature, which would rule out the 7 metres which are said to use it: saṅgīti, cārugīti, vigīti, mañjugīti, pramadā, pragīti, candrikā. This leaves the above five with four others making a total of nine, which is also a traditional figure in connection with varieties of gaṇacchandās. The four are all metres with the full 8th gaṇa in one pādayuga:

sugīti (32 + 27)

anugīti (27 + 32)

vallarī (32 + 30)

lalitā⁽¹⁾ (30 + 32)

(1)... 'lalitā' is (probably merely by chance) the name of one kind of uggatā. We shall see in Chapter IX that the uggatā has in effect a prior pādayuga of 32 mattā, but a posterior of only 26 mattā (6 full gaṇas and a half). It thus bears some resemblance to the vallarī.

In the extant Classical literature, Sanskrit and Prakrit, only the āryā is common, as we have already noted, whilst in Early Middle Indian, Pali and Ardhamāgadhī, the gīti is common and appears to be the original metre from which the others evolved: it is therefore noteworthy that of these nine names six contain the word 'gīti', suggesting that they were originally regarded as varieties of that metre.

We have noted the rare occurrence of uggīti and upagīti in Pali; they also occur very rarely in the Classical literature. The ariyāgīti appears to represent an old form from the experimental period in which the sixteen gaṇas of the musical strophe were filled completely by the words instead of each pādayuga terminating with a prolonged syllable or a rest. In the Classical period rare occurrences of ariyāgīti have been found (Ballini p.102), together with a continuous use of it in the Nalodaya at the end of that period (Cappeller G 87 ff): this late example should perhaps be compared with the contemporary Apabhraṃśa mattāvuttas which also show the full gaṇa at the end of each pāda (pajjhaṭikā, for instance: $\frac{\underline{UU}}{\underline{UU}} / \frac{\underline{UUUU}}{\underline{UUUU}} / \frac{\underline{UU}}{\underline{UU}} / \underline{UUUU} \times 4$, is practically identical with ariyāgīti). The Nalodaya metre is also closely related to Apabhraṃśa mattāvutta in its regular use of rhyme. We have no examples of ariyāgīti in our period, but we do find varieties resembling it in having the full end gaṇas in the so-called "hypermetre" in Ardhamāgadhī (described by Jacobi in IS XVII 389 ff.), in the metres called 'mātrāsamaka' ⁽¹⁾ in the early theory (Piṅgala IV 42-7) - of which the only traces in the literature are those in the Mahābhārata discussed by Hopkins (GEI 353-4), and in the

(1)...On later metres of this type see Sinha 177f. (origin of pādākulaka > caupāi).

metres called 'gītyāryā' in the early theory (Piṅgala IV 48-52) but not found in the extant early literature (one strophe is found later: Naiṣ XXII 148). Taking a hint from Jacobi we may suppose that as the gīti evolved from the vetāliya the proto-ariyāgīti was evolved from the opacchandasa.

If the ariyāgīti is rare, only the shadows of its variations vallarī and lalitā (mixed with ordinary gīti), sugīti (cf. ariyā) and anugīti (cf. uggīti) are to be found. Only the sugīti may claim two extant examples (see Ballinī p.102).

pathyā (any of the above metres having a caesura immediately following the third gaṇa of each pādayuga)

vipulā (any of the above metres not having a caesura immediately following the third gaṇa of the first pādayuga: 'ādivipulā' or 'mukhavipulā', of the second pādayuga: 'antya vipulā' or 'jaghanavipulā', or of both pādayugas: 'mahāvīpulā')

capalā (any of the above metres having ◡—◡ in the second and fourth gaṇas of either or both pādayugas: 'ādicapalā'.....'mahācapalā'. Other rules are given which were not yet observed in Pali, although they may have developed from tendencies already present in Pali usage)

gurvinī (characterised by having ◡—◡ in the odd gaṇas. The genuineness of this metre was doubted by Cappeller (G pp. 78-81), and it is not mentioned by Piṅgala. The corruption which Cappeller suggests was responsible for the apparent occurrence of gurvinī in the Classical

literature may also be invoked to explain the more numerous apparent cases in Pali. On the other hand the 'hypermetre' in Ardhmā-gadhī is definitely of the gurviṇī type, and in the most thoroughgoing manner, the rôles of the odd and even gaṇas being interchanged throughout. There is thus no reason to doubt that the gurviṇī of the theory existed in the earlier period, although the recollection of it in the treatises on metrics is extremely vague).

Jacobi's "Law of Vipulā" (see "Zur Kenntniss der Āryā," ZDMG XL, 1886, 336 ff.) based on the usage from the Hāla Anthology onwards, was not yet observed in the Pali ariyā, although the normality of the pathyā had already become established in the later Canonical texts and the vipulā had been reduced to its secondary position.

The gurviṇī is perhaps more primitive than the gīti in that its arrangement of the gaṇa-rhythms more directly reflects the structure of mattāchandas. With the relationship between gīti and gurviṇī may be compared that between ordinary vetāliya and pavattaka. This parallel will be studied below.

3. In the tables the seven possible gaṇa structures (—, 00—, —00, 0—0, 0000, 0, —), with 0— as a doubtful eighth, are shown separately with their occurrences in selected Canonical texts as the various gaṇas of the strophe:

Posn. of gāṇa	Upāli- sutta (MI 386)	Metta- sutta (Sn 143 -151)	Tuvaṭaka- sutta (Sn 915- 934)	Isidāsi- gāthā (Th II 400-447)	Sumedhā- gāthā (Th II 448-487 & 493- 522)
1	7(1)	7?	13(2)	26	41
2				8	19?
3	7	7	12	32	43?
4			1(- -)	20	21?
5	7	9	8	25	41?
6					
7	6		9	26	35?
8					
9	5(1)	8	12(2)	28	41
10				9	12
11	6	6	13	32?	40?
12				15	23?
13	5	9	8	37	40?
14	1				
15	5	1	5	26	39
16					
17	8(1)				
18					
19	7				
20					
21	1(10)				
22					
23					
24					

- (1)...If \cup - was permitted as the first gāṇa of a pādayuga, distinct from -- by licence (or anceps), then -- only 6 times in 1, only once in 9, and 5 times in 17; the balance being \cup - (or \cup -).
- (2)...One case in 1 and two cases in 9 are perhaps \cup - (of. preceding note). The figures for the Tuvaṭakasutta are incomplete, the poem being very corrupt with a number of apparent gurviṇī type deviations from the usual structure, which resembles that of the two preceding poems. We have omitted Sn 915, 917 bod, 918b, 920d, 923b, 926-7, 929b, 932, 933d.

Posn. of gana	Upāli-sutta	Metta-sutta	Tuvaṭṭaka-sutta	Isidāsi-gāthā	Sumedhā-gāthā
1	3	2	3	13	9
2			2	8?	7
3	3	2	4	6	18
4	2	2	1	9?	7?
5	3			13	12?
6			1?(2)		
7	4	9	3	13	19?
8					
9	4	1	2	10	15
10			1	5?	7
11	4	3	2	9?	17?
12		1	1	5?	13
13	5		2(3)	9	23?
14	1		1		
15	5	8	8	18?	15
16					
17	2				
18	1				
19	3				
20					
21					
22					
23	1(10)(1)				
24					

(1)....Doubtful licence, but our scansion is certain unless the cadence was outside the gaṇacchandās structure (opacchandāsaka!).

(2)....Burmese mss. and Niddesa read 'payuttaṃ' here: U—U.

(3)....One may be U—U (931).

Posn. of gaṇa	Upāli- sutta	Metta- sutta	Tuṇḍaka- sutta	Isidāsi- gāthā	Sumedhā- gāthā
1	~~~~~ — UU does not occur in either		1?	7	9
2				5	5
3				5	4
4				6	10
5				6?	12
6				1?	1?
7				7	9?
8					
9	the Upālisutta or the Metta- sutta.		1	9	4?
10				6	13
11				6	7
12				10	6
13					2?
14					
15				4?	10
16					
18					
19					
20					
21					
22					
23					
24					

Posn. of gaṇa	Upāli- sutta	Metta- sutta	Tuvaṭaka- sutta	Isidāsi- gāthā	Sumedhā- gāthā
1					
2	9	9	13	25?	27
3				1	
4	4	7	10	11?	28?
5			4		
6	7	9	11	44?	58
7					17
8					
9					27
10	8	9	14	23?	28?
11					17
12	1	8	12	17?	21?
13			2		17
14	7	8	12	1(1)	
15					
16					
17					
18	9				
19					
20					
21					
22	1(10)				
23					
24					

(1)...401. Everywhere else we find the ariyā short sixth here, so this is suspect: it is one of the verses said to have been added by the recensionists.

(U,UUU except where otherwise noted)

Posn. of gaṇa	Upāli- sutta	Metta- sutta	Tuvaṭaka- sutta	Isidāsi- gāthā	Sumedhā- gāthā
1					6 (mostly UU, UU)
2	1			2	7 (some- times UUU, U)
3				1	
4			1?	2?	
5					
6	2			2	5
7					
8					
9			1(UUUU)		2(UU, UU) &UUUU)
10	1			5(1:UU, UU)	5(1:UU, UU)
11				1??	
12			1?	1(UUUU)	5
13					
14	1	1			
15					
16					
17					
18					
19					
20	1(10)				
21					
22					
23					
24					

Posn. of gāṇa	Upāli-sutta	Metta-sutta	Tuvaṭṭaka-sutta	Isidāsi-gāthā	Sumedhā-gāthā
6					1
8	10	3	6	13	21
14				46	64
16	10	2	4	15	28
22					
24	1(10)				

Posn. of gāṇa	Upāli-sutta	Metta-sutta	Tuvaṭṭaka-sutta	Isidāsi-gāthā	Sumedhā-gāthā
8		6	7	32	43
16	(does not occur -endings in -assa)	7	8	32	35
24					

U — and U, — (1)

Posn. of gaṇa	Upāli- sutta	Metta- sutta	Tuvaṭaka- sutta	Isidāsi- gāthā	Samedhā- gāthā
1	1	(Does not occur)	27	~~~~~	
4	3		3	(Does not occur)	
9	4		17		
12	7		27		
17	3				

(1)... U, — perhaps always \equiv — —. Besides these we find five cases of U, UU apparently \equiv U, — with resolution (U has one in 4th. posn. and two in 12th.; T has two in 4th.).

It was not practicable to scan all the gaṇacchandās strophes in the Canon (the total is more than 450). On the one hand the state of preservation is extraordinarily bad, but on the other hand the very great complexity of the gaṇa metre rules out all but a very small number of possible readings. Whereas in mattāchandas a large number of different metrical interpretations may fit the mattā count, in gaṇacchandās the gaṇa divisions and the exact rules governing their rhythmic structures leave us with far fewer doubtful alternatives. The difficulty is to find the traces of the original strophes in the mangled verses which have come down to us, preserved since the first century B.C., it seems, by people who did not understand the metres, and edited by modern scholars who were similarly ignorant of them (which is hardly surprising in view of the state of the manuscript material) or who, at best (Sn), were not able to venture far into the realm of conjecture in the absence of general rules governing Pali metrics and of particular rules governing the ancient gīti. Although the restorations we can make are in most cases convincing, the time and effort needed to puzzle out these 450 enigmas proved too great for the present study, and it is hoped that the sample taken is an adequate basis for discussion.

The gaṇacchandās verses in the Canon are distributed as follows. There are two poems in Sn, the well known Mettasutta in the Uragavagga (gīti, except possibly the last strophe which Smith suggests is gurviṇī: Sd 1164) and the Tuvāṭakasutta in the Aṭṭhakavagga (gīti). These texts seem to represent the oldest stratum of gaṇacchandās in the Canon. Whereas the Mettasutta is comparatively well preserved, the Tuvāṭakasutta is full of corruptions. It does not observe

the capalā rule followed by the Mettasutta, and it seems to allow $\cup - \cup$ in the odd gaṇas. The poem may represent a slightly later stage than that of the Mettasutta, when greater freedom was allowed, the gaṇa principle having become firmly established. In any case it is much earlier than the majority of our ganacchandās texts, and we cannot reconstruct its usages with any certainty in the absence of further similar examples.

The Upālisutta of the Majjhimanikāya (which otherwise contains only a few scattered verses in anuṭṭhubha and tuṭṭhubha) is also in gīti. This eulogy of the Bhagavā resembles the Mettasutta in the regularity of the capalā structure, but it is composed in strophes of six pādas instead of the usual four, the groups of six being clearly marked by a refrain throughout. It also differs from the Mettasutta in that the first syllable of the pādayuga appears to be partially aneeps, i.e. any short syllable may be lengthened there to produce the full gaṇa ($\cup - > --$). This primitive feature seems to occur a few times in the Tuvāṭakasutta also.

In the Therīgāthā we find three poems, the Kisāgotamīgāthā, Isidāsīgāthā and Sumedhāgāthā, in the ariyā metre, with a much higher frequency of capalā than in Classical ariyā. (1) Five Jātakas, in an even worse state of preservation than the Therīgāthā verses, are in the same metre (the Culladhāmapāla, No.358, the Kāliṅgabodhi, No.479, the Candakinnara, No.485, the Cullasutasoma, No.525, and the long Khaṇḍahāla, No.542). The usage of the various gaṇas appears to be similar to that in Th II.

(1)...Note that the latter two poems are in the immediate context of the Subhājīvakambavanikāgāthā in the later style of mattāchandas.

Elsewhere there are only scattered examples of gaṇacchandās, and it is noteworthy that none are found in Dh, U, I, Vv or Pv. There are a few strophes in Th I, including uggīti (359) and upagīti (489), in the Mahāvagga of the Vinaya, in S I, in the Buddhavaṃsa, Th II 23-4 in a very corrupt state and one or two other strophes in the Jātaka. We may mention finally the uggatā and pamitakkharā, metres derived from gaṇacchandās, found in the Lakkhaṇasutta of the Dīgha, which would add another 27 strophes to our total.

4. It is more than eighty years since Cappeller published his remarkable study of gaṇacchandās, (1) yet his theories are still very little known, much less subjected to criticism or replaced by more modern research. The question of the nature of the rhythm of the ariyā, regarded by many Sanskritists as most obscure - a system of arbitrary rules rather than a verse form with strongly marked rhythms which could be felt in recitation like those of the more familiar vatta or upajāti - was first properly posed by him and was very largely clarified by his keen insight. Jacobi, having additional materials at his disposal, such as the Ardhamaḡadhī texts, carried the study further by his hypotheses about the history of the post-Vedic metres. His tentative conclusions, as formulated in the famous ZDMG article of 1884, have, however, achieved an authoritativeness which would astound that ingenious scholar were he alive today, for he himself pointed out later that his work had been done before he knew of the existence of gaṇacchandās in the Pali texts - thus implying that his historical conclusions might be vitiated, or might at any rate require fresh demonstrations taking the new discoveries into account. (2)

(1)... "Die Gaṇacchandās," Leipzig, 1872.

(2)... See SBE XLV, 1895, p.271, f.n.2.

Ballini, who in 1912 published the careful collection he had made of the contributions to the study of Indian metrics, unfortunately missed this and simply copied out the old arguments, although by that time all the gaṇacchandās in the Pāli Canon had been printed (admittedly only the Sn examples seem to have been recognized).⁽¹⁾ Even today, Professor Smith in his own work on Pāli gaṇacchandās merely refers to the 1884 article with the remark: "Quelle qu'ait été la genèse de 8,5,01...05 [gaṇacchandās], il ne sera pas inutile de confronter le "śloka" (ac: 8.1.3, aux équivalences --: 00-) avec les kōla 8.5,01 et 8.5,03, qui servent de points de départ au système de 2gaṇa à quatre ou à six mores..."⁽²⁾

Before discussing the rhythms of gaṇacchandās in relation to actual 'performance' with music, involving the ictus scheme put forward by Cappeller, it is necessary to trace the origin of the metre and of its rhythmic elements. Without a living picture of the metre such as its historical development can give us, we are in no better position than Cappeller in trying to fit a ready made theory, such as Westphal's, to the dead metrical scheme of the old treatises on metrics. That Cappeller's results were, on the whole, not illusory as Kühnau's were, can be affirmed only through our knowledge of the nature of gaṇacchandās gained mainly as a result of Jacobi's historical studies.

