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Buddhaghosa and the Traditional Classifications of the Pali Canon

OF the wealth of commentarial tradition available to Buddhaghosa when he began his monumental work of writing the Pali Commentaries, the statements of the "Ancients" regarding the various classifications of the Word of the Buddha form a very interesting field of investigation. He places great reliance on the ancient tradition which was handed down in Ceylon from the earliest beginnings of commentarial and exegetical activity among the members of the Saṅgha. The Theravāda tradition of India was firmly established in Ceylon by Mahinda who is accredited with the task of compiling the first Sinhalese Commentaries. How far they were actual commentaries, as we understand by the term *Aṭṭhakathā*, we cannot say for certain, but the explanations of the Word of the Buddha given by him in the spoken Prakrit of Ceylon, which incidentally was quite akin to his own tongue, as may be seen from a comparison of the lithic records of the two countries in this period, may have acquired the same degree of sanctity and authority as the Teaching itself. This perhaps marked the beginnings of the Great Commentary of the Mahāvihāra, the *Mūla-Aṭṭhakathā*. The *Kurundī*, *Paccariya*, *Andhaka*, the *Saṅkhepa* and a host of other *Sīhala Aṭṭhakathā*, not all of them necessarily in Sinhalese Prakrit like the *Andhaka*, and a large number dealing with portions of the Canon, together with a diversified tradition not only of the so-called *Porāṇā*, the *Porāṇâcariyā*, the *Pubbâcariyā* or the *Therā*, but also of each monastic group, went a long way in making the commentarial tradition of Ceylon a highly complex one when Buddhaghosa arrived on the scene. At his disposal was a complex mass of material representing various shades of opinion and doubtless belonging to different schools of thought. It was a herculian task before him to separate the various strands and compile commentaries giving a consistent point of view. The voluminous nature of the material at hand was a great drawback to him, and patiently he had to wade his way through different interpretations of the same passage in many different traditions, through conflicting theories and contradictory statements. Some interpretations he accepted, others he modified, still others he rejected while he was often compelled to condense protracted exegesis or expand on insufficient explanations. The serious restrictions

under which he had to work are best indicated by his own words at Vism. 522, when says that in explaining the proposition *avijjāpaccayā saṅkhārā* he had to abide by the universe of discourse adopted by the Vibhajjavādins, not cast aspersion on the views of the "Teachers," not be inconsistent with his own system of thought, not trespass on the views of dissentient schools, not reject the Sutta, be in conformity with the Vinaya, see to the broad guiding principles and so on. In the opening verses of the Samantapāsādikā he himself states : "I shall now begin this exposition in conformity with the method of treatment found in the Sacred Texts . . . And in commencing the exposition I shall practically base it on the *Mahā-Aṭṭhakathā* as well as the *Mahā-Paccariya* without discarding the relevant statements and the rulings given in the recognised commentaries such as the *Kurundi ;* and thenceforth I shall proceed with the correct exposition of the Tradition of the Elders embodied therein . . . . Since in the past, commentaries were written without ignoring the judgements (of the Sons of the Conqueror) I shall therefore avoid the incorrect statements handed down in those commentaries. . . . . Thence giving up recourse to a different tongue, condensing protracted exegesis, without excluding any formal decision nor deviating from the method of exposition. . . . I will offer explanations in harmony with the *Sutta* taking into account the statements of those who are well versed in the *Suttanta.*"

It is against this background that the conflicting tradition regarding the classification of the Buddha-Word is to be viewed. Buddhaghosa in his Samantapāsādikā (Vol. I, p. 16 ff.) Sumaṅgalavilāsinī (Vol. I, p. 15 ff.) and Atthasālinī (p. 18 ff.), has preserved for us the greater part of this tradition systematised as best as he could in the light of all the information available to him.[1] For obvious reasons the lesser known divisions handed down by the *Bhāṇakā* have not been included as they were seen to overlap with other existing divisions. The *bhāṇavārā*, however, are included not as separate divisions but incorporated in the Piṭakas. Buddhaghosa lays down the *mātikā* of the classification of the Pāvacana as :— All this forms the Word of the Buddha which should be known as uniform in sentiment, twofold as the Dhamma and the Vinaya, threefold according to the first, intermediate and last words, and similarly as Piṭakas, fivefold according to the Nikāyas, ninefold according to the Aṅgas and forming eighty-four thousand divisions according to the Sections of the Dhamma (Smp. I, 16).

1. The references from Smp. are given below. The other two sources contain more or less the identical words and hence are not mentioned.

The Uniqueness of Sentiment

His explanation of the uniqueness of sentiment is an echo of the passage: *seyyathâpi bhikkhave mahāsumuddo ekaraso loṇaraso evam eva kho bhikkhave ayaṃ dhammo ekaraso vimuttiraso* (Even as O monks, the great ocean has but one taste, the taste of salt, even so O monks this Dhamma has but one sentiment, the sentiment of emancipation. Ud. 56, Vin. II, 238 etc.). Buddhaghosa expands on this when he says :— During the interval of forty-five years from the time he realised the unique and perfect Enlightenment until he passed away in the element of Nibbāna being free from clinging to the material substratum, whatever the Exalted One has said either as instruction to *devas*, men, *nāgas*, *yakkhas* and other beings, or on reflection, has but one sentiment and that is emancipation (Smp. I, 16).

Dhamma and Vinaya

When he explains the twofold division into the Dhamma and the Vinaya it is noteworthy that he has a definite thesis to maintain. In the earliest known references to the Buddha's Teaching the term *dhammavinaya* is used as a synthetic whole to signify the *Sāsana* in a large number of phrases (See D. I, 229, M. I, 284, II, 181 ff. A. I, 283, III, 279, S. I, 9, III, 65, Ud. 56, Vin. II, 238 ff.). The two are mentioned separately in phrases such as *Dhammo ca vinayo ca desito paññatto* (The Dhamma and the Vinaya which have been proclaimed and laid down respectively—D. II, 154). Both these usages go back to the very words of the Buddha himself. The words of Mahākassapa in the *Cullavagga* account of the First Council (Vin. II, 285) are quoted by Buddhaghosa in support of his contention that the term Vinaya referred to the Vinaya Piṭaka and the Dhamma the rest of the Word of the Buddha excluding the Vinaya (Smp. 17). If he had not qualified his statement in this manner he would have naturally fallen into the error of talking about a "*Dvipiṭaka*." Firstly, such a thing conforms to no known tradition and secondly it would have left the Abhidhamma out. This is his first attempt in his description of the classification to include the Abhidhamma in the Dhamma. As far as all evidence goes there is nothing to indicate that the division into Piṭakas, which was the accepted classification of the Canon at a subsequent date, was known so early. The Buddha makes no reference to a Sutta Piṭaka or a Vinaya Piṭaka let alone the Abhidhamma Piṭaka. The practice of arranging the teachings of a particular school or sect in *piṭakas* was known quite early, as may be seen in the phrase *mā piṭakasampadānena* (Not by its inclusion in Baskets—A. I, 189) occurrring in the Kālāma Sutta, yet it is too premature to talk of the Three Piṭakas in Pali. It took one thousand years after the Parinibbāna for the crystallisation

of the commentarial tradition at the hands of Buddhaghosa, and his explanation that the Basket of the Discipline is the Vinaya, the rest of the Word of the Buddha is the Dhamma, merely reflects the conditions prevalent in his day. He makes a deliberate attempt to include the Abhidhamma Piṭaka under the Dhamma rehearsed by Ānanda at the First Council. The account here repeats the words of the *Cullavagga*, "*Yadi saṅghassa pattakallaṃ, ahaṃ Ānandaṃ dhammaṃ puccheyyanti.*" (If it meets with the approval of the Saṅgha I will question Ānanda on the Dhamma—Vin. II, 287), but attempts to read a new meaning into the term Dhamma (Smp. I, 15). Perhaps the special division of the entire Teachings of the Buddha into five *nikāyas* (Smp. I, 26) discussed later, defining the *Khuddaka Nikāya* as : The rest of the sayings of the Buddha including the entire Vinaya Piṭaka, the Abhidhamma Piṭaka and the fifteen divisions commencing with *Khuddaka-pāṭha*, enumerated earlier, (Sum. I, 18), leaving aside the Four Nikāyas —was intended to include the Abhidhamma Piṭaka under the Dhamma. Buddhaghosa specifically states that Upāli explained the Vinaya which formed a part of the *Khuddaka Nikāya* while Ānanda explained the remaining sections of the *Khuddaka Nikāya* (Smp. I, 16) which therefore necessarily included the Abhidhamma. This division has more or less disappeared in the Pali tradition though some schools like the Dharmaguptakas regularly refer to the *Khuddaka* as a miscellaneous Piṭaka (not a Nikāya) giving it more or less the status of the Vinaya Piṭaka or the Abhidhamma Piṭaka, while they insist on the division of the Sutta into four Āgamas and not five.[2] Elsewhere Buddhaghosa recognises the tradition of the Four Āgamas at Sum. I, 2,

Majjhe Visuddhimaggo esa catunnam pi Āgamānaṃ hi
ṭhatvā pakāsayissati tattha yathābhāsitaṃ atthaṃ

(also reflected in Dpv. IV, 16). Perhaps here too he unwittingly reproduces the tradition in which *Khuddaka* had no real status.

First, Intermediate and Last Words

The division into the first, intermediate and last words is of no great significance except that Buddhaghosa records a slight confusion between the two passages at D. 153-154 and Vin. I, 2 verse (also found at Ud. I,) regarding the first utterance of the Buddha.

The Division into Piṭakas

As regards the division into Piṭakas Buddhaghosa says, "Herein, the collocation of all that has been both rehearsed and not at the First Council,

2. *Vide.* Étienne Lamotte: (1) Problèmes Concernant les Textes Canoniques "Mineurs" *J. A.* 1956, No. 3 and (2) Khuddakanikāya and Kṣudrakapiṭaka, *East and West*, VII, 4.

both Pātimokkhas, the two Vibhaṅgas, the twenty-two Khandhakas and the sixteen Parivāras, is called the Vinaya Piṭaka ; " and proceeds to mention the number of suttas comprising each of the first four Nikāyas naming the opening sutta in each case and the Nikāya itself (Sum. I, 18). Next he enumerates the works comprising the *Khuddaka Nikāya* and the Abhidhamma Piṭaka. Leaving aside the various problems connected with the number of works comprising the *Khuddaka* and how the figure fifteen is arrived at by the different Theravāda countries,[3] the significance of the phrase, " both rehearsed and not " demands attention. The Canon rehearsed at the First Council could not have included all the works that were rehearsed at subsequent Councils. As far as historical evidence goes, the bulk of the Abhidhamma Piṭaka was rehearsed for the first time at the Third Council and a fair proportion of the works comprising the *Khuddaka Nikāya*, on their internal evidence, appears to be centuries removed from the time of the First Council. Buddhaghosa, on the one hand, recognises that many sayings of the Buddha had escaped the attention of the *Saṅgītikāraka* monks, and on the other, that many additions to the collections were made at a date subsequent to that of the Council.[4]

Next he proceeds to define each of the terms Vinaya, Sutta and Abhidhamma in true scholarly fashion where he is not restricted by tradition which required him to guide his arguments in specified channels. His real genius and depth of vision are clearly evident in the explanations he offers. In each case he gives a stanza and amplifies its meaning in prose.

Vinaya is defined at Smp. I, 18 as,

> Because it contains manifold distinctive modes of practices and restrains both bodily and verbal acts, the Vinaya is called so by those who are adept in the purport of the Discipline.

The prose explanation follows :

Here the word " manifold " is used with reference to the divisions such as the injunctions of the fivefold Pātimokkha, the seven classes of offences beginning with the *Pārājika*, the *Mātikā* and the *Vibhaṅga*. They have

3. *ibid.* Also *Vide.* J. Dhirasekera : Buddhaghosa and the Tradition of the First Council U.C.R., XV, 3—4.

4. The Theravāda tradition certainly does not unequivocally say that all the works known to the Three Piṭakas were rehearsed at the First Council. Even reading between the lines of the accounts recorded one millenium after the event one easily sees how Buddhaghosa has left room for the discerning reader to judge the true state of affairs. Professor Ét. Lamotte (*ibid.*) is rather harsh on the poor " tradition singhalaise," for at no stage does Buddhaghosa say that all the works of the Khuddaka Nikāya as it is now constituted existed at the time of the First Council.

become distinctive on account of the application of corollaries which serve the purpose of relaxing rigid rules. It regulates body and speech as it prohibits physical and verbal transgressions. Therefore it is called Vinaya on account of the diversity of means, the distinctive practices and the disciplining of the body and speech.

His definition of *Sutta* follows at Smp. I, 19 :

> Because it points out meanings, expresses them clearly, fulfils them, flows with meanings, affords perfect protection and shares the properties of a thread, Sutta is given the name Sutta.

For it conveys meanings which are diversified as subjective, objective and the like. Here the meanings are clearly expressed as they have been declared in accordance with the intentions of those who are amenable to Discipline. Here it fulfils the meanings in the same manner as when it is said that corn yields a harvest. It flows with meaning in the same manner as when it is said that the cow yields abundant milk. It has been said that it protects and guards them well. It shares the properties of a thread even as a plumb-line serves as a measure to the carpenters ; even so is this to the wise, as when flowers strung together with a thread are neither scattered nor dispersed. Likewise, by means of this the meanings have been grasped.

He defines *Abhidhamma* at Smp. I, 20 as :

> Since here are found conditions which possess growth and their own characteristics, are revered and differentiated and said to be excellent—on account of these it is called Abhidhamma.

And this prefix *abhi* is seen to denote growth, possession of own characteristics, reverence, differentiation and excellence. Therefore it has come to be used in the sense of growth in statements such as, " acute and painful sensations come upon me, they do not recede," (S. I, 80). In statements such as " all those memorable nights that had been set apart " (M. I, 20), it is used in the sense of own characteristics ; in statements such as " king of kings, Inda among men," (Sn. 553) in the sense of reverence ; in statements such as " capable of being disciplined in the fundamental tenets of the Dhamma and the essential rules of the Vinaya," (Vin. I, 68 cp. Vin. I, 64, D. III, 267, M. I. 472) in the sense of differentiation. It means

(that they are able to master) the Dhamma and the Vinaya without confusing either with the other. In statements such as " in surpassing splendour " (Vv. I, 9, 1), it is used in the sense of excellence. Herein, as stated in expressions such as " he develops the path for the arising of form " (Dhs. 97), or " he lives suffusing one quarter with thoughts of love " (D. II, 186), phenomena which have reached a state of development have been referred to. On account of their being characterised by sense-data and so forth according to such attributes as " visual object and auditory object " (Dhs. 27), they possess their own characteristics. According to such designations as, " conditions pertaining to a Learner, to a Man Perfected and those that are transcendental " (cp. Dhs. 184), it is implied that they are revered and are worthy of reverence. On account of their true state being delimited in such manner as " there arises contact and there arise sensations " (Dhs. 17, 23) and so forth, they are differentiated. They are called phenomena of excellence in statements such as " states waxed great, states immeasurable, state incomparable " (cp. Dhs. 185) and so forth.

The term *Piṭaka* is next defined and explained at Smp. I, 20 with the words :

> Those versed in the meaning of the term Piṭaka, used it with reference to learning and a vessel. By combining (the two meanings) the three (divisions) commencing with the Vinaya should be known so.

In signifying learning it is called a *piṭaka* in statements such as "not by including in a *piṭaka*" (A. I, 189) and so forth. In statements such as, " Then a man might come along bringing with him a hoe and a basket " (M. I, 127), it signifies some kind of vessel.