The gīti strophe contains the same number of mattā as the vetāliya strophe:

$\frac{uu}{-} / -uu / -u-uu / \frac{uu}{-} - / -uu / -u-uu \times 2$ vetāliya

$\frac{uu}{-} - / u-uu / \frac{uu}{-} - / \frac{u}{-} - / - / u-uu / \frac{uu}{-} - / \frac{u}{-} \times 2$ gīti

(1)...Ballini: "La poesia profana (Laukika)," in SIFI-I vol. VIII part 2, Florence, 1912; see p.89. Fausbøll's edition of Sn appeared in 1885, just after Jacobi's main article.

(2)...Sd. p.1159; printed in 1947, dated 1949.

(we give the vipulā capalā form of gīti as found in our earliest gaṇacchandās texts)

-Jacobi in his 1884 article gives a theory of the evolution of gaṇacchandās based on this correspondence. He describes two forms of gaṇacchandās, a newer form found in the later Śvetāmbara Canonical texts and in the Classical literature (the ariyā), and an older form found in the earlier Śvetāmbara texts: Āyāraṅgasutta and Sūyagaḍaṃ (the gīti). The same historical sequence, as we have already suggested, appears in the Pali texts, where the gīti is found in association with the earlier mattāchandās texts in Sn whilst the ariyā is found alongside a later mattāchandās text in Th II. Whilst mattāchandās is more widespread in the Pali Canon, occurring in texts where gaṇacchandās is not found (Dh, U, Vv, Pv and the Aṅguttaranikāya),⁽¹⁾ there are altogether more strophes in gaṇacchandās than in mattāchandās (over 450 as against less than 400). This fits in very well with our picture of the older mattāchandās, widely used in the earlier texts, being pushed out by the newer gaṇacchandās, which is but rarely used in the earlier texts whilst it is very popular in the later texts.

Jacobi gives the following scheme for early gaṇacchandās:

$\frac{uu}{-} / \frac{u}{-} - \frac{u}{-} / \frac{uu}{-} - / \frac{u}{-}, \frac{uu}{-} / \frac{uu}{-} - / \frac{u}{-} - \frac{u}{-} / \frac{uu}{-} - / \frac{u}{-} \times 2$

and points out the resemblance to vetāliya, the second and third, sixth and seventh, gaṇas being simply interchanged, and, he believes, a different principle of measurement being introduced: in place of the Vedic foot of four syllables, which

(1)...As against gaṇacchandās found in the Majjhimanikāya where mattāchandās does not occur.

he unjustifiably attributed to vetāliya, we have the gaṇa structure. Having seen only Dh as an example of early Pali poetry he supposed that gaṇacchandās was unknown in Pali and was not invented until a post-Pali period represented by the Śvetāmbara Canon. This is not the case, but he was nevertheless right in supposing mattāchandas to be the earlier metre, if the account of the general development of the musical metres indicated in the last chapter is correct.

If the mattā count is identical in the two metres (vetāliya and gīti), and proves their affinity, how are we to account for the curious rearrangement of the gaṇas? The mere carrying of the musical rhythm through the cadence as well as the free part of the pāda does not explain the normal form of gaṇacchandās as a direct descendant of the normal form of mattāchandas. In our study of mattāchandas, however, we have found a number of alternative rhythmic structures, including such a 'rationalised' pādayuga as that of the vegavatī, and in gaṇacchandās also there were such alternatives. By putting together all the evidence at our disposal, meagre though the literary remains of our period may seem, a fairly clear picture emerges from which it should be possible to discover the nature, interrelationship and process of evolution of all these metres. The following interpretation of this picture may be unsatisfactory, but, having such material collected together, I think we shall not have to wait long for the judgement of our leading scholars.

In the case of mattāchandas we have the 'syncopated' pādayuga 'pavattaka':

u-u/uu - /u-uu, uu/u-u/uu - /u-uu

In the case of gaṇacchandās we have the 'gurviṇī', which we may also call syncopated, the eight mattā rhythm $\overline{uu} - /u - u$ beginning one gaṇa late; in illustration of this metre we may

give the Ardhamāgadhī 'hypermetre' as described by Jacobi in IS XVII, 1885, 389 ff: (1)

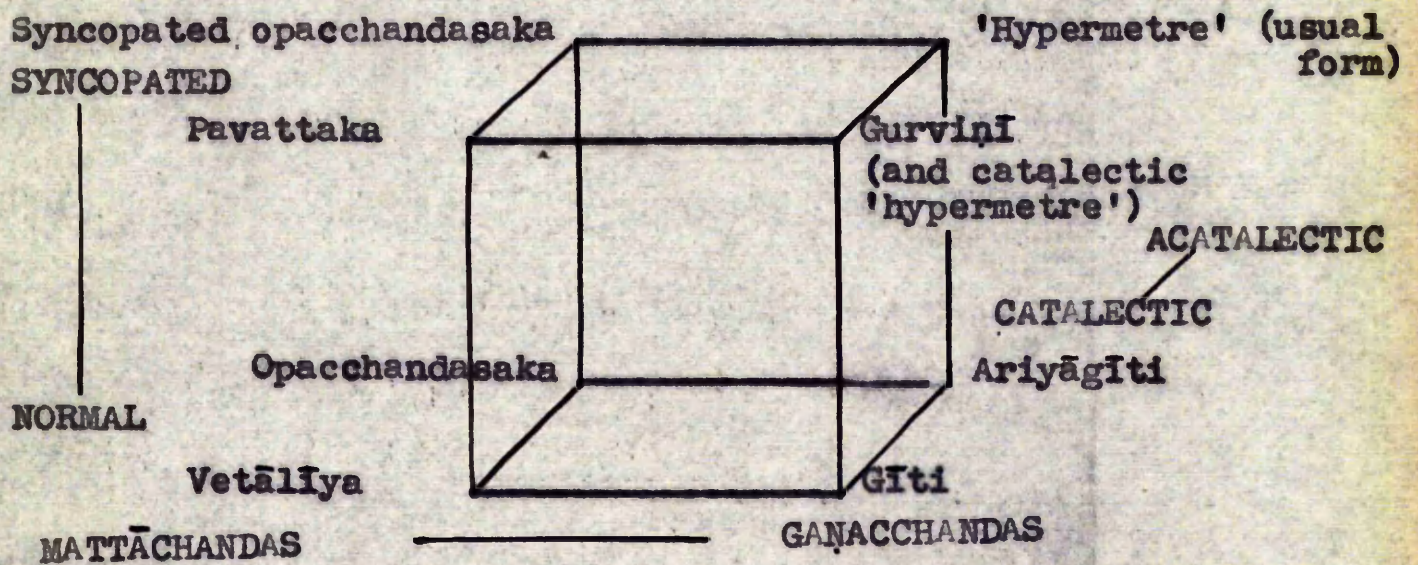
$\underline{u}-\underline{u}/\underline{uu}-/u-u \quad \text{‡}/\underline{uu}-/u-u \quad \text{‡}|\underline{uu}-/u-u/- \quad (\underline{u})$

(the part enclosed by ‡ ‡ may be repeated a varying number of times - see Jacobi's article for details)

The similarity between these two metres extends almost to identity, syllable for syllable: besides the gaṇa $u-u$ appearing in exactly the same positions in both, the gaṇa $\underline{u}-$ (initial long which may be resolved, final long fixed) appears twice (second and sixth positions). Only the fourth gaṇa changes slightly, from $\underline{u},\underline{u}$ to $\underline{uu}-$. The only difference is the pāda and strophe structure, since in place of the four pāda mattāchandas strophe the 'hypermetre' has its curious extendable form, varying from an occasional four gaṇa (first, second, third and eighth of the above scheme) strophe (?) to one of twenty eight gaṇas, any even number in between being permitted, the eight gaṇa form being the favourite. The initial gaṇa sometimes takes the form $--$, and the final gaṇa generally has the full four mattā, like the ariyāgīti, but may have only the single anceps syllable. With the usage in the final gaṇa should be

(1)...This metre is used in the 'Varṇakas' of the Jaina Canon. Whatever their date of composition, it seems that the Śvetāmbara tradition preserved a very ancient technique for this special type of descriptive verse.

compared the mattāchandas usage of combining an opacchandasaka posterior pāda with a vetāliya prior, which results in a pādāyuga of exactly the same length (32 mattā). For convenience of reference we may call a metre with the full final gāṇa or the opacchandasaka cadence 'acatalectic' and the alternative, in which the final syllable is missing, 'catalectic'. We can now see all the components of gaṇacchandas separately, with their mattāchandas prototypes, and the various combinations and permutations which are possible. We may construct a kind of matrix of musical metres in three dimensions: 'normal'/'syncopated', 'acatalectic'/'catalectic', mattāchandas/gaṇacchandas, - in which the third pair seems to be of least significance in our theoretical analysis, their difference emerging only in practice, where the least important distinctions so often appear on the surface, obscuring the inner relationships and interconnections of things:



Taking only the 'catalectic' forms of the metres, we may compare their structures as follows:

$\overline{uu} / \overline{uu} \overline{uu} / -u - uu, \overline{uu} \overline{uu} / \overline{uu} \overline{uu} / -u - u \overline{u} \times 2$ vetāliya
 $u - u / \overline{uu} - / u - uu, \overline{uu} / u - u / \overline{uu} - / u - u \overline{u} \times 2$ pavattaka
 $\overline{uu} / \overline{uu} - / u - u / \overline{uu} - / u - u \overline{u} / \overline{uu} - / u - u / \overline{u}$ 'hypermetre' (gurviṇī)
 $\overline{uu} - / u - u / \overline{uu} - / \overline{u}, \overline{uu} / - - / u - u / uu - / \overline{u} \times 2$ (or $\times 3$) gīti

 $- / \overline{uu} / - - / \overline{uu} - , - / \overline{uu} \overline{u} / - - / uu - - \times 2$ svāgatā
 $\overline{uu} / - u / - uu / - - , \overline{uu} \overline{uu} / - uu / - uu / - - \times 2$ vegavati
 $- / u - u / \overline{uu} - / u - u \overline{u} \times 4$ rathodddhatā

From the conflict of the mixed rhythms of mattāchandas (the uneven pādas and the two opposing rhythms within them: --/u-u together with the syncopation or 2 mattā shift of the proto-gaṇa divisions) a whole array of new metres was generated, the most important (the most successful solution to the rhythmic problem of creating an isochronous but not monotonous strophe) being the gīti, with its rich potential of further development of rhythmic variety and flexibility within the 16 gaṇa strophe.

In the last chapter we considered how mattāchandas developed several fixed offshoots, or, more precisely, several forms in process of stabilisation of rhythm in particular directions which later became fixed. In the development vetāliya > pavattaka (and > chappadā (ṣaṭpadā)) > rathodddhatā we reach a well-rounded samavutta. In the development

of the *vegavatī* and the *svāgatā* the cadence rhythm is assimilated to that of the opening, in the former metre a rather monotonous strophe being produced, in the latter a fresh opposition of rhythms of the *mattāchandas* type, apparently with a 'normal' prior *pāda* and a 'syncopated' posterior.

The transition from the *pavattaka* to the 'hypermetre' was of quite/^adifferent nature. As we have seen, there is hardly any change at all in the external, schematic, appearance of the metre. What has changed is the wider context in which the metre is situated, the way in which it is used and the 'deeper' nature of the rhythms which does not appear in the superficial scheme. As far as we know, the *pavattaka* was not used as an independent metre, but only as a variant of *vetāliya*, but in any case it was a *mattāchandas*: its cadence was fixed, its strophe was divided by the cadences into four *pādas*. Used as a *gaṇacchandas*, the same rhythmic scheme acquires the following new characteristic: the division into four *pādas* is superseded by the articulation into eight similar segments of eight *mattā* each which might be called 'bars'; this perfectly cyclic rhythm is then seen to be in its essence, or simplest form, the repetition of this segment, so that a phrase of musical type may replace the old strophe, and may be of any length, within reason, from two segments or 'bars' (four *gaṇas*) upwards (three 'bars' = six *gaṇas*, four 'bars' = eight *gaṇas*, etc., etc.). The phrase of eight 'bars' or sixteen *gaṇas* which is equivalent in length to the old strophe was the most popular form, and became the stabilised form of *gaṇacchandas*, but in the Medieval metres (e.g. *Hindī*) the alternatives, especially those of eight *gaṇas* or of thirty two, but also those of twelve, twenty, twenty four, and so on, are still frequently used. The metre has become fully musical and can be used in the same way as a musical *tāla*.

It is a remarkable fact that of the two ancient, basic tālas, caturasra and tryasra, described in the Nāṭyaśāstra one, the caturasra, has the same form as this eight mattā tāla of gaṇacchandās. It is not clear why the two fundamental musical rhythms, binary and ternary, should be defined in this curious way with complicated structures:

caturasra: SSIŚ ("cañca") = — — ∪ — (8 mattā)
tryasra: SIIS ("cāpa") = — ∪ ∪ — (6 mattā)

- whatever the musical theory may be which underlies these descriptions, it does not seem possible that the gaṇacchandās rhythm, whether it be — — ∪ ∪ or ∪ — ∪ — (depending merely on where the cycle is regarded as beginning), resembles the 'cañca' merely by coincidence, the sole difference being the resolution of the 'pluta' into a long and a short, which makes hardly any difference in the feel of the rhythm. Whether the musical theory was based on the association with metrical rhythm, or vice versa - or whether the 'cañca' is an imitation of the call of the woodpigeon or of some other natural rhythm - is a question which cannot be taken up here. We may note the continuity of metrical development without, for the present, enquiring further into the interactions with the ancient music which resulted in the stabilisation of the fundamental gaṇacchandās tāla. We may also note that the adoption of the gīti, with ∪ — ∪ in the even gaṇas, rather than the gurviṇī, as the standard form of gaṇacchandās, suggests that the metre was brought into line with the musical convention that the tāla began on the first garu: / — ∪ — and not on the lahu: / — ∪ — —. This is uncertain because there is no reason why the strophe should not begin 'viṣama' (with an 'anacrusis'), in the same way as the normal form of mattāchandas. It is also probable that the gaṇa form ∪ — ∪ retained its cadence-associations and that

— — — was felt to be the form of the metrical rhythm.

The gīti, or normal form of gaṇacchandās, stands in a somewhat similar relationship to the gurviṇī - 'hypermetre' as the vetāliya to the pavattaka. Since in the case of gaṇacchandās the 'syncopation' involved is a shift of four mattā, whilst in mattāchandās it is one of only two mattā, the gīti and vetāliya do not coincide at all in gaṇa articulation. Unlike the gurviṇī and pavattaka, they show no ambiguity in their structure: one is plainly gaṇacchandās, the other plainly mattāchandās. One may here invoke the principle of stabilisation of metres in their most characteristic forms, furthest removed from other metres, which we put forward in the last chapter (p151). The only cases recorded of — — — in mattāchandās in the position of the future even gaṇas are the 'syncopated' pāda forms: — — — / — — — / — — — (—) (—), which occurs in the Kummāsapiṇḍajātaka (J III p.412, 150a and others), in Sn (8a: "yo nāccasārī na paccasārī" repeated five times) and in Th II; and — — — / — — — / — — — — — (in position of sixth gaṇa), which occurs as refrain in J 458 and doubtfully in Sn. Clearly the conjunction of — — — / — — — was avoided in all the metres.

The question of — — — in the even gaṇas brings us to the problem of the fourth gaṇa, in which the two pādas of mattāchandās were welded together to form the gaṇacchandās pādayuga of 7½ (or 8) gaṇas.