He concludes by explaining that each of the terms is taken and a compound is made with *piṭaka* in both meanings to form the three terms Vinaya Piṭaka, Sutta Piṭaka and Abhidhamma Piṭaka. Next follows at Smp. I, 20 ff. a long explanation and elucidation of Vinaya, Sutta and Abhidhamma which sheds much light on Buddhaghosa's masterly touch of genius, but for want of space it is excluded from here.

The Division into Nikāyas

Buddhaghosa says :— All this falls into the fivefold division : Dīghanikāya, Majjhimanikāya, Saṃyuttanikāya, Anguttaranikāya and Khuddakanikāya (Smp. I, 26). He proceeds to give details of each of the four major

Nikāyas mentioning the name of the opening Sutta, the number of Suttas in each and the arrangement of the Suttas. A few more details are given here than in the description of the division into Piṭakas. A stanza follows the explanation of each of the Nikāyas given at Smp. I, 27 thus :—

> The thirty-four long suttas whose arrangement is in three vaggas is called the Dighanikāya the first in serial order.
>
> That which contains a hundred and fifty suttantas and two other suttas, comprising fifteen vaggas is called the Majjhima-nikāya.
>
> Seven thousand suttas and seven hundred of them as well as sixty-two suttantas—this is the Saṁyutta collection.
>
> Nine thousand suttas and five hundred suttas and fifty-seven other suttas form the number in the Aṅguttara.

Curiously enough, when he comes to the question, "What is the *Khuddakanikāya* ?" his answer is :— The rest of the sayings of the Buddha including the entire Vinaya Piṭaka, the Abhidhamma Piṭaka and the fifteen divisions commencing with the Khuddakapāṭha, leaving aside the Four Nikāyas (Smp. I, 27). The stanza next follows :—

> The rest of the word of the Buddha, excluding these four nikāyas such as the Dīgha, is considered as the Khuddakanikāya.

He concludes the section abruptly by saying : "Thus it is fivefold according to Nikāyas" (Smp. I, 28).

The remarks made earlier in connexion with Buddhaghosa's explanation of the Dhamma and the Vinaya and the question of the Four Āgamas have to be borne in mind. The very nature of the Khuddaka being a miscellaneous collection has made it possible for all manner of works to be included in it. The tradition of the Four Āgamas has more or less disappeared in Pali except for a few stray references cited earlier. But at the same time, there is adequate evidence to show the precise nature of the Khuddaka, whether as a *nikāya* or a miscellaneous *piṭaka*, as taken by some of the Sanskrit Schools.[5] The growth and expansion of the Khuddaka seems to reflect, for the most part, the expansion of the Tripiṭaka into its present shape. If one does not read too deeply into this traditional explanation preserved by Buddhaghosa, one sees the nucleus of both the Vinaya and the Abhidhamma in the Khuddaka. The Khuddaka Nikāya as consti-

5. *Vide* Ét. Lamotte, *ibid.*

tuted at present contains no texts which can be designated as Vinaya, but it cannot be said the same of the Abhidhamma. All the works which could form a Vinaya Piṭaka are now found in the extant Vinaya collection but not all the Abhidhamma works have found a "*nivāsa*" in the Abhidhamma Piṭaka. The Paṭisambhidāmagga now reckoned with the Khuddaka certainly could not have been the only work of its class in the Khuddaka. For no known reason it has failed to find a place in the Abhidhamma Piṭaka. It can be due to one of two reasons ; either it had gained canonical status after the closing of the Abhidhamma Piṭaka or it was left behind in the Khuddaka at the time other works dealing with Abhidhamma topics belonging to it were shifted to an altogether new collection. Further, there is also no known reason why the Dīghabhāṇakas should include the Khuddaka Nikāya in the Abhidhamma, except perhaps that this indirectly refers to the origin of the Abhidhamma Piṭaka in the Khuddaka Nikāya.[6]

Coming to the Vinaya, the conjecture that it belonged to the Khuddaka at some stage finds support in the definition of Sutta in the Navaṅga Division. The entire Vinaya Piṭaka is included in the Aṅga called Sutta. Though it is difficult to say what precisely was meant by the term Sutta here, the memory of a Sutta origin of the Vinaya Piṭaka (not Vinaya) seems still fresh in the Theravāda tradition when Buddhaghosa recorded it. Further, the title Sutta Vibhaṅga cannot be a mere accident. Though there is no

6. Professor Ét. Lamotte in the *J. A.* No. 3, p. 253 points out the stanza at Dpv. V, 35.

Parivāraṃ atthuddhāraṃ Abhidhammappakaraṇaṃ
Paṭisambhidañ ca Niddesaṃ ekadesañ ca Jātakaṃ
ettakaṃ vissajjetvāna aññāni akariṃsu te ;

which refers to the Mahāsaṅghikā who rejected the works (or parts of works) mentioned in it. The reasons are not hard to find, as all these works maintain strictly the Theravāda point of view. When the *Dīghabhāṇakā*, the earliest *Bhāṇaka-paramparā* in Ceylon (definitely several centuries earlier than Buddhaghosa) rejected Khp. Cp. and Ap., it speaks indirectly of the relative age of these works compared with the remaining twelve. The *Majjhimabhāṭakā* too did not recognise the novices' handbook, Khuddakapāṭha, and it is their tradition that is preserved in the Atthasālinī (p. 26) that Khuddhaka Nikāya consists of the fourteen books commencing with the Dhammapada. The observations made by him about Sudinna are not warranted if the trend of the whole argument of Buddhaghosa is taken and not the isolated line, *asuttanāmakaṃ Buddhavacanaṃ nāma n'atthi*, torn out of its context. In discussing the *mahāpadesa, sutte otaretabbāni vinaye sandassetabbāni* Sudinna states as the first alternative meaning that the term *sutta* meant that aspect of the *vinaya* covered by the Sutta Vibhaṅga and *ainaya* the Khandhakas, and that the two words together denoted the Vinaya Piṭaka. As the second alternative the entire three Piṭakas are covered by the two terms *sutta* and *vinaya* as *sutta* includes the Sutta and Abhidhamma Piṭakas and *vinaya* the Vinaya Piṭaka. The point that Sudinna makes is that there is no section of the Word of the Buddha which cannot be designated as Sutta and hence all three Piṭakas are Sutta ; Vinaya is but a topic. Hence Buddhaghosa's conclusion: Tasmā sutte'ti tepiṭake Buddhavacane otāretabbāni, vinayeti etasmiṃ rāgaggi-ādi vinayakāraṇe saṃsandetabbānīti ayam ettha attho.

Hence "in the sutta" means that it should be made to descend into (i.e. be compatible with) the Three Baskets and "in the vinaya" means that it should be compared with such disciplinary measures as the extinction of the fires of lust and so forth.

possibility of superimposing the Navaṅga Division on the Piṭakas or Nikāyas it seems quite probable that if at all the Vinaya Piṭaka had a Sutta origin it must have had its beginning in Khuddaka and not elsewhere. Piecing all the scanty evidence available, it appears that this lesser known tradition of the division of the *entire* Teachings into Five Nikāyas marked a phase much earlier than the actual division of the Canon into Piṭakas. This seems to represent an intermediate stage between the original Dhamma-Vinaya taken as a whole (See D. I, 229, M. I, 284, II, 181 ff. A. I, 283, III, 279, S. I, 9, III, 65, Ud. 56, Vin. II, 238 ff.) and the subsequent division into Piṭakas. Professor Lamotte observes " This division of the whole of the canonical texts into five Nikāyas is not an exclusive peculiarity of the Sinhalese Theravādin School. In fact it goes back a long way and was in use on the continent in the 2nd century before our era. The inscriptions of Bhārhut (Lüders' List, 867) and Sāñcī (idem, 299) call pacanekāyika or pacanekayika the monks conversant with the whole of the canonical texts. Wrongly most of our explainers took this term as a reference to the five Nikāyas of the Sutta-piṭaka. In fact the word pañcanaikāyika is exactly synonymous with the epithet traipiṭika (versed in the three piṭakas) occurring in the inscriptions of Sārnāth (Lüders, 926, 927), Śrāvastī (918), Mathurā (38) or Kāṇheri (989)."[7]

The very nature of the Khuddaka permitted the entry of all works outside the four major Nikāyas into it, and served a useful purpose in providing a home. The internal evidence from all these works (outside the four major Nikāyas) points to their gradual growth in course of time.[8] Scholastic activity among members of the Saṅgha was at its highest during the first few centuries after the Rājagaha Council. Members of the Saṅgha living in the large monastic institutions began examining and analysing the Pāvacana and made numerous compilations rearranging the Buddha's Dhamma. Both the Vinaya and the Abhidhamma are products of such scholarly activity ; and among this category should also be included the majority of the works comprising the extant Khuddaka Nikāya.

As the original Khuddaka Nikāya grew in bulk it was considered to be unwieldy. Hence the formation of two other collections, the Vinaya Piṭaka and the Abhidhamma Piṭaka. The term Kṣudraka Piṭaka used by

7. Ét. Lamotte, *East and West*, VII, 4, p. 343.

8. *Vide.* N. A. Jayawickrama : A Critical Analysis of Pali Sutta Nipāta Illustrating its Gradual Growth, U.C.R. Vol. VI, No. I to Vol. IX, No. 2. as regards the development of the Sutta Nipāta.

the Sarvāstivādi group of Schools is but a distant memory of the actual state of affairs amongst the earliest literary tradition of the Buddhists of all Schools, but while the original School had dropped this designation as it no longer was applicable, the younger Schools stuck to the old nomenclature. This has actually given rise to four Piṭakas in these Schools, thus :— (1) The Vinaya Piṭaka, (2) The Sūtra Piṭaka, (3) The Abhidhamma Piṭaka and (4) Kṣudraka Piṭaka[9].

The Nine Aṅgas

Just as the Buddha refers to his Teaching as the Buddha-vacana, the Pāvacana or Dhamma-Vinaya he also uses the term Navaṅga-Sutthu-Sāsana (M. I, 133, A. II, 103 etc.)[10]. As a term it goes back to the earliest times, but it is extremely difficult to say whether any precise classification was intended at any stage. It is a mere description of the literary types and not a division into water-tight compartments. There seems to be a good deal of overlapping, for the same piece can belong to several of these categories at the same time. Even after reading the traditional explanations handed down by Buddhaghosa the reader is left right where he began, perhaps a little more confused than at the beginning. Buddhaghosa begins by saying, " All this is comprised under the ninefold division " which he enumerates at Smp. I, 28. He gives examples from extant works or pieces and proceeds to define each class. As stated earlier, he cites all the works of the Vinaya Piṭaka, four Suttas from the Sutta Nipāta (Sn. Nos. 16, 13, 37, 52 respectively)[11] and says that these and other sayings of the Tathāgata bearing the name Sutta should be known as *Sutta*, (Smp. I, 28). These examples are representative of a type of discourse coming under this particular description. They cannot be classified under a precise division as into *piṭaka*, *nikāya*, *vagga*, *bhāṇavāra*, or *khandhaka*. They present no uniform class of teaching. While the better known Suttantas of Dīgha and Majjhima Nikāyas find no mention here, four Suttas from Sutta Nipāta are cited. Judging from these examples and those that follow for the other eight Aṅgas it appears that the real significance of the early Navaṅga Classification, whose existence is echoed even in the very words of the Tathāgata, (M. I, 133, A. II. 103 etc.) has been lost by the time Buddhaghosa began to record the Theravāda commentarial tradition. The more precise division

9. *Vide.* Ét. Lamotte, J.A. 1956, No. 4. p. 256.

10. The Sanskrit Schools add Nidāna and Avadāna after Udāna. They often wrongly Sanskritised the Pali Itivuttaka as Itivṛttaka while the correct form Ityukta is also preserved. They substituted the unfamiliar Vedalla with Vaipulya giving it an equally meaningless interpretation and appended Upadeśa " instruction " as the twelfth Aṅga.

11. Representative Suttas form a Nipāta of Suttas, which itself represents a cross-section of Suttas. *Vide.* N. A. Jayawickrama, Criteria for the Analysis of the Sutta Nipāta, U.C.R., VI, 1.

into Piṭakas and other sub-divisions has ousted all other divisions leaving only a vague memory behind or giving new connotations to them as in the case of Dhamma in Dhamma-Vinaya which is made to include the Abhidhamma as well, in the light of the subsequent developments in the Pali literary tradition. Hence Navaṅga has become a relic of a by-gone age whose memory but lingers but not the true significance.

Coming to *Geyya* the position is no better. Suttas containing stanzas, particularly like the entire Sagātha Vagga of the Saṃyutta are called Geyya or Recitation (Smp. I, 28). Judging from the explanation here, Geyya (from √*gai gāyati*, to sing), seems to represent the *ākhyāna-type* containing stanzas punctuated with narrative prose. Generally, in the old *ākhyānas*, the stanzas alone had a fixed form while the prose-narrative was given by the reciter in his own words. This appears to have been so even in Pali, but as time went on the prose too became fixed, and often the next step was to versify the narrative as well, as may be seen in Pabbajjā and Padhāna Suttas of the Sutta Nipāta. (Sn. Nos. 27, 28). But all the same, the stanzas were *gāthā* and not *geyya*. Unless there is an early confusion as to what *geyya* should be, the explanation here seems to be higly inadequate, except perhaps, if it is conceded that *geyya* has become a technical term meaning *gāthā* interspersed with prose, then the term is acceptable. If some discrimination is made against the narrative prose, restricting Canonical status to the stanzas only, there is some justification for the explanation, but again, it would be encroaching on the meaning of *Gāthā*. It is quite possible that the true significance of this term too has been lost, and one may not be far wrong in designating as *geyya* those lyrics and lyrical ballads found scattered throughout the Sutta Piṭaka.

There seems to be no difficulty where *Veyyākaraṇa* (Exposition) is concerned. The whole of the Abhidhamma Piṭaka falls into that category but it is doubtful whether "*all* the sayings of the Buddha containing no stanzas" (Smp. I, 28) would be called Expositions. The phrase, "not included in the other eight Aṅgas" (ibid.) shows how Buddhaghosa records a tradition with which he was not quite familiar. It is quite unlike what he would normally say, and it can be definitely asserted that the tradition of the Navaṅga classification was long dead by Buddhaghosa's time.

There is perfect justification for Dhammapada, Theragāthā and Therīgāthā to be designated as *Gāthā*, (Smp. I, 28) but the criterion for judging whether a particular piece in Sutta Nipāta is *sutta* or *gāthā* is highly nebulous,

except perhaps, if Buddhaghosa is taken very literally, when the *vatthugāthā* of Nālaka and Rāhula Suttas, and the entire Pārāyaṇa Vagga together with the *vatthugāthā* and epilogue alone among the pieces of Sutta Nipāta are considered as *gāthā* (Sn. Nos. 37, 23, 54 ff. respectively). This appears to be highly unsatisfactory and is perhaps far from what Buddhaghosa meant. There seems to be no clear line of demarcation between *sutta* and *gāthā*, except that prose is excluded from *gāthā*.

The extant collections of *Udāna* and *Itivuttaka*, perhaps unknown during the life-time of he Buddha, and probably finalised centuries later are conveniently identified with the Aṅgas bearing the same names. There are many *udānas* not only of the Buddha but also of his disciples and lay disciples, scattered all over the Pali Canon outside this meagre collection of 82 suttantas. So also are the quotations from Buddha's words found to occur in other discourses often prefixed with the statement, " For it has been said...." and sometimes with no such introduction, which have failed to find a place in the Itivuttaka collection of 112 suttantas.