According to Jacobi's theory the fourth gaṇa of the earliest gaṇacchandās was formed by the coalescence of the final (anceps) syllable of the prior vetāliya, when short, with the first two syllables of the so-called anacrusis of the posterior pāda, when this had the form — — — . This seems very neat, and it explains the vipulā form of gaṇacchandās, in which the caesura falls after the first short syllable

of the fourth gaṇa / ॐ, - ॐ / (a very common form, in fact the regular form, in some of our oldest texts), as a legacy from mattāchandas (end of the prior pāda). Although there is evidently some connection here between the two metres, this argument is not satisfactory as it stands, and the fourth gaṇa was not derived in this direct manner. The final anceps syllable of the prior pāda probably counted as a long in the musical rhythm, a short syllable being lengthened: this seems to be the true nature of the final anceps of the gaṇacchandas pādayuga and of other final anceps syllables in Indian metres. If the initial syllable of the posterior pāda of vetāliya was allowed to be anceps (which I consider doubtful), this should, I believe, be limited to allowing exceptional metrical lengthening or shortening in initial position, and should not be interpreted as meaning that such an initial group as - ॐ is not quantitative (as Jacobi contended). Thus I believe we should interpret ॐ - / - ॐ ॐ ... as - - / - ॐ ॐ ... and - ॐ - / - ॐ ॐ ... as ॐ ॐ - / - ॐ ॐ ... This would result, in the transition from vetāliya to gīti, in a fourth gaṇa form -, ॐ ॐ (taking the vetāliya pādayuga proposed by Jacobi as the starting point). Now this form actually appears in early Pali gaṇacchandas (although - ॐ ॐ as a gaṇa is unpopular in any position), in the Tuvāṭakasutta. More frequent (especially in the Upālisutta) is -, - or ॐ, - (> -, -) in the fourth gaṇa (cf. posterior vetāliya with initial long). That ॐ, - ॐ is very much commoner than these forms of the fourth gaṇa is due, I believe, to the adoption of the alternating system of - - and ॐ - ॐ as the basic rhythm of all gaṇacchandas, ॐ - ॐ occurring in the odd gaṇas of the 'hypermetre' and the even gaṇas of the gīti. The formation of the gīti was certainly helped by the quantitative fitting together of ... ॐ, ॐ ... of the vetāliya, and the caesura following the first syllable of the fourth gaṇa

undoubtedly originated from mattāchandas. The adoption of the form $\cup, - \cup$ with the caesura in the fourth gaṇa following the short syllable, may have pleased the ancient poets, as it satisfied Jacobi's desire to find a nice correspondence of structures, but it should be regarded as the result of the impact of the regular gaṇacchandas rhythm on the divided pādayuga of mattāchandas, and not as the manner of generation of that rhythm from mattāchandas. It was not only in the fourth gaṇa that a caesura appeared in gaṇacchandas: in the second and sixth also we have the 'secondary caesura', which is the rule when four short syllables make up these gaṇas ($\cup, \cup \cup \cup$). This usage may have been as important in the fixing of the vipulā forms with caesura $\cup, \cup \cup \cup$ and $\cup, - \cup$ in the fourth gaṇa as the memory of the old pāda division. It evidently arose from the need to stress the syncopated rhythm $\cup, \cup \cup \cup$. It should be noted that in early Pali gaṇacchandas it was the fourth gaṇa which from the beginning showed a tendency to variations of rhythm, and that the second gaṇa maintained the $\cup - \cup$ rule longer and even in the later texts (e.g. Th II) has $\cup - \cup$ much more frequently than the fourth gaṇa.

One more question connected with the origin of gaṇacchandas is that of the initial anceps in the old prior pāda. We have seen in mattāchandas that occasionally it seems necessary to assume the exceptional lengthening of a short pāda-initial syllable (including root syllables), against the normal rules for licence, to preserve the mattā count (see Tables 1 and 2, pp. 128-9, in Chapter V: $\cup - \cup \cup > - - \cup \cup$ and $\cup - - \cup \cup > - - - \cup \cup$ in Sn). Sometimes we have to assume the same lengthening in early gaṇacchandas at the beginning of the pādayuga. Thus in the Upālisutta we wish to read: 'nāhātakassa', 'pūrindadassa', 'sātīmato', 'tāthāgatassa',

etc. The same thing appears to happen in the Tuvāṭakasutta, but in the Mettasutta, which is so regular in other ways too, it is absent. The cases are limited to gaṇas of two syllables: $\cup - > - -$. In the later texts this special licence is not found.⁽¹⁾

In the initial of the old posterior pāda we find traces of this old anceps in three places⁽²⁾ where it is apparently necessary to assume: $\cup, \cup\cup > \cup, - \cup$ (fourth gaṇa).

The final syllable of the pādayuga (and probably of the prior pāda in the earliest texts) remained anceps, as seems to be the rule in almost all Indian metres, but it is of interest that in the Pali texts there is a considerable preponderance of longs in this position, indicating a strong feeling for a syllable of at least two mattā (half a gaṇa). We may conclude that any short vowel as pādayuga final in Pali gaṇacchandās underwent metrical lengthening.

5. Various explanations have been attempted to account for the shortened sixth gaṇa in the second pādayuga of the ariyā. This metre replaces the gīti in the later Pali Canonical texts, and thereafter remains the dominant, almost the exclusive, form of gaṇacchandās in the extant Prakrit and Sanskrit literature. Although the theory places the two metres on a level as alternative structures, along with uggīti and upagīti, and does not recognize that the gīti is an older, discarded form, the arrangement of the metres in the Pali Canon seems conclusive evidence for a historical change.⁽³⁾

(1)...Except for one case of tato ($>$ tāto) initial in the Isidāsīgāthā.

(2)...Upālisutta, strophes 7, 8 (twice). Alternatively we might assume $> - , \cup\cup$ (lengthening the final of the prior pāda).

(3)...cf. pp 213-4 above and also p.203.

Jacobi was led to the same conclusion in his study of Ardhamāgadhī gaṇacchandās in the ZDMG article.

Cappeller (G pp.69-70), finding it impossible to accept a single short syllable as equivalent in any way to a whole gaṇa, regards the short sixth as merely an acciaccatura ("Vorschlag")⁽¹⁾ belonging to the seventh gaṇa. This seems quite unjustifiable. Equally improbable is the suggestion that the gaṇa was completed by a musical 'rest', if only because no caesura appears which would allow a break in the uttering of the words. Jacobi suggested (ZDMG 1884, p.602) that for some reason the singing of the strophe required inequality of the pādas, and cites the Gitagovinda as an example in which the strophes throughout have either all four, or at least three, of their pādas different from one another. This much later example of musical metres, of course, belongs to the Apabhraṃśa-Hindī stage in which such inequalities in a number of metres can be seen quite clearly to be the result of the musical structures, with rests and pauses in the text as it is fitted to the tāla (the traditional recitation being still alive amongst the popular Hindī reciters and preachers in India we can easily verify this). However, we do not find a gaṇa of one mattā in the later technique. The only explanation which seems to fit the case is that the final cadence of the ariyā strophe was marked by syncopation, just as in performances of the classical music the cadence or coda (at the end of a piece and also sometimes at the end of each verse of a song) is often marked by syncopated drumming. It seems likely that this syncopation derived from the syncopation in the

(1)...Ballini incorrectly translated this into Italian as "appoggiatura", which would have been "Vorhaltung" in German.

gaṇa $\overset{(p)}{\cup} \text{---} \cup$, the 'cadence gaṇa' of each eight mattā section of gaṇacchandās: the syncopation, instead of being resolved by the final short syllable of the gaṇa ... $\cup \overset{\rightarrow}{/} \text{---}$ with a return to a new section, is carried on to mark the final cadence of the whole strophe $/ \overset{(p)}{\cup} / \text{---} / \text{---} //$. The assumption of a 'gaṇa' of one mattā is merely a conventional description of this syncopated close, which might also have been described in other ways. In modern European music, especially from Scriabin onwards, the old musical 'taktgleichheit' is not infrequently swept aside by the insertion of a bar with a different time signature (see e.g. the 21st of Scriabin's twenty four Preludes, opus 11, for an early example of mixed time signatures: 3/4, 5/4 and 6/4), and even bars containing a single beat are found.

In the gīti, strophes of both four and six pādas, or perhaps more precisely of two and of three pādayugas, are found, and we have also noted the curious indefinitely extendable strophe - if we can call it such - of the 'hypermetre'. So far gaṇacchandās had not advanced decisively beyond mattāchandās in achieving a truly musical strophe in place of the metrical organisation, more suitable for continuous narrative, which stops short at the pādayuga (cf. the epic vatta, in which the pādayugas are little more than lines of blank verse and the narrative runs on fairly freely over them, sentences not necessarily coinciding with strophes, leading to editorial difficulties in breaking up the narrative into 'verses' and numbering them). With their refrains, coincidence of sentence and strophe, interplay of rhythms, and so on, mattāchandās and the gīti show a regular strophe organisation, but this is of an external nature not imposed by the metre. With the ariyā we find a four pāda unity based on the metre itself, that is on the musical 'sentence' of two 'phrases', the second of which 'answers' and completes the first, which is the basis of the strophe. The transition to musical metrics was completed by

the discovery of the visamavutta strophe structure. (1)

6. The Ganas and the Structure of the Ganacchandas Strophe

We have already observed that in what appear to be the earliest ganacchandas verses extant (Mettasutta, Upālisutta) (2) the structure is practically fixed. $\cup - \cup$ is the rule in the even ganas, except occasionally in the fourth, where (apart from one case of $\cup, \cup \cup \cup$) $\cup \cup -$ and $\cup, - (= - - ?)$ seem to be allowed and to have their origin in the transition process from mattāchandas. (3) $\cup \cup -$ is regular in the odd ganas (in the Mettasutta $\cup \cup -$ being the rule in the seventh and $- -$ the rule in the fifth so that the 'posterior pāda' is practically fixed: $- \cup / - - / \cup - \cup / \cup \cup - / -$ whereas the 'prior pāda' is allowed some alternations); in the first and third $- -$ is about three times as common as $\cup \cup -$ in the Mettasutta, and in the first, third and fifth $- -$ is about twice as common as $\cup \cup -$ in the Upālisutta (here it is of interest to note that the second pādayuga has most freedom and that the third pādayuga is most rigid); the Upālisutta has one and a half times as many $- -$ as $\cup \cup -$ ganas in the seventh position in the first pādayuga, equal numbers of these two in the second pādayuga, and $\cup \cup -$ alone in the third pādayuga (where, however, it is a refrain repeated throughout the poem). (4) $- \cup \cup$ does not occur in

(1)...We may thus regard the adoption of the adḍhasamavutta structure (mattāchandas) as the initial stage of this transition.

(2)...The early Ardhamāgadhī gīti is of a similar nature, but not quite so rigid as the Pali.

(3)...See above, p.225

(4)...AM has mainly $- -$ in the third and seventh ganas and $- -$ and $\cup \cup -$ about equally in the first.

these two Pali poems. u,uuu as resolution of $u-u$ occurs 7(16) times (only one of which is in the Mettasutta), and it never appears in the odd gaṇas. Thus no odd gaṇa may end in two short syllables. It appears that the rigid Mettasutta giti represents the earliest gaṇacchandās, whilst the Upālisutta and the Jaina texts show a slightly later stage in which, the basic tāla having become firmly established, some variations are introduced. Even in the Classical Period, however, $--$ retained its popularity as the simplest form of gaṇa, as Cappeller has shown, and he also draws our attention (G pp.48-9) to the interesting statement in the Prākṛta-paiṅgala (Bollensen, "Vikramorvaśī", appendix, p.536, verse 4) that the best āryā is that consisting of 27 long syllables and 3 shorts (a total of only 30), which is called 'lakṣmī' (the 3 shorts are of course those in the sixth gaṇas which are compulsory). In the later Pali gaṇacchandās $--$ is much the commonest gaṇa, but in the even positions $u-u$ still predominates. $-uu$ has taken its place alongside $uu-$ as a regular but not very frequent alternative to $--$, and a few cases of the complete resolution $uuuu$ are also found in the odd gaṇas.

The rule of the secondary caesura in u,uuu as resolution for $u-u$ (which itself tends fairly strongly to $u,-u$ in any position) is adhered to in all the Pali texts with very few exceptions - not more than are likely to have been produced by mere corruption. On the other hand Jacobi's "Law of vipulā"

(ZDMG 1886 p.340) does not seem to have been in force in the later Pali texts, although in the earlier ones it is not infringed because a caesura after the first syllable of the fourth gaṇa is produced by the division into prior and posterior pādas at that point. According to Jacobi's Law, in the vipulā metre, in which there is no caesura at the end of the third gaṇa, if the forms ॐ-ॐ or ॐॐॐ occur in the fourth gaṇa there must instead be a caesura after the first syllable of that gaṇa: ॐ, ॐॐ. In the earlier Pali texts we see the original basis for such a usage in the pāda division at that point to which we have just referred. In the later Pali texts, however, with the abolition of this pāda division the pathyā (with caesura after the third gaṇa) and vipulā (without this caesura) forms seem to be used without further restrictions. Just as in any gaṇa with ॐ-ॐ, there is a tendency to ॐ,-ॐ, which should probably be described as a 'secondary caesura', resulting apparently from a feeling for the strongly marked syncopated rhythm ॐ, ॐ..... which manifested itself in a kind of staccato. In the Isidāsīgāthā and Sumedhāgāthā, however, this caesura is much less common in the fourth gaṇa than in the second or sixth, on account of the prevalence of the new pathyā form. Whilst there is usually a caesura at the end of the third gaṇa, the form ॐ-ॐ is still by far the commonest fourth gaṇa. There are thus many cases of ॐ-ॐ without caesura, but even in the vipulā pādayugas there are several cases where no caesura

appears (e.g. Th II 478 ab, 501 ab, 522 ab, 505 cd; 498 ab has $\cup - , \cup$). In the later literature, such as the Hāla Anthology, the conflict between the prevailing pathyā and the $\cup, \bar{\cup} \cup$ rhythm in the fourth gaṇa was resolved by the adoption of the usage described by Jacobi. $\cup - \cup$ as fourth gaṇa gradually lost its popularity not only with the generally increasing flexibility of the ariyā but also through these difficulties of structure, and it became still less common than $\cup - \cup$ as second gaṇa.

It is clear from the tāla structure underlying gaṇacchandās ($--\cup-\cup$, or $\cup-\cup---$?) that the gīti pādayuga consists of four 'bars', segments or 'measures' in this tāla and the ariyā strophe of eight (with syncopated close). Cappeller placed the 'main ictus' on the even gaṇas, that is, he adopted the second of the tāla forms given above: $\cup - \cup / - -$. He tried to justify this conclusion partly by analogy with Greek metre and partly by arguments within the limits of the 'normal' forms of gaṇacchandās. The analogy proves nothing (we have rejected Westphal's "comparative metrics" above, pp. 22 ff.), and the latter arguments were unavoidably circular and by a simple interchange of one rhythm for another throughout could be made to prove that the main ictus fell on the odd gaṇas. The discovery of the 'hypermetre' with its gurviṇī

structure lends support to Cappeller's conjecture, and if the matrix of musical metres given on p.220 could be made to demonstrate that the gīti, like the vetāliya, opened 'viṣama' (p.223) - both being 'normal' metres - but had a 'bar' of eight mattā whereas that of the vetāliya contained only four mattā, we could say that in origin gaṇacchandās was organised according to Cappeller's scheme. Against this we have the musical tradition that the tāla is $\overset{!}{-} - \underset{!}{-} -$, and it seems unlikely that, even if in origin the gaṇacchandās tāla was $\overset{!}{-} - \underset{!}{-} - -$, the metric-al structure was not brought into line with this convention (and the gīti thereby converted into a song strophe which began 'sama' with its accompanying tāla). In practice the difference between $\overset{!}{-} - \underset{!}{-} - \underset{!}{-}$ and $\overset{!}{-} - \underset{!}{-} - -$ is unimportant: there exist today similar differences of convention between North and South Indian music, and such regional differences very probably existed in ancient times too. Cappeller, however, deserves the greatest praise not only for recognising the eight mattā cyclic (or 'cakravartana') structure of gaṇacchandās but also for his grasp of the nature of the gaṇa form $\overset{!}{-} - \underset{!}{-}$, whether its ictus be main or secondary. The word accent falling ~~falling~~ frequently on the long syllable of this gaṇa, it was a bold conjecture to place the musical ictus on the first short syllable, producing a strong syncopation, but there can be no doubt now that this is the correct analysis (see p.232 above on the secondary caesura and

Cappeller's correct assessment of the first kind of secondary caesura on p.94 of his study).

A gīti strophe of two pādayugas may be analysed as follows in pairs of 4 mattā gaṇas, those with the 'cadence' rhythm and the final 'half-gaṇas' being underlined:

$\overline{4+\underline{4}+4+\underline{4}+4+\underline{4}+4+(\underline{4})//+4+\underline{4}+4+\underline{4}+4+\underline{4}+4+(\underline{4})//}$
prolonged
final or
2 + rest

-if the metre were taken as 'viṣama' the result would simply be changed to:

$\overline{4+\underline{4}+4+\underline{4}+4+\underline{4}+4+(\underline{4})//+4+\underline{4}+4+\underline{4}+4+\underline{4}+(\underline{4})//}$

The ariyā strophe may be analysed similarly, with its syncopated close:

$\overline{4+\underline{4}+4+\underline{4}+4+\underline{4}+4+(\underline{4})//+4+\underline{4}+4+\underline{4}+4+\underline{1+4}+(\underline{4})//}$
syncope

- the syncopation was perhaps accompanied by a rallentando, bringing the rhythm to a point of rest at the final syllable of the strophe.

7. At first sight it may appear that from the multiplicity of rules gīti and ariyā are tricky metres to handle compared with, for instance, the epic vatta. As we have seen, however, the gaṇacchandās rhythm is just as natural as any other when its musical structure is grasped. Further, Professor Smith has shown that the infinitely variable gaṇacchandās strophe - "l'āryā bouddhique, comme celle de Varāhamihira et d'Īśvarakṛṣṇa" (DP p.14) - could accommodate any technical term, whereas the old 'vatta-tuṭṭhubha' technique entailed the avoidance of 000, which resulted sometimes in the metrical alteration of words which could not otherwise be fitted into the verses (see DP p.10).

Besides satisfying the need for a metre which could accommodate any technical term used by the ancient religious and philosophical schools (no doubt it was used also for technical treatises dealing with science, art, architecture, poetics, and so on), gaṇacchandās was equally amenable to the vogue for successions of short syllables which accompanied the Apabhraṃśa tendency in the language. Smith has pointed out this tendency in Pali, and we have referred to his rhythmic studies several times already: here we may refer to his article on anticipations of Apabhraṃśa in Pali in BSL 1932, 169 ff: "Désinences verbales de type apabhraṃśa en pali." In Apabhraṃśa most conjuncts are reduced to a single consonant and the masculine nominative singular termination is abbreviated to '-u'; in "pali assoupli" (HS) these tendencies are illustrated by 'bhavissati' > 'bhavihiti' and by the metrical shortening of final '-o'. The appearance of the new 'mesures légères' (P") in various metres in the later Pali texts may be interpreted as showing a desire on the part of the Buddhist poets to present their teaching in forms closer to the current popular taste than the 'heavy' old rhythms.

Gaṇacchandās served equally well for either rhythm, and evidently was extremely popular in the transition period. We can see in the Pali literature how from the old gīti, where there is little freedom of structure, the suppleness of the

metre was gradually increased, as the musical form became more familiar to the listener, until entirely new possibilities were created. Cappeller has shown (G pp.81-5) how the poets using ganacchandās were able to bind the form very closely to the meaning by the use of rhythms expressing the feeling of the situation described. This principle, as is well known, became very highly developed in Classical Sanskrit, in the association of various metres with different sentiments, objects or events. Ganacchandās, the most important metre of the transition period from the later Pali texts to the rise of the Classical Sanskrit literature (a period of which the greatest literary monument is perhaps the Hāla Anthology), could achieve a great deal of this type of expression within the structure of a single metre. We have already noted that the repertoire of fixed classical metres was largely derived from ganacchandās rhythms, so that we can now say that it seems to have been through experiments in ganacchandās, and the growing up of usages associating the various rhythms with the various requirements of poetic expression, that the classical metres were evolved and given their various fixed patterns and the characteristics associated with them.

CHAPTER VII

The Vatta or Epic Siloka

1. The vatta in Pali has received more attention from scholars than the other metres. Although the analyses of Pali vatta usage made between 1887 (Simon) and 1912 (Ballini) were somewhat premature owing to the very imperfect knowledge of the metrical interpretation of the texts at that time, and the statistics published are often far from being as accurate as the form of presentation would suggest, (1) a rough approximation to a true understanding of the metre was obtained and two important conclusions drawn. (2) In this Chapter the results

(1)...Simon, for instance, gave complete and exact figures for Th and J, implying that he had solved all the problems of doubtful scansion, variant readings, corruption, and so on in these exceptionally difficult texts. We shall never attain such precision in our statistics, for, as we have repeatedly pointed out above, the language itself possesses a certain fluidity which results in frequent metrical ambiguity.

(2)...The materials available include: Simon, "Der Sloka im Pali", ZDMG 1890, 83 ff. (statistics on about 6,000 verses in Dh, Th & J); Moore, JAOS 1907, 317 ff. (figures for the Itivuttaka); Oldenberg, "Zur Chronologie der indischen Metrik", in "Gurupūjākaumudī", Leipzig 1896, 9 ff; "Zur Geschichte des Sloka", NG 1909, 219 ff. (includes statistics on Aṭṭhaka and Pārāyana); Smith, Sn A III 1918, 637 ff, Sd IV 1949, 1148 ff., and its BHS continuation in DP 1950, "Retractiones Rhythmicæ", SOESOF 1951 (system of nomenclature). Other contributions will be mentioned below.

of previous research will be briefly summarised, with perhaps more precision than was possible half a century ago, and some further conclusions will be drawn.

The two conclusions already mentioned as having resulted from the old discussion are as follows:

1. The Pali vatta is close in structure to the anuṣṭubh of the Brāhmaṇas and Upaniṣads, being apparently of slightly more recent origin, whilst on the other hand it appears to be ^alittle older than the vaktra of the Brhaddevatā; this chronological sequence is continued by the Mahābhārata and afterwards by the Rāmāyaṇa.

2. The vatta of the Aṭṭhaka and Pārāyana vaggas of Sn appears to be older than that of Dh, Th and J.

- these conclusions are based on the frequencies of the 'pathyā' form of the prior pāda, which are stated to be as follows:

Rgveda.....	circa 2% (part of V)-20% (part of X)	.....Arnold VM Chapter VI
Śunaṣṣepa - ākhyāna (Aitareya-brāhmaṇa) and Book X of RV.....	27%..	Oldenberg ZDMG 1887, p.63.

based on very small numbers of verses.	(	Śatapathabrāhmaṇa (yajñagāthāḥ)...	37%...	Oldenberg	NG 1909.	pp.227-8
	(	Brhadāranyakopaniṣad.....	50%...	"	"	"
	(	Īsopaniṣad.....	52%...	"	"	"
		Īsopaniṣad.....	65% ⁽¹⁾	Gildemeister	ZKM	1844.
		Kāthopaniṣad.....	78%...	Oldenberg	ZDMG	1887.
probably all these figures are a little too low(2)	(	Aṭṭhaka and Pārāyana.....	68-70%	"	NG 1909.	
	(	Jātaka.....	74-5%..	Simon	ZDMG 1890.	
	(	Theratherīgāthā.....	76%....	"	"	
	(	Itivuttaka.....	77-8%..	Moore	JAOS 1907.	
	(	Dhammapada.....	80%....	Simon	ZDMG 1890.	
		Brhaddevatā.....	83-4%..	Oldenberg	NG 190	
		Epics ⁽³⁾	87-8%	("	"
				(and Hopkins	GEI.	

(1)...I cannot explain the discrepancy between Gildemeister's and Oldenberg's figures for the Īsopaniṣad. Oldenberg probably used a better edition and perhaps rectified some doubtful readings.

(2)...Imperfect knowledge of the orthography, etc., increased the number of irregular metrical structures in these early counts. It will be seen below that the Pali texts vary from circa 65% to 85%

(3)...On the more primitive versification of MBh see Ballini, pp.14 (f.n.1) and 33, and the passages there referred to in Jacobi's "Rāmāyaṇa" (pp.80-1, etc.) and Hopkins GEI. Hopkins divides the MBh vatta into three main types: the "unrefined" śloka of certain parts "less free" in structure than the Upaniṣad metre; the "current Bhārata śloka"; the "pseudo-epic, on a par with the Rāmāyaṇa śloka".

Aśvaghoṣa.....	88.3%	Johnston B, pp II and LXVI.
Saddharmapundarīka.....	89½%	Edgerton MS, in KCV 1936, p.44.
Raghuvamśa.....	93%	Oldenberg NG 1909.

2. The 'rules' for the vatta, from the Epic usage onwards, were worked out by Jacobi in the article "Zur Lehre vom Śloka" in IS XVII 1885, 442 ff. (It is strange that we find only a garbled description of the vatta pathyā in Piṅgala, and that even Halāyudha in his commentary gives a very incomplete description of the vipulā usages). Jacobi's rules are as follows:

The vatta strophe or siloka consists of four 8-syllable pādas, grouped in two pādayugas each of which ends with the cadence $\cup - \cup \cup$.

In the pathyā (normal) form the prior pāda of each yuga has the cadence $\cup - - \cup$. Of the 4 opening syllables which precede this, the first, like the initial syllable of any vatta pāda, is anceps, whilst syllables 2-4 must not be $\cup \cup \cup$ or $\cup \cup -$. These rules apply also to the 4 opening syllables of the posterior pāda, but in syllables 2-4 of the latter $- \cup -$ also is excluded.

In the first vipulā the cadence of the prior pāda

is $\underline{u} \underline{u} \underline{u} \underline{u}$ (the final short is rare, despite the anceps usage); in the opening, syllable 4 is long and usually syllable 3 as well: $\underline{u} \underline{u} \text{---}$ or $\underline{u} \text{---} \underline{u} \text{---}$.

In the second vipulā the prior cadence is $\text{---} \underline{u} \underline{u}$ (again the final short is rare); the prior opening is always $\underline{u} \text{---} \underline{u} \text{---}$.

In the third vipulā the prior cadence is $\text{---}, \text{---} \underline{u}$ with a caesura after syllable 5; the prior opening is $\underline{u} \text{---} \underline{u} \text{---}$.

In the fourth vipulā the prior cadence is $\text{---}, \text{---} \underline{u}$ with a caesura after syllable 4; this vipulā being rare, it is difficult to determine the rules for the opening, but syllable 4 appears to be regularly long. (This vipulā is extremely rare in Classical Sanskrit, not appearing at all, for instance, in the works of Bhāravi and Māgha. The first three vipulās appear in decreasing order of frequency, except in Kālidāsa, who uses the third most frequently.)

In the Mahābhārata the usage is much freer, as has been shown by Hopkins. Thus:

In the posterior opening $\text{---} \underline{u} \text{---}$ is not excluded from syllables 2-4 (i.e. we may have the 'iambic' pāda $\underline{u} \text{---} \underline{u} \text{---} \underline{u} \text{---} \underline{u}$, which is also found in Pali).

In the vipulās, the rules for the prior opening are sometimes disregarded: $\underline{u} \text{---} \text{---}$ may occur in any vipulā, and $\underline{u} \underline{u} \text{---}$ occasionally occurs in vipulās 2-4 as well as in the first.

($\underline{v} - \underline{v} -$ is given as the regular opening for the fourth vipulā, which we may perhaps take as supplementing Jacobi's rules.)

A "fifth vipulā" occasionally appears, which is unknown in the Rāmāyaṇa and in Classical Sanskrit, but which is quite frequent in the Upaniṣads. The prior cadence is $\underline{v} \underline{v} - \underline{v}$; there do not appear to be any special restrictions for the prior opening.

A sixth non-pathyā form, described as "rare", has the prior cadence $--\underline{v}\underline{v}$.

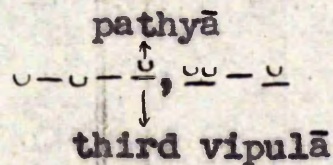
Finally we have the only other possible form of the prior cadence, which is identical with the posterior cadence $\underline{v} - \underline{v} \underline{v}$. Hopkins describes this as "sporadic".

The Pali usage is more archaic than that of the Mahābhārata. The third vipulā is much more common than the others (1) except in the Aṭṭhaka and Pārāyana, where $\underline{v} - \underline{v} \underline{v}$ as prior cadence is commoner than any of the vipulās. The second vipulā is next in favour, followed by the first, then the 'fifth'. In the Th $\underline{v} - \underline{v} \underline{v}$ follows these, and is followed by the fourth vipulā, whilst in the other texts (except Sn IV & V) the fourth vipulā is commoner. $--\underline{v}\underline{v}$ has the lowest frequency of all; it is regularly preceded by the opening $\underline{v} - \underline{v} -$. The

(1)... It is curious that Kālidāsa should have had the same preference.

rules for the vipulā prior openings are similar to those found for the Mahābhārata, with perhaps a little more freedom.

'Hypermetric' pādas may be produced by the resolution of a syllable into two shorts. This is a regular feature of the initial syllable of the pāda (as also in the tuṭṭhubha), but it happens also occasionally, and apparently as a regular usage in the metre, at the sixth syllable of the prior pāda. This may lead to difficulties in scansion, since the resolved form resembles the 'fifth vipulā':



- provided the reading of the pāda is certain, there seems to be no doubt that the form should be classed as pathyā or as third vipulā, with resolution at the sixth. The resemblance to a tuṭṭhubha pāda with caesura after the fifth syllable should be noted. Smith

at the sixth, which may be correct.⁽¹⁾ compare the gaṇacchandās
at the sixth, which may be correct.⁽¹⁾ compare the gaṇacchandās

(1)...e.g. Sn 122a, 205, Th II 11c, 118e & 119e (but these two may be third vipulā), 212a, 236c, 341c; counter case: Th II 77a. In Sn 205 and Th II 212 & 236 we have the 'avyakta' caesura in a compound. The confusion of pathyā with third vipulā in cases of doubtful final quantity weakens the argument for this 'secondary' caesura.

usage of secondary caesura when $\cup - \cup$ is resolved into $\cup, \cup \cup \cup$. In the case of the third vipulā we have the usual opening $\underline{\cup} - \cup -$, e.g.:

$\cup - \cup - - \cup \cup - \cup$
sahassabhāgo, maraṇassa/Sn 427

-whereas with the pathyā the opening remains free, as in the remarkable pāda:

$- - \cup \cup \cup \cup \cup - -$
nānākunapaparipūro/Sn 205

-this might, however, be classed as resolution at the fourth (fifth vipulā).

Resolution at the fourth and resolution at the seventh seem to occur, but so rarely that mere corruption may be the cause. Thus we have:

$- \cup - , \cup \cup \cup - - \cup$
āgataṃ na paṭipūjeti / Sn 128

$\cup - \cup - - , - \cup \cup -$
anutthunanto, kālakataṃ / Sn 586

(or is this a mixture of third and second vipulās, 5 + 4, resembling the mixed tuṭṭhubha pāda, 5+7, in that two segments not normally associated are joined at the caesura?)

$- - \cup - - - \cup \cup -$
Pañcālacaṇḍo, Ālavako / D III p.205

(same structure again; this pāda seems clear but the rest of the strophe is interpolated)

We see that in the vatta as well as in the musical metres the Pali Canon shows the tendency to successions of short syllables, overcoming the avoidance of uuu which seems to have been the earlier anuṣṭubh usage.

3. In the tables which follow will be found an analysis of some vatta texts not previously studied, together with a new analysis of some of those studied by Simon. The new analysis is required partly as a check on the figures published before and partly because Simon took the aggregates of verses in Th and J as though these were homogeneous texts, which is far from being the case. For a preliminary study of the Pali vatta it was useful to make a rough survey of several thousand verses, but for any serious attempt to understand the usage, and especially to understand the changes which took place during the centuries of the growth of these collections, it is necessary to present the texts broken up into their component units. I have provisionally adopted Smith's classification (RR 18 ff.), although it is extremely clumsy on account of the separation of related rhythms. The forms are taken in their natural sequence, not in the numerical order of the classification.

Key

cadence of prior pāda	{	A = pathyā	=	c	|	|	|	|
		N = vip.1	=	c	|	|	|	|
		Bh = vip.2	=	c	|	|	|	|
		M = vip.3	=	c	|	|	|	|
		R = vip.4	=	c	|	|	|	|
		S = "vip.5"	=	c	|	|	|	|
		T =	=	c	|	|	|	|
B =	=	c	|	|	|	|		

opening of prior pāda	{	11 =	c	|	c	|	|
		3 =	|	|	|	c	|
		13 =	c	|	c	|	|
		5 =	c	|	c	|	|
		9 =	c	|	|	|	|
		1 =	|	|	|	|	|
		14 =	c	|	c	|	c
		6 =	|	c	|	c	c
		10 =	c	|	|	|	c
		2 =	|	|	|	c	c
		12 =	c	|	c	c	c
		4 =	|	|	c	c	c
		15 =	c	c	c	|	|
		7 =	|	c	c	|	|
		16 =	c	c	c	c	|
		8 =	|	c	c	c	|

(the initial syllable of the pāda being anceps an eightfold classification pairing the forms as shown would be adequate)

The opening 11/3 is in the primitive rhythm which seems to underlie the most ancient Indian metrical technique, and which became the regular opening for the tuṭṭhubha-upajāti. Its character as basic rhythm is shown by its compensatory function in the vatta as normal opening when the vipulās are employed, whilst with the regular Pali pathyā (and ...c-cc prior or posterior) there is great freedom in the choice of openings, 11/3 being less popular than 13/5 and 9/1. The effect of syncopation produced by 13/5, 14/6 and 10/2 (of A and R, and perhaps Bh, M and S) was evidently extremely popular as the main technique of variation from the primitive or basic rhythm. 12/4, 15/7 and 16/8 were little used.