As in the case of Udāna and the Itivuttaka there is no justification for equating the Aṅga called *Jātaka* with the extant Jātaka collection numbering about 550 stories. Firstly, the stories themselves have no Canonical status, which is reserved for the Jātakapāli—the stanzas only. Secondly, there is no reason why Jātakas of Canonical antiquity such as those incorporated in other suttantas e.g. Kūṭadanta and Mahāgovinda Suttas in Dīgha Nikāya (D. I, 127 ff. and D. II, 220 ff.), should be excluded. The definition given here is highly arbitrary. Buddhaghosa is seen to give explanations in the light of the knowledge of his day. How else could he explain them if the tradition was all forgotten, while at the same time, there is a fruitful source to draw from in the collections that had grown to his day, for ready identification of these lesser known Aṅgas of hoary antiquity ?

All the Suttantas connected with wonderful and marvellous phenomena handed down with words to such effect as, " O monks, these four wonderful and marvellous qualities are seen in Ānanda," (D. II, 145) should be known as *Abbhutadhamma*, (Smp. I, 28). The example given is not a suttanta by itself but a brief statement incorporated in the Mahāparinibbāna Suttanta (D. II, 72 ff.). Entire suttas dealing with " Marvellous Phenomena " are hard to find, though there are numerous examples of this category of saying scattered all over the Canon.

Two of the examples given for *Vedalla* have the title *vedalla* and all six suttas named at Smp. I, 28-29 deal with subtle analysis to a much further degree than even in a veyyākaraṇa. These suttas are described as "having been preached as a result of repeated attainment of wisdom and delight." (ibid.). The word *veda*, generally translated as wisdom has also the meaning of "exhilarating joy," cp. *vedajāta*, which seems to fit in with the context better, specially when it is coupled with *tuṭṭhi*, and this has become the starting point for Buddhaghosa's explanation of the term Vedalla. It is not a mere coincidence that the list of Twelve Aṅgas at Mahāvyutpatti 62, has substituted *vedalla* with *vaipulya* (from *vipula*), generally identified with Vaitulya in Ceylon.[12] This is a clear indication that the Mahāyānists had already lost the significance of the term and have found it necessary to substitute it with a more familiar term. For the Theravadins, at least, the memory of the term remained, and by the time of the Commentarial epoch attempts are made to revive meanings of unfamiliar terms in the light of the then-current tradition. Hence a curious secondary derivative of *veda*, whether it means wisdom or ecstacy, is conceived of to explain the term Vedalla, whereas even the method of subtle analysis found in the six suttas quoted as examples has not touched a familiar chord in Buddhaghosa. To my mind *vedalla* means "subtle analysis" though such application is hardly justifiable as it runs counter to the accepted tradition now preserved by Buddhaghosa. The word itself comes from an older *vaidārya* from *vi* + √*dṛ* to tear apart, hence analyse or break down into fundamentals.

Units of Doctrine

Buddhaghosa next proceeds to explain the *Units of the Dhamma* :—

All these, the entire sayings of the Buddha have eighty-four thousand divisions according to the Units of the Dhamma as laid down at Smp. I, 29 in the following manner :

> I have taken eighty-four (thousand) from the Buddha, and two thousand from the monks : and these are the eighty-four thousand extant Units of the Dhamma.

A Sutta of unitary application is one Unit of the Dhamma, and whatever is of multiple application, the number of Units of the Dhamma in it corresponds to the number of topics of application. In metrical compo-

12. Skr. *Vaitulya*, P. *Vetulla* is the secondary or abstract form of *vi-tul-ya* (f.p.p. of √ *tul* to weigh. Hence Vetullavāda means a divergent system of thought or discrepant view or *heresy*. The term appears to be of Ceylon origin. The equation of Vaitulya with Vaipulya (from *vipula*) is not quite historical. Vaipulya is explained as, "instruction developed through question and answer." cp. Vedalla as vedañ ca tutthiṃ ca laddhā laddhā pucchita-suttantā.

sitions the question and the answer form two different Units of the Dhamma, in the Abhidhamma each analysis of a dyad or a triad or the analysis of each thought-process forms a separate Unit of the Dhamma. In the Vinaya there are the context of rule, enunciation of rule, analysis of terms, secondary conditions of guilt,[13] conditions of no guilt, and the demarcation of the threefold category of offence.[14] Each category here is a separate Unit of the Dhamma. In this manner it has eighty-four thousand divisions according to the Units of the Dhamma (Smp. ibid.).

Conclusion

The foregoing observations show in what perspective the whole problem has to be viewed. The seven classifications discussed above are made on different bases and it is not easy to identify one with another although occasional points of contact are discernible. Any attempt made to equate one mode of classification with another, with the exception of the divisions into Nikāyas and Piṭakas will end up in failure producing no definite results. If the works in the extant Khuddaka Nikāya are to be equated with the Aṅgas, whether as nine in the Pali version, or as twelve in the extended version, it would involve a serious violation of correct historical analysis. On a superficial basis one may attempt to identify the extant Udāna, Itivuttaka and Jātaka with the Aṅgas bearing the same names and go a step further equating Thera and Therīgāthā with Gāthā, Sutta Nipāta with Sutta, Apadāna with Avadāna the eleventh Aṅga of the twelvefold division, which would leave the works Khuddakapāṭha, Dhammapada, Vimānavatthu, Petavatthu, Niddesa, Paṭisambhidāmagga, Buddhavaṃsa and Cariyāpiṭaka out of the scene completely. Such a process would be highly irregular as all these, with the exception of Niddesa and Paṭisambhidāmagga, belong to the Aṅga called Gāthā while the latter two are Veyyākaraṇas of two different types. As stated earlier, one should not be too hasty in identifying one with the other merely on the grounds of similarity of name.

13. Burmese texts add *atthi āpatti*, " there are conditions of guilt," after this, but the pattern of Vinaya rules in the Sutta Vibhaṅga to which this description applies, does not include it here, whereas it is found along with the rule itself. After *padabhājaniya* comes the *antarâpatti* followed by *anāpatti*.

14. The threefold category of offence pertaining to each ancillary Vinaya rule covered by *antarâpatti* is given e.g. Pācittiya 36 on *anatirittabhojana* at Vin. IV, 84 :—

Pavārite pavāritasaññī anatirittena khādanīyena vā bhojanīyena vā abhihaṭṭhuṃ pavāreti āpatti pācittiyassa. Pavārite vematiko . . . āpatti dukkaṭassa. Pavārite apavāritasaññī . . anāpatti. *Tika-pariccheda* is seen here. Next comes the ancillary rule about yāmakālika etc. which is followed by Apavārite pavāritasaññī apatti dukkaṭassa, apavārite vematiko āpatti dukkaṭassa, apavāritasaññī anāpatti. *Tikapariccheda* is seen to occur here too. Next follow various conditions of anāpatti. Each of these categories comes under any one or more of the three *dvāras*, *kāya*, *vacī* or *mano* and it is not necessary for all three *dvāras* to function with regard to every offence.

All these classifications have some historical basis. The fact that only a few of them are recognisable now does not necessarily imply that they only were the "real" classifications while others were figments of the fruitful imagination of Buddhaghosa or of his predecessors in this field i.e. the Porāṇā and the authors of the Sīhala Aṭṭhakathā. The classification into Piṭakas appeals to us more as we are able to recognise these divisions easily. Two of the classifications are practically of no great significance viz. *rasavasena* and *paṭhama-majjhima-pacchima-Buddhavacana-vasena*, but the other five definitely represent distinct land-marks in the development and growth of the Pali Canon. The earliest limit of the older of these classifications is easily seen but not the lower limit. We do scant justice to this tradition if we fix the lower limit to the period of Buddhaghosa.[15] Merely because he records a tradition it does not on that account follow that the tradition is his creation, and it is a total disregard of historical evaluation to bring down the dates of any of these divisions to the 5th century of our era even on the strength of anachronistic explanations of divisions that Buddhaghosa was hardly familiar with. The internal evidence of the works that comprise these divisions and the external evidence from post-Canonical works like the Milindapañha and Nettippakaraṇa are ample testimony as regards the period to which these works belong. If one goes on the superficial evidence of names only, keeping the dates of parallel texts of a subsequent period belonging to the Sanskrit Schools as guidance one is led to conclusions which are far from the true state of affairs. If these works are to be dated with some degree of accuracy each one of them will have to be studied very closely.