Sn: Uragavagga

Opening	A	N	Eh	M	S	B
	Kasibhāradvājasutta (10 pādayugas)					
3	2					
5	2					
9	2					(no vipulās)
1	1					
6	1(2?)					
2	1(or 1')	(1)				
8	1(or No.6)					
	<hr/>					
	10					
	(100%)					
	Parābhavasutta (50 p.)					
11	1		2			
3	1		1(2?)	1?	1?	
13	13	1			1	
5	4	1	1			
9	1					
1	3 & 1'	1				
14	4					
6	4(5?)					
10	2					
2	3(or 2 & 1?)					
7					1?	
8	1?(or No.6)					
	<hr/>					
	38 (& two	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	with corrupt openings	3	4(5?)	2	1?	
	equals 40)					
	(80%)					

(1)...1' signifies plus one with initial resolution.

Opening A N Bh M S B

Vasallasutta (56p.)

11	1					
3	4(lr.6th)		1(?or5)	2or3(r.6?)	4(??)	
13	1	1				1
5	7(&lr.4th?)					
9	4					
1	6			1		1
14	1					
6	5(6?)				1?	
10	4					
2	3					1
4	3					1
15	2					
<hr/>						
	42	1	0 or 5	2or4(or8)	1 or6	4
	(75%)					

Hemavatasutta (56p.)

11	2?	1	1?	3?		
3	4		1			
13	3					
5	10?		1			
9	3					
1	4					
6	3(6?)					
10	1	1?				
2	8					
12	1					
4	5					
7		1(2?)				1
<hr/>						
	45	4	3	3		1
	(80%)					

Ālavakasutta (21p.)

11	1			3		
3			1'	1 & 1'		
13	1					
5	1	1				
1	1				1?	
6	1 or 3					
2	2 or 4					
12	2					
4	2					
<hr/>						
	13	1	1	5	1	

Opening	A	N	Bh	M	R	S	B
Vijayasutta (28 p.)							
11	3(1r.4th)	1					
3	4(5?)	1					
13	1						
5	1(?) (r.6th)					1?	
1	2 & 1'	1					1
14	1?						
6	2					1	
10	2						
2	3						
12	1						
4	1 r.6th?					1?	
	<hr/>	<hr/>				<hr/>	<hr/>
	21 or 23	3				1 or 3	1

Munisutta (2p.)							
1	1						
14 or)							1
13)							
	<hr/>						<hr/>
	1						1

Totals	172 or	12	8 or	12 or	-	4 or	7
Uragavagga	174		14	14		11	
(223 p.)	(77-8%)						

Cūlavagga

Hirisutta (6 p.)							
11	1			1			
13					1		
5	1						
14	1						
4	1						
	<hr/>			<hr/>	<hr/>		
	4			1	1		

Opening A N Eh M R S T B

Mahāmaṅgalasutta (24 p.)

11	4							
3	6(7?)&	1'1		2?				1
13	1							
5	2	1						
9	1							
6	1(2?)							
10	1							
4	1							
8	1(?orNo.6)							
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	19	2		2				1
	(80%)							

Dhammacariyasutta (20 p.)

11			1	1				
3			1	2				
13	1							
5	3(4?)				1			1
9	1							
1	2							
14	1							
10	1							
2	1							
4								1
7	1(orNo.3)							
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	12		2	3	1			2
	(60%)							

Brāhmanadharmikasutta (70 p.)

11	3	1	1	4				1?
3			1	3				
13	3							
5	9			1?	1	1		
9	6	1?				1?		
1	6							
6	7							
10	4							
2	4 or 5					1 or 2		
12	2							
4	5 or 7			2?			1?	1 or 2
15							1?	
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	51	2	2	9	1	2	1 or 2	1 or 2
	(73%)							

Opening	A	N	Eh	M	R	S	T	B
	Kimsīlasutta (2 p.)							
9	1							
1	1							
	<u>2</u>							
	Uṭṭhānasutta (9 p.)							
3				1				
13								1
5	3							
9	1							
	(one corrupt pāda, possibly M 10)							
8								2
	<u>4</u>			<u>1</u>				<u>3</u>
	Rāhulasutta: vatthugāthā (4 p.)							
3	1							
1	2							
7	1							
	<u>4</u>							
	Sutta proper (12 p.)							
				1 & 1'				
3	1							
13	1							
5	2							
9		1						
6	1							
10	3							
4								
	<u>8</u>	<u>1</u>		<u>1</u>				<u>3</u>
	Vāṅgīsasutta (6 p.)							
5	2							
9	1							
6	1(? P.N. upsets metre)							
10	1							
8	1							
	<u>6</u>							
Totals	110	5	4	19	3	2	1 or 2	7 or 8
Cūlavagga (153 p.)	(72%)							

Mahāvagga

Opening	A	N	Bh	M	R	S	B
---------	---	---	----	---	---	---	---

Pabbajjāsutta (40 p.)

11	1?			3	1 or 2	1?	
3	1'	2	2	1 & 1'	1		
13	1					1	
5	3 or 4						
9	3					1	
1	7 & 1'						
6	3						
10	2						
2	1						
12	2						
4	1						
<hr/>							
	25 or 26	2	2	5	2 or 3	3	

(63-5%)

Padhānasutta (51 p.)

11	4			1 (& 1 r.6th?)	1		1
3	27(&r.6th?)			2 or 4	1'		
13	2 or 3						
5	7	2					
9	5					2	
1	6	1				1	
14	1						
6	3					1?	
10	2?						
2	3?						
12	2?			1?			
4	2						
<hr/>							
	34 or 38	3		4 or 7	2	3 or 4	1

(67-74%)

Subhāsitasutta (8 P.)

11				1			
3	1 & 1'						
5	1						
1	2						
2	1						
12	1						
<hr/>							
	7			1			

Opening A N Bh M R S B

Sundarikabhāradvājasutta (9 p.)

3	1						
5	2						
9	1						
1	2	1			1		
14	1						
	<hr/>	<hr/>			<hr/>		
	7	1			1		

Sabhiyasutta (15 p.)

11					1		
3	1						
13	1?						
5	3						
9	2						
1	3						
10	1						
2	1 & 1'						
12	1				1		
4	1						
	<hr/>				<hr/>		
	14?				2		

Selasutta (52 p.)

11	2		2				
3	3		1'	3			
13							
5	6	3				1	
9	5						
1	7						
14	1						
6	2?						2
10	1						
2	5	1					
12	2						
4	4						
7							
					1 or 3		
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	38	4	3	4		1	2
	(73%)						

Opening A N Bh M R S B

Sallasutta (41 p.)

11	1		2	2			
3	1 & 1'	1	1	1			
13	3						
5	6						
9	1						
1	3			1			
14	4						
6	5						
2	4 & 1'						
12	2						
4	1						
<hr/>							
	33	1	3	4			
	(80%)						

Vāsetṭhasutta (111(131) p.)

11	6	1	1	3			
3	7 & 1'			3	1?	3?	
13	2		1				1
5	19(20)	1					
9	10?			1	1?		1
1	7(14)						
14	2						
6	7(14)						
10	8						
2	12(17)						1
4	6						
7	3			1			
8	1						
<hr/>							
(1 not scanned)	91(111)	2	2	8	1	3	3
	(82(84)%)						

Kokāliyasutta (2 p.)

14	1						
6	1						
<hr/>							
	2						

Opening A N Bh M R S T B

Nālakasutta (51 p.)

11	2		3	3	1?			
3	4	1	2	1	1 or 2	1?		1
13	5	1?						
5	2				1?			
9	2	1						
1	7			2				
14	1							1?
6	2 or 3							
10	2							
2	2							
12	1							
4		1?						
8	1?							

31	3	5	6	3 or 4	1?		2
----	---	---	---	--------	----	--	---

(61%)

Dvayatānupassanāsutta (76(89) p.)

11	3	1		1				1?
3	5		1	2(6)			1?	
13	1							
5	17(25)	1						
9	6							
1	11	2						
14	1							
6	6							
10	2							
2	4							
12	1				1			
4	3?		1					
7	1(2)							
8	1?							

(2 not scanned)	62(71)	4	2	3(7)	1		1?	1?
-----------------	--------	---	---	------	---	--	----	----

(84(81½)%)

Totals	344(373)	20	17	37(41)	9	11	1?	9
Mahāvagga	or			or	or	or		
(456(489)p.)	349(378)			40(44)	11	12		

(78(77½)%)

Therigāthā

Opening	A	N	Bh	M	R	S	T	B
	Ekikā Theriyo (39 p.)							
11	1?							2?
3	6	1		1	1			
13	3							
5	4					1		
9	4 or 6			o or 2				
1	8							
6	1							
2	1							
4	2							
15	1							
	<hr/>	<hr/>		<hr/>	<hr/>	<hr/>		<hr/>
	31 or 34	1		1 or 3	1	1		1 or 2
	Dukanipāta (40 p.)							
11	2					1		
3	2	1 or 2	1 or 2	1'			1?	1?
13	3							
5	9							
9	2	1		1				
1	4 or 5			1	1?			
14	1							
6	2	1						
2	2							
4	1							
7	1?							
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	29 or 30	3 or 4	2 or 3	2 or 3		1	0 or 1	0 or 1
	Tikanipāta (51 p.)							
11	1			2				
3	5 or 6	1	2			1		
5	7			2		1		
9	3 or 4			1 or 2				
1	7 or 9							2
6	2							1
10	1							
2	4 or 5 & 1'							
4	2							
7	1?							
8	1?							
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	37 or 38	1	2	5 or 6		2		3

Opening A N Bh M R S T B

Catukkanipāta (8 p.)

11				1 r.6				
3	2			1				
5	1							
9	1							
1	2							
	<hr/>			<hr/>				
	6			2				

67 - 106 (81 p.)

11	4 & 1'?	1		2	1			
3	5			3 & 1'				
13	5							
5	4			1				1
9	14		1			1		
1	15 or 16			1?				
14	1							
6	6							
10	4					1		
12	1							
4	1							
7				1?				
	1 corrupt							
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	67	1	2	7	2	1		1

Bhaddā Purāṇanigaṇṭhī (10 p.)

11				2				
5		1	1					
9		1						
1	1'	1						
6	1							
4								1
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
(1 corrupt)	2	3	1	2				1

Paṭācārā & her followers (112-132, 175-181:62p)

11	2		1?			1??	2	
3	4		2	1				
13	1		1?				1?	
5	11							
9	9							
1	9							
14	2							
6	6							
2	6							
12	1							
4	1' (2')							
15								1?
8	1							
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	54		2 or 4	1		1?	1??	3

Opening

A N Bh M S T B

Vāsītthī (12 p.)

11
3
13
5
9
11
2

	1					
	1					
	3					
	2					
	1	1				
	2					
	<hr/>		<hr/>			
	10	2				

Khemā (12 p.)

11
3
13
5
9
11
6
2
4

	1					
	1		1			
	1					
	1					
	1					1
	1					
	2					
	1					
	<hr/>		<hr/>			<hr/>
	10		1			1

Sujātā (12 p.)

11
3
5
9
11
2
4
7

		1				
	2					
	1					
	1?				1??	1?
	2					
	1					
	2					
	<hr/>		<hr/>		<hr/>	<hr/>
	9	1	1		1??	1

Anopamā (12 p.)

3
13
5
9
11
6
10
2

	1					
	1?				1?	
	4					
	2					
	1					
	1					
	1					
	<hr/>		<hr/>			
	11				1	

Opening	A	N	Eh	M	R	S	B
	Mahāpajāpatī Gotamī (12 p.)						
3			1	1			
13	1						
5	1						
9	1 or 2						
1	3						
6	1						
10	1 or 2						
8	1						
	10		1	1			
	Guttā (12 p.)						
11	1						
3	3			2			
1	2			1			
2	1						
12	1						
4	1						
	9			3			
	Vijayā (12 p.)						
3	1						
5	2?						
9	1			1?	1?		
1	1						
6	2						
2	2						
7	1?						
	10?			1?	1?	1?	1?
		3 Cālā sisters (31(45)p)					
11	1	1	1	2			
3		1					
13	5(6)						
5	4(5)					1	
9	1						
1	2(4)			1			2(4)
14	1						
6	1(2)						
2	4(8)						
4	3(6)						
	22(34)	2	1	3		1	2(4)

Opening

A N Bh M R S B

Vadhamāta (18 p.)

11			2				1
3	2 & 1'				1		
5	4						
1	2						
10	1						
2	1					1	
4							1
16	1						
	<hr/>		<hr/>		<hr/>	<hr/>	<hr/>
	12		2		1	1	2

Uppalavannā (19(20) p.)

11			1				
3	1		1	2			
5	2						
9	1		1(2)				
1	1						1
14				1			
6	1						
2	3						
4	1?						
7			1		1?		
	<hr/>		<hr/>	<hr/>	<hr/>		<hr/>
	10 or 11		4(5)	3 or 4			1

Punnikā (28(31) p.)

11	2(3) or 6(7)		1(2)	1			
3	4 or 8		1				
13	1?						
5	1 or 2		1?	1?			
9	1						
1	2						
6	2			2			
10	3(4)						
2	2						
	<hr/>		<hr/>	<hr/>	<hr/>		<hr/>
	22(24)		2(3) or 3(4)	3 or 4			

Rohinī (39(42) p.)

11	1(2)		3(5)	1	1		
3	1		2		1	1	
13	2						
5	3	1				2	
9	1			1		1	
1	7&1'				1	1	
14	1						
6	1						
10	2						
4	1						
7	1						
	<hr/>		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	22(23)	1	5(7)	2	4	5	

(1 not classified)

Opening	A	N	Bh	M	R	S	B
	Sundarī (51(54) p.)						
11	2(3)					1	
3	2		3	4			
13	2						
5	9						
9	4(6)						
1	6						1
6	8			1			
10	2						
2	3						
12	1						
4	1						
7	1?						
	<u>41(44)</u>		<u>3</u>	<u>5</u>		<u>1</u>	<u>1</u>
	Cāpā (44(45) p.)						
11	2(3)		2	2			1
3	5	1		1			
13	2		1				
5	6						
9	1				1		
1	4						
14	2						
6	3						
10	1						
2	6						
4	2						
7	1						
	<u>35(36)</u>	<u>1</u>	<u>3</u>	<u>3</u>	<u>1</u>		<u>1</u>
	Subhā Kammāradhītā (56 (58) p.)						
11			1	1			
3		2	5(6)	1	1	1?	
13	1				1?		
5	5?			1?			
9	5						
1	10(11)	2	1				
14	1						
6	1						
10	7						
2	4						
12			1				
4	2 or 3						
8	1						
	<u>38(39) or 40(41)</u>	<u>4</u>	<u>8(9)</u>	<u>2 or 3</u>	<u>1 or 2</u>	<u>1</u>	
Totals	497(517)	22 or 37(42)	46 or	10 or 15 or 18(20)			
Therīgāthā	or	23	or	52	12	18	or
(651(678)p.)	505(525)		41(46)				20(22)

The overall figures approximately confirm the earlier counts by Simon in regard to the proportions of the various forms. I have the impression that almost any of the larger collections of verse in the Canon taken as a whole would give about the same result, i.e. approximately 75% pathyā, with the third, second, first, fifth and fourth vipulās in decreasing order of frequency. $\cup - \cup \cup$ as prior cadence is most variable in employment, and may sometimes be suspected of resulting from confusion with the posterior pāda. The only remaining possible form for the cadence, $- - \cup \cup$, seems definitely to have been excluded, but the reason for this discrimination is not apparent. In all but a few cases, which may be corrupt, the rules for the caesura in the third and fourth vipulās are observed.

As soon as we break up the collections into their constituent vaggas or nipātas, and still more so if we take single poems, we find sharp divergencies from the average usage. These are so marked that, except in some of the shortest poems, we cannot dismiss them as being due merely to the taking of samples which are too small. The differences of age thus suggested seem to agree with the general drift of subjective opinion on which sort of doctrine is earlier and which later. Thus the

more 'rigid' doctrine and the more minute analysis of categories of existence and its physical and psychological constituents are found in verses whose percentage of pathyā is higher.

4. In the following tables some of the texts have been re-classified chronologically in order to show whether there is any variation in the proportions of the various vipulās apart from the general decrease in their combined frequency:

Total pādayugas	A	N	Bh	M	R	S	B
<u>65% or less pathyā</u>							
111 57(61)	68 or 35(36)	69 5 3	9 7(9)or 8(10)	14 8(9) or 9(10)	6 or 8 -	3 or 4 -	4 (Sn) 2 (ThII)
<u>67% pathyā</u>							
74(76)	50(51) or 52(53)	6	8(9)	2 or 2 or 3 3		2	2 (ThII)
<u>70% pathyā</u>							
51	34 or 38	3	-	4 or 7	2	3 or 4	1 (Sn)
<u>72-73% pathyā</u>							
122 82(96)	89 59(71) or 60(72)	6 3	5 3	13 8 or 9	1 -	3 3	4 (Sn) 5(7)(ThII)
<u>75% pathyā</u>							
56	42	1	0 or 5	2 or 4	-	1 or 6	4 (Sn)
40	29 or 30	3 or 4	2 or 3	2 or 3	-	1	0 or 1 (ThII)
<u>77-78% pathyā</u>							
28(31)	22(24)	-	2(3) or 3(4)	3 or 4	-	-	- (ThII)
<u>80% pathyā</u>							
199	158 or 160	13	10 or 11	11	-	1 or 4	3 (Sn)
95(99)	76(80)	1	6	8	1	1	2 (ThII)
<u>83% pathyā</u>							
187(220)	153 (182)	6	4	12(15)2		3	4 (Sn)
165	136	4	4	127	37	37	3 (Th II)
<u>85% or more pathyā</u>							
101	85 or 89	1	2 or 5	2 or 4	1	27	4 or 6(ThII)

The first vipulā tends to increase in popularity, whilst the third declines somewhat, although without losing its preeminence. This is surely another manifestation of the need for successions of short syllables. The 'fifth' vipulā is nowhere very popular. The second and fourth vipulās both decrease in quite a marked manner. $\cup - \cup \cup$ is used very consistently everywhere, and hardly seems to be affected by the other changes.

The Aṭṭhaka and Pārāyana require reanalysing into their component parts. On the whole they seem to fall into two clearly distinguishable strata: the very old poems which formed the nuclei of the collections and the rather late additions, especially the frame story or vatthugāthā of the Pārāyana (and the Kāmasutta introducing the Aṭṭhaka?), made when the two vaggas were assembled in approximately their present form. Thus the older stratum (which may be further subdivisible into two or more phases of composition) has a lower frequency of pathyā than the 70% or so given by Oldenberg for the two vaggas, which groups it with the earliest stratum found in other parts of Sn. The problem of the frequency of $\cup - \cup \cup$ surpassing that of any other vipulā remains. Probably it indicates a still earlier period than the earliest vattas found elsewhere, but it may alternatively represent a geographical variation in usage: perhaps a more archaic anuṭṭhubha lingering in Western India (i.e. Kosambī and the regions further west) under Vedic

influence.

In Chapter V, Section 5, we have anticipated the question of the origin or 'invention' of the classical vatta under the impact on the anuṭṭhubha of the metrical transition taking place during our period. At what stage in the increase of the pathyā frequency we should declare the vatta to have come into existence is apparently an idle question, since there was a gradual development towards the uneven (aḍḍhasama) structure of prior and posterior pādas from Vedic times onwards. The confirmation of the uneven structure as a deliberately cultivated narrative metre, picturesquely compared with an inseparable pair of birds (this surely is the reference intended by the simile, not the strophe structure of two aḍḍhasilokas - which is not invariable (1) and does not suggest the union of the male and female birds), may, however, date from a particular period or even from the work of one poet, such as the legendary Vālmiki. Perhaps in the post-Pali period the innovation of the complete

(1)...The six pāda siloka is quite common in Pali, as in Epic Sanskrit and the tradition of the Purāṇas. Indeed we might suppose that the poets paid no particular attention to strophic structure in epic narrative, being conscious only of the continuous series of 'aḍḍhasilokas'. It is noteworthy, especially in connection with the remarks in the concluding paragraph of this chapter, that the gīti also has a six pāda form, in the Upālisutta (cf.p.229 above).

exclusion of the cadence $\cup - \cup \cup$ from the prior pāda may mark such a decisive point, after which the vatta assumed its standard classical form. The Rāmāyaṇa, being the oldest extant work in which the classical rules allowing only the pathyā and four vipulās in the prior pāda are strictly observed, may thus indeed be regarded as the first poem in the new metre.

The Pali vatta, however, already exhibits the general features of this metre, and differs from it only in having a greater freedom of structure and a rather lower frequency of pathyā, although this latter already preponderates to the extent of accounting for at least two thirds of the verses.

It is instructive to compare the vatta with the gīti. In its formation a counter process took place to that which created gaṇacchandās out of mattāchandās: the four similar pādas of the Vedic anuṣṭubh were fused in pairs or pādayugas not by assimilation to one rhythm throughout but by differentiation of the prior pāda from the posterior pāda by a kind of interrupted cadence which suspends the full close until the end of the pādayuga. Thus at the two extremes of metrical development in our period - the musical technique and the technique of continuous narrative in a metre which remained on the syllable-count basis of Vedic metrics - remarkably similar developments took place: the cultivation of the uneven, or aḍḍhasama strophe.

Evidently these parallel evolutions satisfied widely divergent needs. The gīti, as its name implies, was the song-strophe, and owed its form to the eight gaṇa musical phrase underlying it. As for the vatta, a metre consisting of four comparatively short pādas equal in length and practically identical in rhythm is unsuitable for continuous narrative of any length - even the longer tuṭṭhubha or upajāti pāda soon produces a monotonous effect. The long finely balanced pādayuga of the vatta, the "speaker", however, occasionally diversified by the tripping first vipulā, the sedate third, the strongly syncopated fourth or the evanescent second, became the epic narrative metre par excellence.

CHAPTER VIII

The Tutthubha

1. The Pali tutthubha (the jagatī should be understood as included in this general term except where otherwise stated) has not been studied as extensively as the vatta,⁽¹⁾ but, as we saw in the Introduction (pp.22-29), the general history of the Indian tutthubha has received more attention than that of all the other metres put together. Section 7 of the Introduction gives some account and evaluation of this previous research, so we may now proceed to sum up the historical conclusions suggested by it and to tackle the enigmatic Pali form of the metre from the positions we have reached in the preceding chapters.

We may take Edgerton's articles on the Epic and Buddhist Hybrid Sanskrit triṣṭubh⁽²⁾ as a starting point, with reference to Oldenberg's outline of the history of the metre⁽³⁾ and Zubatý's

(1)...Besides Oldenberg's work we have Smith's survey of the Sn tutthubha in Sn A III pp.638-40 and his brief notes, Sd 1151-2.

(2)... "The Meter of the Saddharmapundarīka" - Kippuswami Sastri Commemoration Volume, Madras 1936, 39 ff; "The Epic Triṣṭubh and its Hypermetric Varieties" - JAOS 1939, 159 ff; "Meter, Phonology and Orthography in Buddhist Hybrid Sanskrit" - JAOS 1946, 197 ff.

(3)... "Zur Geschichte der Triṣṭubh" - NG 1915, 490 ff.

exhaustive collection of tristubh variations in the Epic. (1)

The conclusions reached by Oldenberg on the earlier phase of development are as follows:

The Vedic tristubh had two main forms, distinguished by the position of a caesura after the fourth or the fifth syllable; the commonest schemes are:

$$\begin{array}{c} \underline{u} - \underline{u} - , \underline{uu} - - \underline{u} - \underline{u} \\ \underline{u} - \underline{u} - \underline{u} , \underline{uu} - \underline{u} - \underline{u} \end{array}$$

-the second of these is often mixed with the 'pentad' metre: $\underline{u} - \underline{u} - \underline{u} , \underline{u} - \underline{u} - \underline{u} /$ under the influence of which it perhaps originated, the caesura at the fourth type being probably the original tristubh.

The second type is much more regular, in conforming to the above commonest scheme, than the first. It has the variant openings $\underline{u} - - - \underline{u}$ and very rarely $\underline{u} \underline{u} - - \underline{u}$, and practically no variation in the break.

The first type has the secondary openings $\underline{u} \underline{u} - - , \underline{u} - - \underline{u}$, $\underline{u} - \underline{uu}$ and $\underline{u} \underline{u} - \underline{u}$. The break has the secondary forms $- \underline{u} - , \underline{uuu} , - \underline{uu}$ and exceptionally $\underline{u} - \underline{u}$ (but this usually in $\dots \underline{u} , - \underline{u} - , \underline{u} - \underline{u} /$ as a special metre in Manḍala VII).

In the Brāhmanas, and in the earlier Upaniṣads which are mainly in prose, we find the beginning of the transition

(1)...ZDMG 1889, pp.627-652.

in the break of the first type, bringing it closer to the second. We also find the first occurrences of the pāda without caesura (Oldenberg regards the type with 'caesura' after the sixth as accidental and as belonging to this category). Thus we have the tendency to the long fifth and short sixth syllables associated with the tendency for the caesura to disappear. Oldenberg (NG 1915, p.504) sees here a kind of transfer of the break from the opening to the cadence, since (with the additional tendency $- \cup - > - \cup \cup$) according to his interpretation of the rhythms the 'anapaestic' break which followed naturally after the 'iambic' opening is transformed into the 'dactyl' which leads on to the 'trochaic' cadence. The break in the rhythm thus made at the end of the opening renders the caesura superfluous.

This use of Greek terms is objectionable, for the reasons stated in the Introduction. Recognizing that there is some truth in Oldenberg's interpretation we should try to restate it in line with the conceptions of Indian metrical rhythms outlined in the Introduction and elsewhere, with special reference to Section 5 of Chapter V (see page 150). In the old metrics (Vedic, etc.) we find variation of rhythm effected by substituting one short syllable for one long one, or vice versa, in certain positions. We are here probably close enough (for historical reasons: common

origin of certain Indo-European metres?) to Greek rhythms to suggest some resemblance between, say, iambic rhythm and the commonest opening rhythm of the Vedic triṣṭubh. Already, however, there is present in the old Indian metre the germ of the new metrics based on the exact quantitative opposition of two short syllables to one long one. The component parts of the second form of the Vedic metre separated by the caesura suggest at once, and especially when compared with the 'pentad' or virāja, the new metrics: $\frac{uu}{u} - u - u$. What is even more remarkable here is the suggestion of the actual gaṇacchandas unit: $/uu - / u - u / \times 8$ (even the strophe of 8 units is of the same length - 4 tuṭṭhubha pādas each of 2 units). How do we apply Greek theory in describing the relationship between these two Indian metres, so different yet in this analysis apparently so similar?

The Vedic triṣṭubh may have had a common origin with similar ancient Persian, Greek and other Indo-European metres, but already it is an Indian metre, a characteristically Indian metre with the whole of Indian metrics implicit in it and, if we may add a subjective argument, having the essentially Indian ring of the verses describing Indra's exploits. We cannot say whether in the hypothetical Indo-European metrics an 'iambic' or other rhythm of which Greek preserves the archaic quality existed, or whether as in Chinese metrics only the number of syllables was

significant (together with their grouping in 'feet' or lines of four or some other number of syllables and of multiples of such units). In the earliest Indian metrics we find a certain interplay of quantities of which the ictus theory cannot give an adequate description. In the tristubh we find already in this earliest stage the germ of the new metrics (which will include in its development Classical Sanskrit metrics and Apabhraṃśa metrics) of exact quantitative oppositions. In Greek metrics a system of inexact quantitative oppositions, with the ictus, developed. In the newer Indian metrics we find the system of exact oppositions with, in the musical metres, the new ictus (which may fall on a long or a short syllable) derived from the music. In the older Indian metrics we have apparently an inexact, perhaps originally non-quantitative, system developing towards the exact system, with no ictus in the Greek sense or in the later Indian sense. In gaṇacchandās we have a clear, exact, musical structure: $\underline{\quad} - \underline{\quad} - \underline{\quad} - \underline{\quad}$ isochronous with $\underline{\quad} - \underline{\quad}$. In the tuṭṭhubha, even in Pali, it is most unlikely that a division of the pāda: $\underline{\quad} - \underline{\quad} - \underline{\quad} - \underline{\quad} - \underline{\quad}$ would yield four units of exactly equal length, although the opposition of the pair of short syllables to the other syllables of the pāda, and also to the other form of the pāda with this pair interchanged with the (long) fifth syllable, does indicate the exact $\underline{\quad} - \underline{\quad} - \underline{\quad}$.

The tuṭṭhubha derives its character not from the units

from which the pāda may be built up, as does a musical metre (or a Greek metre), but from the pāda as a whole. This character it retains, in a modified form, in the classical upajāti. It is to be combination of this indivisible pāda system with the musical character of the new rhythms that the fixed classical metres owe their wonderful diversity. Only the tuṭṭhubha retained the pāda as its unit throughout the Early Middle Indian Period, when all the other metres show the uneven structure of pādayugas of two unequal pādas and the musical metres the new unit, the gaṇa. This was its very important role in that period, and I believe that we should interpret its rhythmic structure, including its suddenly 'advanced' appearance as found in our texts, in this light.

Edgerton and Oldenberg reached the following conclusions concerning the later development of the triṣṭubh:

The Mahābhārata triṣṭubh lies in two clearly distinguished strata, apparently belonging to two different periods of composition. The older stratum, found for instance throughout the Sabhā-parvan (II), shows the continuation of the tendencies of the Brāhmaṇa period, together with the special feature of hypermetric pādas. It should be noted further that jagatī pādas frequently alternate with triṣṭubh pādas within the strophe. There are three types of hypermetre, that produced by adding a seven syllable break plus cadence (as in the first Vedic type given above) to a five syllable opening (second type) being by far the commonest. The other types are produced by resolution

at the fifth after the (early) caesura and by resolution at the first, which however is extremely rare in the Epic. To the same stratum appear to belong, besides the Bhagavadgītā and many other parts of the Epic, the later Upaniṣads such as the Kāṭha and Śvetāsvatara and perhaps the Baudhāyana and Vāsiṣṭha Dharmasūtras. It would appear that the Canonical Pāli tuṭṭhubha (1) is associated with this same stratum, although the proportions of the various structures are rather different. The Ardhamāgadhī metre resembles the Pāli, but is rather more regular.

The later stratum in the Epic, found for instance throughout the Virāṭa-parvan (IV), shows the pure upajāti type without mixture of triṣṭubh and jagatī pādas and without hypermetres. Licence, even, may be used to obtain the fixed upajāti scheme. Many other sections of the Great Epic and the entire Rāmāyaṇa conform to this type.

The triṣṭubh in Buddhist Hybrid Sanskrit, for instance in the Saddharmapuṇḍarīka, conforms to the upajāti type except for the occurrence of mixed triṣṭubh and jagatī and of hypermetres by resolution at the first, fourth (2) and fifth syllables

(1)...i.e. the freer tuṭṭhubha of the majority of the texts. In the latest texts we find the classical upajāti and vamsaṭṭhā.
(2)...cf. Regamey SR pp. 12 & 66; See Smith, DP 17 ff. for a survey of BHS triṣṭubh forms.

(as in the upajāti type, there is no evidence for a caesura). As to its chronological position, Edgerton says no more than that it may derive from the metrics of the "original Prakrit" dialect of the Buddhist Canon. (1) We may suggest that the BHS tristubh represents a transition phase between the older Epic (or the Pali) metre and that of the later Epic.

Oldenberg relies on the evidence of the anuṭṭhubha (see Chapter VII) to demonstrate that the Pali Canon is older than the Great Epic, and would regard the apparent 'lateness' of the form of the Pali tuṭṭhubha as perhaps a local development in Eastern India. We must look for a more convincing explanation by developing our theories of the evolution of the metre in the light of Edgerton's results.

2. The types of tuṭṭhubha found in the Canon are as follows:

Caesura at fourth

breaks { — — —
 { — — —
 { — — —
 { — — —
 { — — —

(1)...He would perhaps revise this statement today in the light of his investigation of Buddhist dialects in BHS. If the Buddhists did not use a special dialect it is unlikely that they used a special metrics (i.e. one peculiar to themselves and not whatever was current in the countries where they were active).

Caesura at fifth

breaks	{	- , u u	
		- , u u -	(hypermetre 5+7)
		- , - u u	(hypermetre 5+7)
		- , u -	
		- , - u -	(hypermetre 5+7)
		u , u u (frequently > - , u u)	

Caesura at sixth and/or third

breaks	{	- u , u
		- u , -

Caesura at third and/or seventh (Sn 239a?)

break u u u

(alternatively these last two classes have been described as having no caesura; Oldenberg also gives --- and --u without caesura).