On the results of this cursory examination one may conclude that the classification into Dhamma and Vinaya was a broad-based one with no reference to any Piṭakas as Buddhaghosa tries to show and that it was as old as Pali Buddhism itself. Similarly the Navaṅga division, which does not take into cognisance a single work as such, was equally old, going back to the very words of the Buddha. There is an historical basis for the division into five Nikāyas and it really marks the formative period in the development of not only the Pali Canon, but also that of the literatures of the various Ācariyavādas represented in a later day by the Sanskrit Schools. The Nikāya division was the stepping stone to the more systematic division into the Piṭakas. It specially marks the period of the early expansion of

15. It is rather difficult to agree with the view of Professor Lamotte (*J.A.* 1956, No. 3, p. 261) Rien ne permet d'affirmer que cette collection ait été compilée avant l'époque de Buddhaghoṣa au Ve siècle de notre ère. Adoptée par les religieux de Mahavihāra d'Anurādhapura, elle fut loin d'être admise par les autres écoles singhalaises.

the Pali Canon, probably about the time of the Second Council, culminating in the division into Piṭakas. The exact date of the division into Piṭakas is yet to be fixed but tentatively it may be suggested that the beginning of this tendency was probably prior to the Third Council. The last division of them all the Dhammakkhandhas appears to be a scholastic flourish which may yield its own secret with more thorough investigation.

N. A. JAYAWICKRAMA

The "Burst" of the Southwest Monsoon: the New Perspective

Introduction

THE onset or the more dramatic "burst" of the southwest monsoon (SW monsoon) may with justification be considered, perhaps the most outstanding and long-known meteorological phenomenon in the world. In the south-Asian region—India, Burma and Ceylon—the "burst" marks a meteorological event of tremendous significance, both from the climatic and economic standpoint. It initiates the major rainy period and hence also the most important agricultural season in this region. The dating of the "burst" has, therefore, accrued vital importance throughout the centuries that this phenomenon has been observed, and even to this day the Indian Meteorological Department attempts to 'forecast' or rather 'foreshadow' the onset of the monsoon.

The onset of the monsoon has now come to be accepted in meteorological circles as the most noteworthy of climatic 'singularities'[1] observed anywhere on the earth. It has, therefore, become traditional to assign specific dates for this most important event, the occurrence varying from between early May to mid-June, depending upon the latitudinal position of the areas concerned. Thus, while along the southwestern coast of Ceylon the assigned date for the "burst" is early May, farther north along the western coast of India it is as late as early June and even mid-June. This dating-sequence is now proverbially accepted by the layman and the agriculturist in this region, despite the numerous occasions when the SW monsoon has failed in its obligation to "appear on time." Furthermore, when a spell of heavy rain does occur along the southwestern coast of Ceylon as early as mid-April, it is assumed that the monsoon has "burst" early; similarly any delay in the occurrence of heavy rainy spells long after the assigned date of the onset, would be attributed to a 'late monsoon.' However, the consistency of the date of the 'burst" is always assumed and hence it is in no way surprising that time and time again, acute economic hardship has ensued in this region of tremendous population pressure, because of the failure of the monsoon to "burst" on time. An examination

1. A climatic 'singularity' may be defined as an annual recurrence of a specific weather or climatic phenomenon.

of the records showing the dates of the "burst" of the SW monsoon along the western coast of the Indian subcontinent, for a period of over a century, reveals unmistakeably that the monsoon far from being consistent in this respect, has in fact exhibited vagaries of a most notorious nature. An early "burst" of the monsoon would spell ruin since the germinating crop is not yet ready to cope up with the heavy rainfall ; on the other hand, a late monsoon "burst" would find the crop already past the critical stage of requiring moisture and would also mean ruin. The attempts at forecasting the "burst" by the Indian Meteorological Department, using certain correlation factors, have had but little success. It is in this context, therefore, that the attempt is made here to analyse the main characteristics of this remarkable meteorological phenomenon, with a view also to ascertain the factors or combination of factors, that 'influence' the onset of the SW monsoon. The classical concept will be first examined and its defects brought out. Finally, in the light of recent investigations and findings, the new perspective is presented.

A.—The Classical Perspective

The first scientific theory to explain the SW monsoon and its "burst," was propounded as early as 1686[2] before the Royal Society of Great Britain. According to Halley, differences in the heat coefficients of land and sea, were the potential factors inaugurating the monsoon circulation. This concept of "differential heating" as providing the monsoon mechanism was immediately accepted and was held in vogue right up to the beginnings of the second World War. All literature published on the monsoon have upheld this theory and any "new" theories that appeared served to only elaborate[3] the simple "differential heating" theme. Even to this day most textbooks on Climatology continue to elaborate upon the classical concept—that the SW monsoon is a product *per se* of the gradual heating of the Indian subcontinent. It would not be irrelevant at this stage to examine briefly the main characteristics of the atmospheric 'field' of the Indian region, during the period preceding the onset of the SW monsoon.

In conformity with radiational considerations, beginning with the vernal equinox (March), thermal intensity over the Indian subcontinent increases northwards ; by April over eastern India and Burma, two clearly

2. E. Halley, "An Historical Account of the Trade Winds and Monsoons.... with an attempt to Assign the Physical Cause of the Said Wind, "*Phil. Trans.* 1686, p. 167.

3. H. F. Blanford, "The Rainfall of India," *Quart. J. R. Met. S.*, Vol. xiv, 66 (April, 1888), pp. 163—168 ; G. C. Simpson, "The Southwest Monsoon," *ibid.*, Vol. xlvii, (July, 1921), pp. 151—172 ; K. R. Ramanathan and K. P. Ramakrishnan, "The General Circulation of the Atmosphere over India and its Neighbourhood, "*Mem. Ind. Met. Dept.*, Vol. xxxv, (1939), pp. 189—245.

defined 'heat centres' become established. Except for localized wind circulation, these two features do not involve the rest of the south-Asian environment. Pressure conditions continue to be similar to those prevalent during early March, i.e., gradients are slight and winds are yet variable. By May, however, certain changes are beginning to be evident and it night be said that atmospheric conditions are 'beginning to intensify;' the thermal and consequent pressure patterns tend to epitomise the ultimate picture. Isotherms are concentric about the 95°F thermal centre, which by now has moved from its easterly location to a central position (Nagpur-Jubbulpore region) and average temperatures over the subcontinent amount to 85°F and above. By June the process of intensification tends to culminate and by July the 'heat centre' is strongly entrenched over the Thar desert. While these conditions were being established, the wind components have varied, ranging from a variable nature to southerly and south. westerly; the northeasterly winds of early March now are truly absent. Furthermore, while the atmospheric conditions over the Indian region tended to exhibit such variance, changes have also been taking place over the south Indian oceanic region. In consequence of the apparent migration of the sun, the thermal or meteorological equator[4] also exemplifies a poleward migration from its mean position about 5°N.L. The wind systems in turn accompany this northward migration. The characteristc doldrum zone gradually decreases in intensity and by May-June this zone is assumed to be completely eliminated from the Indian region; the whole area extending from the sub-tropical high pressure belt (in the south Indian ocean) to the Himalayan-Burma limits, is dominated by the persistent southwesterly monsoonal streamlines. The southeast trades (SE trades) moving into the northern hemisphere, suffer deflection to the right and hence blow as southwesterly winds. It is claimed that the intensifying Thar 'Low' acts as a magnet to exercise a 'pull' on the deflected SE trades. The SW monsoon comes into effect by June and over the Indian subcontinent bifurcates into two branches to blow as the Arabian and the Bay of Bengal components. It was also accepted as obvious that since Ceylon lies south of India, the SW monsoon makes its impact earlier over Ceylon and some days later along the western coast of India. The SW monsoonal streamlines continue to prevail over this region until late September, when they begin to exhibit a 'retreat' phase, to be replaced eventually in October by variable and northeasterly winds.