Openings

u - u - (-) the only common opening in all the above types

u - - - very rare (break - u u)

u u - - very rare (breaks - u u , - u -)

- - u u - extremely rare (Sn 214a)

- u u - - u extremely rare (Sn 243, 247, 252)

Hypermetres

Besides the 5+7 types above, any form may have resolution of the first syllable. In the commonest forms, with break - u u , we may have resolution at the fifth so that the break becomes u u u u . Resolution at the fourth, as found in BHS, does not seem to occur in Pali.

The break u - u is extremely rare (Smith ignores

it in his classification Śā 1151-4) and should perhaps always be corrected (e.g. Sn 177 b, 211 c and 239 b > -oo; 214a?). But cf. --- above.

All these types, it appears, may occur either as tuṭṭhubha proper or as jagatī (which, for instance, shows the hypermetre 5+8, and so on). It was not possible within the scope of the present study, which was devoted mainly to the new metres, to take up the question of the differences between the two metres, as has been done in the case of opacchandasaka and vetāliya. The results might be no less interesting: as the two metres separated out from more or less indiscriminate mixing into the classical upajāti and vaṃsatṭhā, which are found in the latest Canonical texts, we might find that although in these two classical metres there is no superficial difference other than the cadence (but we do feel a difference in reading them, since the vaṃsatṭhā cadence rhythm is reflected in the opening, for instance), in the development of other fixed metres, such as the rucirā, the interplay of cadence and opening visibly played a part.

As Oldenberg has pointed out (NG 1915 p.515) there is a strong predominance of the break -oo regardless of the caesura: in other words a strong anticipation of the classical upajāti form. The opening also is 'normal' (u-oo-) in the great majority of cases. As he says, however, (p.516) it is impossible to

believe that Sn and Dh are younger than the Bhagavadgītā, and we must rely on the vatta evidence, which shows that the Pali texts are earlier. Although there is a smaller percentage of non-upajāti forms in our texts than in the earlier Epic samples, we may point out that there is on the other hand a wider range of different structures.

The following table shows tuṭṭhubha structure in some of the texts:

Break	Atthaka- vagga (0)	Devatā- samyutta (0)	Muni- sutta	Khagga- visāna- sutta	Dhamma- pada (Fausbøll)
, - u u	112	26	12	27 (68)	
, u u -	5	6	4	3	
, - u -	12	3	3	5	
, u u u	2			1?	Caesura
, - u u	7		2		
, u - u				1	not
- , u u	167	33	12 (20)	43	recorded
- , u u -	) No figures				by F.
- , - u u	) given (1)				
- , - u -)				
- , u -	5	3	3	1?	
u , u u	25	9	3?		
- , - u	3				
(-virāja) - , -				1 (2)	
- u u u	100	36	13?	28	
- u u -	3	1		1?	
- - u u			1?		
u u u ,	1				
	4				
Total - u u	379	95	37 (45)	98 (139)	107
Total up.-vams.	359	86	31 (39)	88 (129)	
Total	446	117	53 (61)	123 (164)	143

Openings
other than
u - u - (-)

u u - -	1				
u - u u	3	2	1		3
u u - u u		1			
- u u -	7	4			
u - - -	10	5		5	1
- u - -	2				1
u u - -	1			1	
- u - u -					1

(1)...Oldenberg states merely that in the 5+7 the break -, u u - predominates, which he regards as a sign of antiquity.

Initial resolution occurs about 60 times in the approximately 1600 tuṭṭhubha pādas of Sn (after allowing, of course, for the illusory cases with svarabhakti vowels which do not make extra syllables). There is no restriction on the words which may fill this position.

3. In order to reconstruct the history of the tuṭṭhubha in our period we must understand the relationship between the Pali and Epic (and BHS) forms of the metre. Despite the predominance of the upajāti rhythm which gives it a classical, late appearance, we can find marks of antiquity in the Pali metre which confirm our previous conclusion that most of the Pali Canon is older than the extant Epic. In the period of the origin and development of mattāchandas the initial alternation \bar{u} would be very popular, whilst in the period of the establishment of the fixed metres in their classical forms, when the true mattāchandas had been replaced by the fixed metres such as aparavatta and the classical vetāliya, it would be natural to discard such a usage.

Now it is precisely in the Pali tuṭṭhubha that we find frequent initial resolution, which is very rare in the Epic. On the other hand, resolution at the fifth is more common in the Epic, whereas in Pali it is extremely rare. In this case the resolution was evidently connected not with mattāchandas but with the development of the classical fixed metres such as rucirā. In BHS also resolution at the fifth is commoner, and here too we

are on the threshold of classical metrics. In the earlier phases, during which the caesura might fall after the fourth and the fifth syllable be then regularly short, such internal resolution would have destroyed the structure of the metre, and it seems clear that the establishment of approximate upajāti rhythm with the fifth syllable almost invariably long was the essential prerequisite for resolution at the fifth. The 5 + 7 hypermetre was a union of two familiar components and did not require such a basis, whilst the initial resolution not only does not result in the rhythmic confusion which would follow internal resolution in the earlier phases but was probably catalysed by parallelism with the second half of the pada in the regular form with caesura after the fifth and by parallelism with the virāja: $\underline{u}-\underline{u}-\underline{u} \times 2$ (virāja)// $\underline{u}-\underline{u}-\underline{u} \times 2$ (initial resolution). This initial resolution is likely to have been the first manifestation of the transition to the new metrics of exact quantitative oppositions.

The possibility of some geographical differentiation, suggested by Oldenberg, cannot be entirely ruled out, although, as we have said in the Introduction (p.14), Aryan-speaking India must be regarded as developing as a fundamentally homogeneous cultural unit and local variations (which are nevertheless of great importance and interest) must be seen as secondary. We might thus conclude that mattāchandas and initial resolution was an Eastern development, remembering that the vetāliya was also called 'māgadhikā' or 'māgadhi' (Jacobi ZDMG 1884 p.593), and

suggest that as the new technique radiated to Western India it underwent modification into the fixed forms such as aparavatta and classical vetāliya, initial resolution in the tuṭṭhubha not finding favour in the West, or at any rate in the North-West. Buddhist Hybrid Sanskrit and then the Rāmāyana would show the further development in the East, whilst the Mahābhārata would show the development in the North-West immediately following the Brāhmaṇa and Upaniṣad stages. The Ardhamāgadhī literature would be an additional illustration of Eastern developments in the Pali period.

Such divisions, however, seem too sharp and artificial, since we know that the Pali literature at any rate was not confined to the East, and the BHS literature may be largely of North-Western origin. Even if the new developments we have studied originated in Magadha, they spread so rapidly to the other regions that it seems impossible to distinguish the time-lag in the West before they were adopted there. It is unlikely that such a lag would amount to as much as fifty years, and our chronology may never be able to mark off such short periods with any certainty.

It seems certain that the verse parts of the Pali Canon represent quite a long period of composition, overlapping some of the other literature to which we have referred. Whereas the old tuṭṭhubha verses we have studied here are certainly pre-BHS, we find on the other hand the prototypes of classical upajāti and

vamsat̥hā in a minority of later Canonical texts, alongside other proto-akṣharacchandās. These may be later than the earliest BHS texts and later than the older stratum of the Epic.

Although all the stages in the evolution tuṭṭhubha - upajāti are not yet clear, we can see the approximate interrelations of the various texts to which we have referred, and the process of limitation of the metre to its classical forms in the context of the rise of the new metres. In the next chapter we shall describe these fixed classical forms and note the contribution of the tuṭṭhubha to the establishment of the Classical metrics, in which upajāti and vamsat̥hā were especially favoured as elevated narrative metres.

CHAPTER IX

Akkharacchandaa

1. We have already noted, especially in studying mattāchandas, the origin in our literature of some of the fixed syllabic metres which later played a predominant role in the Classical literature. The Pali Canon uses as many different metres as such a mahākāvya as the Śisupālavadhā, and we propose here to attempt a complete survey of the fixed, or at any rate fixescient, metres to finish our survey of Pali metres found in the Canon. (1) We may follow the usual classification into samavuttas, adḍhasamavuttas and visamavuttas.

Samavuttas

No. of
syllables
in pāda

- 6 u u u — — u x 4 (metre of ThI 381, not named)
- 10 { u—u—u—u—u—u— x 4 (metre of SI 14, not named)
 { — — u—u—u—u—u—u— x 4 upatṭhitā 1

(1)...Only those which occur as complete strophes are given, thus the 'meghavitāna' pāda J nipāta VII verse 149 a is not classifiable as illustrating the meghavitāna metre, although it shows the origin from mattāchandas of the independent meghavitāna metre. An attempt to list all such anticipations would probably not go beyond Smith's 3d Index, to which the reader is referred for this supplementary information.

It must be noted that a certain fluidity of structure prevails in most, and perhaps in all, of these metres, which are still in process of crystallization out of the mattāchandas > ganacchandas system in which mattā and gana equivalents were substituted for one another fairly freely. Two shorts may often be substituted for a long, especially initially (as even in the old vatta and tuṭṭhubha), and in several of the metres the initial syllable is anceps (the upajāti, for instance, does not yet appear to be further divisible into indavajirā and upendavajirā).

2. We have already discussed the origin of the pupphitagga (pp.144-5 & 166), the aparavatta (pp.144 & 165 ff), the vegavati (pp.178 ff), the rathodhdhatā (p.178), the dodhaka (p.178) and the svāgatā (pp.178 ff). This disposes of the adḍhasamavuttas, which developed from mattāchandas.

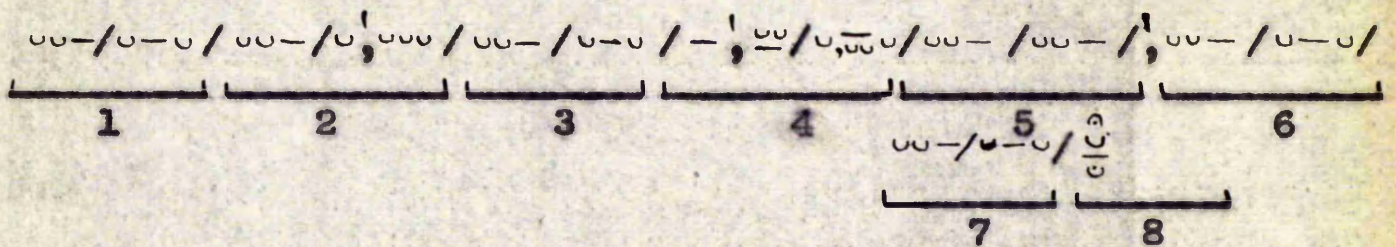
Upajāti and vaṃsaṭṭhā are the fixed forms of tuṭṭhubha and jagati to which these metres became limited during our period. In some of the later Canonical texts we find these metres very nearly in their strict classical form, e.g.: upajāti Th I 776 ff = M II 72-4; vaṃsaṭṭhā D III 147 ff, 156 ff, 161 f, 165 and Bv I 1 ff. (with occasional rucirā pādas: in the Lakkhaṇasutta rucirā is used separately). The rucirā is simply vaṃsaṭṭhā with the fifth syllable regularly resolved, we see its origin in the texts just mentioned (Bv and D III). (1) The ānandajāta originated in a very similar way, through the regularly resolved sixth in the 5+7 hypermetric tuṭṭhubha.

(1)...See also J II 269-70. On p.220 of the same volume we find a pāda 5+8 with resolved sixth (cf. ānandajāta) = 14 syllables.

Let us now consider the group of metres clearly related to gaṇacchandās, in which the 'woodpigeon' rhythm ($\underline{uu} - u - u$) appears. The pamitakkharā⁽¹⁾ is evidently derived from a gaṇacchandās pāda made up to 4 full gaṇas by completing the fourth gaṇa, but with the rhythm of the third gaṇa, not the second. It thus resembles such Apabhraṃśa metres as the pajjhaṭikā, and also the mattāsamaka or ariyāgīti type of ancient metre with a full strophe of 64 mattā. Note the initial alternation (in the classical metre the initial long is not found):

$$\underline{uu} - / u - u / uu - / uu - \times 4$$

The uggatā can be understood only by analysis into segments of the 8 mattā 'caturasra' rhythm. Jacobi (ZDMG 1889, 464 ff.) saw the gaṇacchandās origin of the metre, but apparently he was baffled by the number of gaṇas forming the strophe ($14\frac{1}{2}$) and could see no reason for this curious length. Nevertheless he noted the regular alternation of the two basic types of gaṇa rhythm. In fact the structure is clear and natural when measured by the tāla:



(1)...Found in the Lakkhaṇasutta, D III 169 f, 172 ff.

eight 'bars' of 8 mattā

(the apostrophes indicate the pāda junctions),

For the second half of the fifth bar compare the fourth gaṇa of the pamitakkharā, and notice that this is the only bar the end of which coincides with the end of a pāda and is marked by a caesura. From the position of the end of the first pāda, which coincides with the secondary caesura required by the gaṇa ॐ,ॐॐ when equivalent to ॐ-ॐ, we connect this metre with the old gīti vipulā (first pāda ending with the first syllable of the fourth gaṇa). The curious variations in the fourth bar (the seventh gaṇa again resembles some forms of the gīti fourth gaṇa, with the pāda junction, but in the odd position), with caesura and end of the second pāda after its first syllable and the remainder of the bar subject to the variations lalita and sorabhaka, can be explained only by parallelism with the eighth bar: we are here at the end of the first pādayuga, but whereas the second pādayuga ends with a bar containing just the one syllable and a 'rest', in the first the bar is filled up with the usual rhythm. At this point, however, before the final return to the strict opening rhythm in the last pāda, the strophe is diversified by variations within the rhythm of the tāla, leading to a kind of break at the end of the fifth bar which, as we have noted, ends like a pamitakkharā pāda. Evidently the basic structure of the strophe is as follows. We begin with

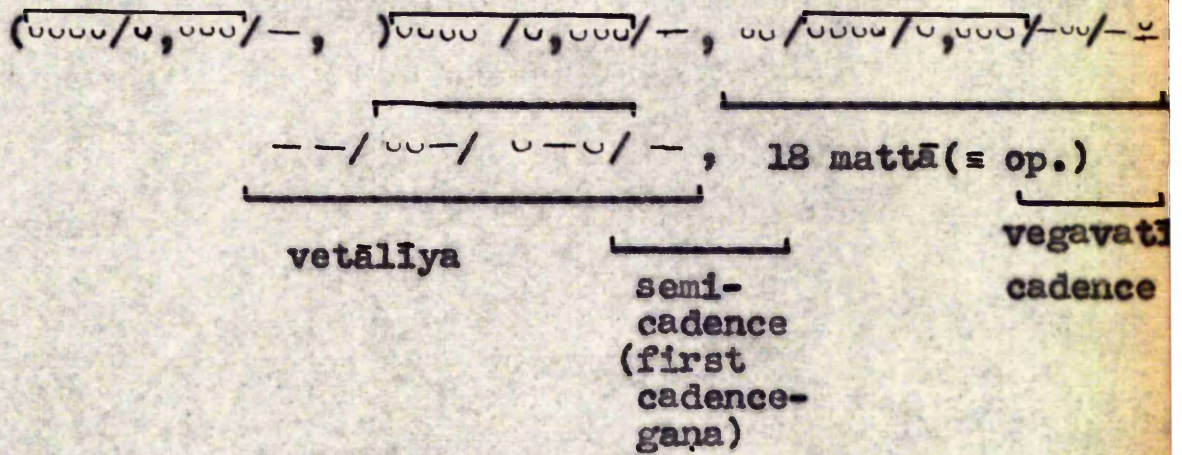
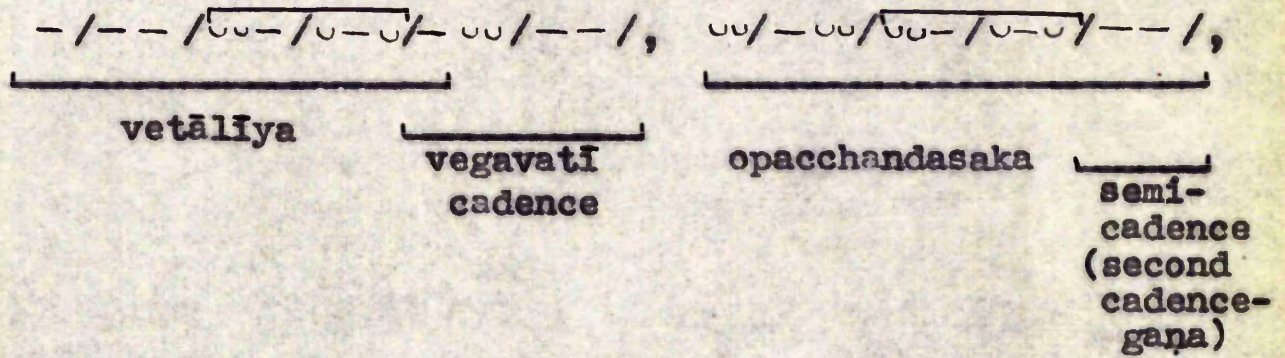
the main rhythm, like a 'dhruva' (modern 'sthāyī') in musical form; this pāda may thus be called the 'dhruva'. The rhythm is then varied increasingly up to the break at the end of the third pāda, which contrasts strongly with the first; this section resembles the 'ābhoga' in musical form. Finally the dhruva is repeated or 'recapitulated' to close the strophe, again as in music.⁽¹⁾ This structure is the prototype of the medieval tālavuttas of Apabhraṃśa and the Modern Languages. It seems to have been inspired by the tendency to 'ternary' form which appears to be inherent in Indian and European music alike. The comparativists might find it interesting and instructive to compare the history of sonata form with that of the pāda.