4. It is the 'thermal or meteorological equator' that is of significance in climatological studies; it migrates seasonally and in the mean is located central to the Inter-Tropical Convergence Zone. See G. Thambyahpillay, "The Rainfall Rhythm in Ceylon, " *Univ. Cey. Rev.*, Vol. xii, 4 (Oct., 1954), p. 10.

It is thus seen, that apart from the hemispheric deflection of the SE trades, it is the Thar Low that was held to be the prime cause of the "burst" of the SW monsoon. The gradual intensification process over the Thar desert has been suggested as the *modus operandi* of the monsoonal "burst." This monsoon mechanism is, however, open to a number of inexplicable circumstances :

(1) If the gradual Thar Low intensification is truly the significant feature in effecting the "burst," then why does the monsoon onset represent a sudden and dramatic meteorological event ?

(2) If the "burst" is truly the culminating event of a sequence-development of meteorological circumstances, should not the dating of the "burst" be the same over the whole region and not vary in respect of latitudinal locations ?

(3) Why does not the monsoon set in over the Burma region with the characteristic dramatic "burst" but in fact sets in quite unobstrusively ?

Indian Area Atmospheric Circulation Patterns: New Evidence

(*a*) *The General Context*

Before an attempt is made to provide suitable explanations for the anomaly features of the monsoonal "burst," it becomes necessary to examine the changes in the atmospheric circulation patterns over the whole Indian region, in the light of recent findings. The sequence of changes in the Indian atmospheric 'field' referred to earlier represents the view of the classical model, as was first suggested by Simpson.[5] More recent investigations were undertaken during the second World War and based on coastal and sea observations, a truer picture was presented by Crowe[6] and the circulation pattern changes during April, May, June and September have been incorporated in this study (Fig. 1).

The pattern during April shows that the SE trades are still confined to the southern Indian Ocean and continue to be 'rooted' to the west Australian coast. The Intertropical Convergence Zone (ITCZ) persists south of the Equator and in the Bay of Bengal a localized southwesterly circulation is evident as related to the 'heat centres' over eastern India and Burma.

5. Simpson, *op. cit.*

6. P. R. Crowe, "The Trade-Wind Circulation of the World," *Trans. Inst. Brit. Geogrs.*, 15 (1949), pp. 29—56.

In May (Fig. 1) a profound change takes place, in that the SE trades is no more welded to the west Australian coast, and some part of the SE trades has moved into the north Indian ocean being strongly evident off the Somaliland coast of Africa. The ITCZ now appears 'bifurcated' and a significant local southwesterly circulation occurs over Ceylon and the Bay of Bengal, the wind speeds averaging eleven (11) knots. In June (Fig. 1) the SE trades have definitely migrated into the northern hemisphere, but the circulation crosses the equator only west of about 60°E.L. The SE trades are now truly deflected and occupy the whole north Indian ocean and the Indian subcontinent, Ceylon and Burma as the SW monsoon. It is seen that wind-speeds in the Arabian branch reach over 20 knots while in the Bay of Bengal it is over 16 knots. The ITCZ appears to be eliminated but strangely enough the doldrum zone continues to persist in its accustomed position, though the intensity and areal extension naturally is markedly diminished during this month. This circulation pattern for June does not undergo any change throughout the months of July and August. The wind speeds however do exemplify some change in intensity. In September, the SW monsoon begins and completes its 'retreat' by October and hence the circulation pattern (Fig. 1) is somewhat similar to that prevalent in April, except for the absence in September—October of equatorial westerlies over Ceylon and south India. Wind-speeds within the SE trades (which are once again welded to the Australian coast) have decreased, while the ITCZ once again comes to stay and is bifurcated as the northern (NCZ) and the southern (SCZ) convergence zones.[7]

The evidence, therefore, points to the fact that the SW monsoon is not truly established in the north Indian ocean and its environment until June. The southwesterlies experienced in Ceylon and south India in May are then localized features and constitute the equatorial westerlies[8] (Ew) which however do acquire a southwesterly component influenced by the thermal and pressure features of the Indian-Burma region. It is also to be noted that the ITCZ is not present during June to August (inclusive) in this region. By October they make their reapperance, while the SW monsoon has withdrawn from the atmospheric 'field.' Occasionally it has been found that even in October strong depressional activity may induce the SW monsoonal currents to effect a *rifacimento hors de saison.*[9]

7. Crowe, *ibid.*

8. Thambyahpillay, *op. cit.*, p. 12.

9. This circumstance prevailed in October, 1954 and the writer made specific reference to it in respect of rainfall in the University Park. See Thambyahpillay, *op. cit.*, p. 37.