Only the upat̥hitappacupita is equal in complexity to the uggatā, even the Classical Sanskrit poets not having employed a more elaborate metre, although they used pādas of much greater length than those of Pali. This metre, however, again belongs to the strictly musical and 'deśī' tradition which led to the Apabhraṃśa pāda, where we see its true continuation and a further elaboration of strophe structure. It does not appear to have been used in Classical Sanskrit literature after Aśvaghoṣa (Saundarananda II 64-5, where it is followed by the uggatā of sarga III), being replaced by the sārḍūlavikrīḍita, a samavṛtta

(1)...cf.p.230 on the three pādayugas of the Upālisutta gīti: 1 - dhruva, 2 has most freedom, 3 is most rigid.

with the same opening ---UU-U-U....

If we apply the caturasra tāla to the upaṭṭhitappacupita we obtain this result:



- to which we have

added the comparison with mixed mattāchandas mentioned on page 182. We see in the first place that the original structure was that of the vetāliya - opacchandasaka strophe of Sn: vet. + op. x 2; the suddhavirājosabha being the earliest form of upaṭṭhitappacupita having a prior vetāliya for its third pāda. Next we see the rationalisation of the cadence rhythms previously observed in vegavatī and svāgatā, in which the whole strophe is assimilated to a regular underlying measure. The metre was not assimilated completely to the gaṇacchandas tāla, and retained its

mattāchandas characteristics in the same way as the svāgatā did, but the caturasra rhythm appears in each pāda (the secondary caesura in 0,000 seems to be regular in the Pali examples⁽¹⁾ in so far as I have been able to scan them; it is not regularly observed by Aśvaghoṣa).

We may thus describe the metre as more primitive than the uggatā, and probably as a prototype for the special 'pāda' characteristics of that metre. On the other hand it has certain definite tālavutta characteristics, being even more advanced than uggatā in some ways. Thus, as described by Piṅgala (V 28: "prthag ādyam"), the first pāda, or dhruva, stands somewhat apart from the remainder of the strophe, having the full cadence. We then have far greater variations in the third pāda than has the uggatā (notice that in both metres these variations occur in the third pāda only), which is limited within the framework of the 14½ gaṇas (note also that Piṅgala describes the recitation of uggatā as "ekataḥ" - in one piece in contrast to the "prthag ādyam" of the upatṭhitappacupita). Thus whereas the normal upatṭhitappacupita third pāda contains only 10 mattā, the suddhavirājosabha contains 14 and the vaḍḍhamāna 20 (or perhaps 22 if, as seems likely, the first half of it is followed

(1)...D III 159 f, 175-179. It is usually a 'concealed' caesura in a compound.

by a pause of 2 mattā) - or we may describe the vaḍḍhamāna as having an extra pāda.

The other details of the structure are not so clear. There seems to be no particular reason why the first pāda should contain 22 mattā, and be formed by adding the vegavatī cadence to that of the vetāliya with one syllable overlapping, whilst in the other pādas the cadence ends where the original vet. or op. cadence ended. Some cause external to the metre must be sought: presumably in the musical setting. The first and second pādas begin in parallel like posterior pādas: this might be said to emphasize the re-opening or new beginning at the second pāda. The remaining pādas apparently follow on without a break. The first two short syllables of the fourth pāda combine with the final syllable of the third to make up one gaṇa similar to the first half of the vegavatī cadence, the rhythm of the third pāda is then repeated in the fourth pāda, but ends with the full vegavatī cadence. (1) There is thus a kind of crescendo leading upto the end of the strophe, the succession of eight shorts being repeated two or three (vaḍḍhamāna) times.

In the Pali upatṭhitappacupita there appears to be further flexibility of structure, such as the initial long permitted in the second pāda, and a more thorough analysis of

(1)...i.e. part of the dhruva only: this too has parallels in the musical practice.

the few strophes in the Lakkhaṇasutta should eventually enable us to work out the earlier usages in this metre. Unfortunately this task could not be carried out within the scope of the present study.

Four metres remain, all samavuttas. In Th I 381 we have a single strophe of $\cup\cup\cup\text{---}\cup \times 4$ (cf Smith in Sd 1170). The last syllable is perhaps always short (two pādas end with short vowels, the others with niggahita), so that we could scan as a kind of gaṇacchandas: $\cup\cup\cup/\text{---}/\cup, \cup\cup\cup/\text{---}\dots$ (a strophe of 8 gaṇas). In the absence of further examples, however, we can do no more than speculate about the origin of this metre, it may even be a chance spontaneous outburst:

atihitā vīhi

khalagatā sāli

na ca labhe piṇḍaṃ

katham ahaṃ kassaṃ

-it is a bhikkhu's

"lament" attributed to the inspiration of Māra, the first verse of the Tekicchakānigāthā, which continues (382-6) in an unusual form of gaṇacchandas (see Smith Sd 1164 and 1171 for an attempt to describe this). The poem is of great interest in that it is dated by the Commentary: "ettha ca Bindusāraraṅṅo kāle imassa therassa uppannattā tatiyasāṅgītiyaṃ imā gāthā saṅgītā ti veditabbā" (Dhammapāla). We have already been led (e.g.

p.142) to associate the Moriyān period with perhaps the most important phase in the development of Pāli metrics, and these possibly experimental verses fit in well with such a supposition; we may regret that they are not in one of the better known of the new metres, which might give us a more exact notion of the chronology of gaṇacchandās.

Also in Th I we find another single strophe in an unknown metre:

duppabbajjaṃ ve duradhivāsā gehā
dhammo gambhīro duradhigamā bhogā
kicchā vutti no itarītaren'eva
yuttaṃ cintetum satatam aniccataṃ//Th I

111 (Jentagāthā)

(no variant readings recorded by Oldenberg; Siamese edition and Sinhalese edition, Colombo 1930, identical).⁽¹⁾

- Smith gives

— — — — —, 0000 — — — — as the scheme, evidently assuming 'vutti', 'aniccātaṃ', 'duradhivāsā' and 'itarītarena' m.c., all of which are quite legitimate according to our findings on Pāli usage, with the possible exception of the third, which, however, may have been influenced by 'adhivasati'. The metre may have originated from the tuṭṭhubha, except for the cadence, which may

(1)...Compare, however, Dh 302 ab: "duppabbajjaṃ durabhiraṃ, durāvāsā gharā dukhā."

be related to *gaṇacchandās*:... 0/---/- or to Th I 381. We may again suppose that this was a more or less experimental metre belonging to the period of the limitation of the *tutṭhubha* and the establishment of exact quantitative opposition, and perhaps the first in which long successions of longs and shorts were contrasted - a favourite expedient of Classical metrics. The nearest Classical metres are *paṇava*:

---0000---x 4 and *asambādhā*:

---000000---x 4, either of which may have been derived from our metre by the loss or addition of two syllables.

In J I 125. 20-1 we find the *upaṭṭhitā* 1 (Sd 1169; not to be confused with the *upaṭṭhitā* 2, Sd 1166, which is 0-000-000---x 4):

---00-00-0-x 4

- it may be a prototype of *ujjalā*, *hariṇaplutā* or *ḍutavilambita*. The origin of the cadence is not clear.

Finally we have the metre of SI 14 (2 strophes):

0-0-0-0-0-x 4

-this might be classified as a variety of *tutṭhubha* having only 10 syllables and the normal opening rhythm carried on throughout the *pāda*. The effect was no doubt too monotonous to become popular in Indian metrics, although something like it

($\cup - \cup - \cup - \cup - x 4$) is used in Hindi and it may be^a popular and persistent dance rhythm which occasionally infiltrated the domain of metrics.

3. To conclude this chapter we may state that all these Pali metres are at the very beginning of their development in the context of the new metrical techniques, and that they are the prototypes and forerunners of the magnificent repertoire of the Classical Sanskrit fixed metres. The development of such metres was made possible only by the establishment of the principle of exact quantitative opposition through the cultivation of the musical metres, and many of them bear traces of mattāchandas and gaṇacchandas rhythms which in crystallized form became independent metres. (1) The tuṭṭhubha, but not the vatta, was assimilated to the new system in various forms, but the majority of the new metres originated from mattāchandas and gaṇacchandas forms. In the early stages it was mattāchandas which gave rise to various akkharacchandas; in the later stages, and still more so in the post-Pali period, it was from gaṇacchandas that most new metres were derived. It may be suggested, however, as has already been mooted in Chapter VIII (p.275), that the contribution of the tuṭṭhubha to the new Classical metrics was the quatrain structure of four similar pādas, as units of rhythmic structure,

(1)...We have noted on p.237 the gaṇacchandas origin of the poetic associations of various types of rhythm in the Classical metrics.

which it preserved in opposition to the assimilation of the pāda structure to a musical strophe subdivided into gaṇas in the musical metres. As was stated there, it is to the combination of these two opposed elements, the indivisible tuṭṭhubha pāda and the endless musical rhythms of the new metres, that the Classical Sanskrit metres owe their wonderful diversity and subtlety of rhythm.

C O N C L U S I O N

The apparently simple task proposed for this study ("so slight a task to any scholar with leisure that we may fairly expect it to be accomplished before long" - Rhys Davids in 1903, D II p.viii) turned out to be in fact a major research project too great to be completed within the scope of a thesis. There are far more verses in the Pali Canon than Rhys Davids reckoned in 1903, and only a small fraction (selected as the most important and most typical) of them have been scanned for this work. In order to achieve even this we were led far afield into research on the language, on related Indo-Aryan dialects and their metrics, on Indian Music, and not least on the general problem of the nature of rhythm in poetry (cf. Kühnau T-J-F pp.v-x and 1-18). This study is therefore no more than a preliminary outline in which we have tried to present and settle the main problems of Pali Metre, leaving the fuller working out of the usages in the various texts to future research. Only the chapter on mattāchandas, which was considered to be of the greatest importance (the first new metre), comes anywhere near completeness as a survey of its subject, whilst that on the

tuṭṭhubha is a mere sketch to prepare for the task of scanning hundreds more verses in this metre and describing its usage in detail.

On the other hand I believe we have gained inestimably from being side-tracked in carrying out Rhys Davids' project by a host of interesting questions which could not have been foreseen by him. The work became a historical project. Only as a phase - as it turns out, perhaps the most decisive phase - in the general history of the Indo-Aryan languages and their literature can Pali Metre be understood. The problems accordingly acquire much wider interest than they possessed as obscure questions concerning a single somewhat remote dialect. If the problems of the most decisive phase of the transition to Middle and Modern Indian and the new metrics can be solved, then a fuller understanding and appreciation of Sanskrit, Apabhraṃśa, Ardhamāgadhī and Māhārāṣṭrī poetry will follow. Even the study of Hindī, Gujarātī, Urdu and other other modern languages may gain, although they have the advantage of living traditions. The most important conclusions to draw in this connection concern the origin of the new metres and their strictly musical organization from gaṇacchandās onwards, including their close conformity to musical forms and conventions (the dhruva - ābhoga - dhruva system of ternary form superseding the aḍḍhasama structure

even whilst maintaining the four pāda strophe; the syncopated coda, etc.). At the same time we note the musical rhythmic basis of the Classical varṇavṛttas, despite the maintenance of the strict four pāda metrical form and of the pāda as the unit in opposition to the gaṇa organization of the musical metres.

It follows naturally from this historical analysis of the metres that we should hope to be able to arrange our texts in chronological order, using a criterion more objective than any proposed hitherto. A brief summary of the chronological results of our study is given below. The analysis of texts according to the proportion of long to short syllables might be used with success on the prose texts, which were as much subject to the changing language-rhythm as the verse, to enable us to relate them also to our chronological framework.

In Chapter V (pp.192-3) we arrived at a division of some of the Canonical texts into five periods of composition, on the basis of the development of mattāchandas. Let us try to combine the results obtained in the other chapters with this division:

approx. date	Mattā-chandas	Gaṇa-cchandas	Vatta	Tutṭhu-bha	Akkhara-cchandas
	(o)		earliest Sn(65%) (& earliest Th II) Cūlavagga (72%)	Most of Sn?	
	(i) Sn 1-34, 83-90, 359-375. Most of J		most of Uragavagga & Mahāvagga (77-8%) (Kaṭha)		
		Sn,M			
300 B.C.	(1a) Dh, U Part of J (AM: Sūyagaḍaṃ)		Dh(80%), later Sn	Munisutta? (Early Epic?) Dh?	
	(ii) Sn vega-vati poem? Th II Part of Th I. S I.	Th II, J.	& Th II (-83%)	S I?	Part of S I, Th I
Moriyan Period				Part of J & M. Sn 679-98	Part of J & M Sn679-98
200 B.C.	(iia) Lakkhaṇa Part of Vv.	Lakkhaṇa	Latest Th II (85%)	Lakkhaṇa Bv	Lakkhaṇa Bv
100 B.C.	(iii) Most of Vv. Pv, A, C.	A	(Epic average 87-8%)		(BHS: Mahāvastu)
			(Rāmāyaṇa) (Late Epic)		

The Aṭṭhaka and Pārāyana are omitted: according to Oldenberg's figures the Aṭṭhaka tuṭṭhubha is 85% upajāti-rhythm, which would make it later than SI (81%), whereas we have suggested that the vatta of these vaggas is extremely old. The problem of these texts remains, but I consider it certain that they cover a very wide range of time. The Aṭṭhaka may be much later than the Pārāyana (it includes the Tuvatakasutta in gīti): whilst the Aṭṭhaka is almost entirely in tuṭṭhubha, the Pārāyana contains a good many vattas, although these are mainly in the frame story. A careful comparison with the metres of the Brāhmaṇa literature might settle this difficulty.

We shall not here attempt to draw detailed conclusions about the development of Buddhist doctrine, although we may make one or two observations which indicate the changes in some aspects of it. Thus we may contrast the Buddha legend of the very early vatta texts of Sn (405-424, 425-449) with the elaborate contents of the Lakkhaṇa or Bv, or the admonitions of Sn 699-723 with those of Sn724-764. With the earlier group we may compare Sn83-90 and 359-375, whilst in the later period we have the dramatic episodes of SI, the stories of the last three Th II poems, and later still the theory of kamma as illustrated in Vv and Pv. Of great importance are the verses attributed to disciples and later monks: Th I seems to cover a long period of development and many different techniques of composition, some of them dated by the Commentary.

The Pali Canon grew from a collection of simple, direct poems (and no doubt also prose narratives of the Brāhmaṇa type, which perhaps preponderated) characterized by a forceful, rather abrupt diction, to a greatly enlarged chrestomathy of literary compositions of all types, in which the direct style had been superseded by every kind of theoretical argument and calculated aesthetic manoeuvre. The religion growing in popularity attracted the best philosophers and poets of India to give it a literature superior to those of its rivals. Its character, however, was thereby changed to a complex, learned system, the best aspects of which were not so much the content of the literature as the beauties of its presentation: highly developed metrics and poetics. Finally it grew still further, and became imposing in mere size: in the Abhidhamma the implications of the philosophy were worked out to the last theoretical permutation, in the Vinaya a corresponding elaboration of rules and regulations took place, whilst in the more 'popular' section of the Canon the laity were provided with endless legends in which creation had been superseded by repetition, and the quest for enlightenment by superstition and pietism.

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