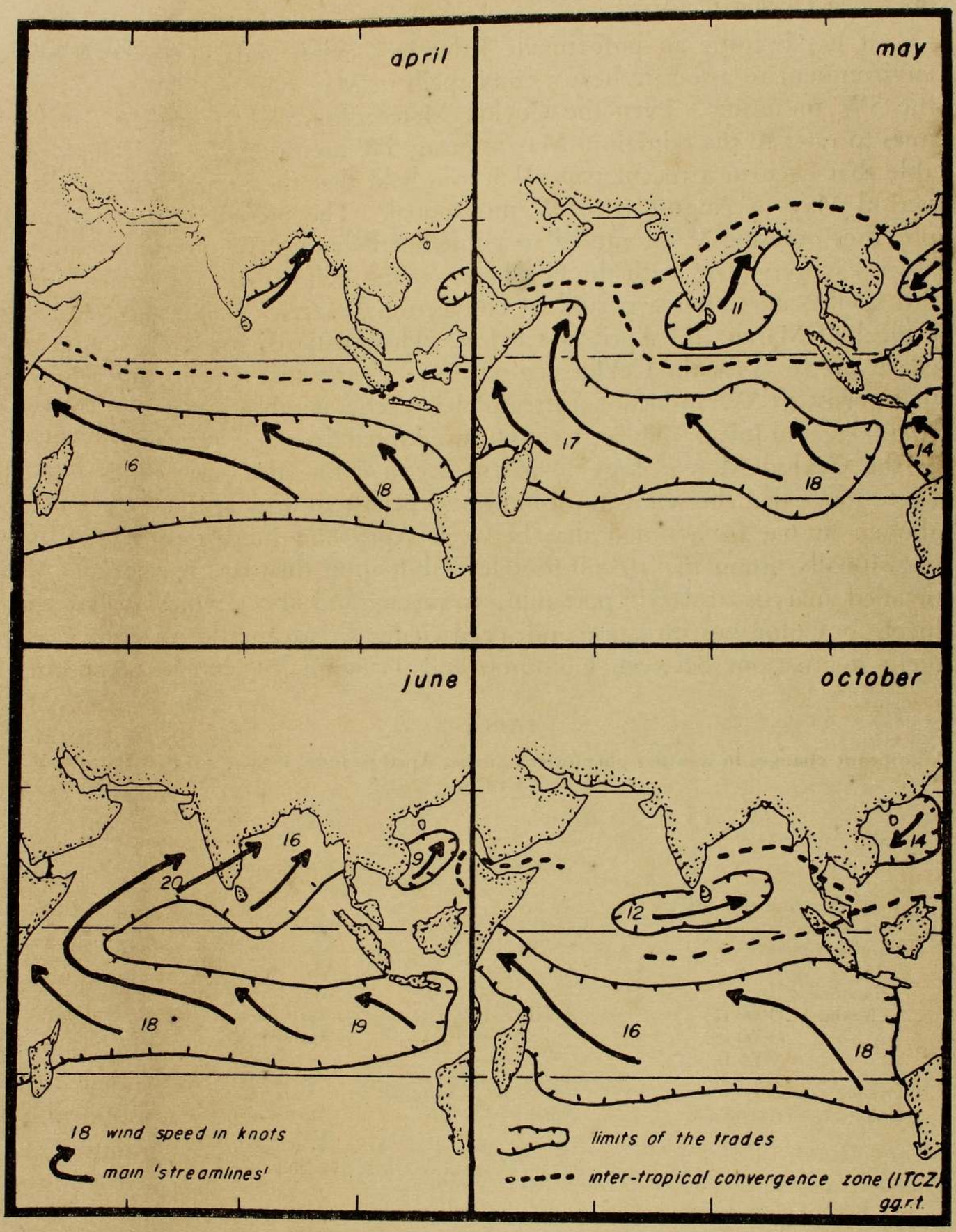

FIG. 1—Mean circulation patterns showing limits of the trades, migrations of the Inter-tropical convergence Zone and wind-flow during selected months in the Indian region.

(*b*) *The Ceylon Context :*

It has become an unfortunate habit in Ceylon and the south-Asian environment to associate heavy rainy spells in May with the "burst" of the SW monsoon. Even the Ceylon Meteorological Department continues to refer to the rainfall in May as being SW monsoonal.[10] It is deplorable that even in a recent paper[11] it was held that the rainfall during the period May to August was SW monsoonal. The present writer has on previous occasions[12] attempted to point out that the SW monsoon is not always synonymous with the first heavy rainy spell in May, particularly if this spell occurs after a period of convectional activity *par excellence* as is typical of March and April in Ceylon. Flow-patterns based on synoptic charts prepared for the Ceylon region reveal clearly that it is not until June that persistent SW monsoonal streamlines reach a depth of over 10,000 feet (13,000 feet in July). The criterion now adopted (by the Forecasting Centre of the Ceylon Meteorology Department) to define the onset of the SW Monsoon is that the winds must indicate a persistent flow at 10,000 feet and above. It has been noted that between April and June, southwesterlies occasionally attain the 10,000-foot level but soon fluctuate markedly. A detailed analysis of data[13] pertaining to surface and upper wind (at various levels at Colombo) direction and speed changes, barometric pressure gradient fluctuations between Colombo and Trincomalee, and incidence of

TABLE I

Significant changes in weather phenomena during April to June, 1945 at selected stations in Ceylon.

Station	*Dates of Changes Phases* Shallow	Intermediate	Deep
Wind direction and mileage			
Little Basses	April 1—13, 26	May 3—6, 13—28	June 6
Hambantota	April 1—13, 26	May 13—22	June 6
Jaffna	April 1—4, 7—12	May 15—29	June 8
Trincomalee	—	May 15—29	June 6
Colombo+ (1000 ft.)	April 1—15	April 24	June 7
(3000 ft.)	—	April 24—26	June 5
(7000 ft.)	—	—	June 5
Pressure gradient			
Colombo—Trincomalee	April 1—13	April 25 May 5—8, 15—19	June 6—7

+ Only pilot-baloon observations were available.

10. Reports of the Colombo Observatory, 1925—1954 (inclusive).

11. R. Wickrematilleke, "Climate in the South-East Quadrant of Ceylon, "*Malayan Jour. Trop. Geog.*, Vol. viii (June, 1956), p. 55.

12. Thambyahpillay, *op. cit.*, pp. 24—26.

13. Data kindly supplied by Mr R. D. Kreltschiem (Assistant Director of Meteorology, Ceylon).

marked rainy-spells between April and June for the period 1941 to 1945 brings out certain remarkably significant features, providing some clues to the onset of the SW monsoon. The data for 1945 is here presented (Table 1) since readings from anemometers (which are often put out of order by the gustiness of winds) represent continuous recording during the period of observation.

Thus, it is seen that a tabulation of the characteristics of certain climatic elements, during the period following the true convectional 'season' of March—April, seems to suggest that a definite sequence of weather changes takes place to ultimately result in the 'burst' of the SW monsoon. Data pertaining to other years (1941—1951) substantiates the phase-changes exhibited during the year 1945. The two phases—the 'shallow' and the 'intermediate'—would certainly correspond to the then prevailing equatorial westerlies. It has been shown[14] that in April and early May the circulation in the Indian Ocean area (around Ceylon and southern India) is but a localized phenomenon not affecting the total environment. It is also significant that synoptic charts for the Ceylon region, reveal that it is not until late May that a true monsoonal circulation comes to be established[15] for until then a monsoon stream of sufficient depth is not a persistent feature. However, to explain the 'burst' of the monsoon in Ceylon Jayamaha introduces the movement of the Convergence Zones, in that a "wave" or "disturbance" along the Convergence Zone causes sudden deterioration of weather and thereby initiates the SW monsoon. Thus, such a "wave" may occur along the Northern Convergence Zone (NCZ) in late May or early June to inaugurate the monsoon. Jayamaha cites 28th May, 1947, and 30th May, 1951, as specific instances when the 'burst' of the monsoon occurred under the circumstances where "waves" were found to interact with the NCZ. On the other hand, he cites the years 1948 and 1950, when in the absence of such "wave-interactions" the SW monsoon set in uneventfully. These features may be examined later, in the context of the new perspective.

B.—The New Perspective

During the second World War operational exigencies in the tropical region demanded the need for closely-knit meteorological observation posts as well as the use of radio-sonde apparatus, particularly in respect of Upper

14. Crowe, *op. cit.*,

15. G. S. Jayamaha, "A Synoptic Analysis of Ceylon Weather, "*Weather*, Vol. xi, 1 (Jany., 1956), pp. 10—15.

Air observations. Thus, a tremendous amount of data hitherto not available, came to be accumulated and tropical meteorology received suddenly a phenomenal boost and an initial impetus for further research. It was however, during the post-war period proper, particularly after 1945, that the results based on wartime observational data were incorporated into tropical area research and new ideas were propounded. It is certainly remarkable that tropical meteorology—the oldest meteorological discipline —which upto 1939 benefited little from 'newer ideas,'—overnight as it were, came to be the foremost concern of meteorological investigations and even contributed "new" ideas to the total discipline. The proverbially well-known "burst" of the SW monsoon, had also to be viewed in the newer prespective, even so far as to be seriously challenged for the first time since Halley made his contribution in the 17th century.

The "burst" of the SW monsoon, hitherto had been attributed to the 'deepening of the Thar Low' and hence all investigations into the vagaries of this phenomenon have been concerned with the ramifications of surface atmospherics. Thus, Walker[16] in his serious attempts to relate the onset of the monsoon, confined himself to correlating the incidence of rainfall accompanying the "burst" with surface pressure variations in the Indo-Pacific region. Eventually he was able to relate the SW monsoonal rainfall to the opposition of surface pressure-patterns between the South-American and the south-east Asian regions, and to which feature was assigned the term the 'Southern Oscillation.' Other investigators attempted to relate the "burst" to the intensity of the sub-tropical high pressure 'belt' in the southern Indian Ocean. Various other indices were also considered in this context, the more notable of them being pressure variations over Madagascar, pre-monsoonal season rainfall of Mauritius, Seychelles, etc. In all these considerations the Upper Air was not introduced. Furthermore, in view of the accepted contention that the Himalayan massif acts as an effective 'barrier' to surface air flow from the Asiatic interior and also limits the northern extension of surface air from the south, the Indian monsoon was, therefore, naturally thought of as being unrelated to atmospheric mechanics operating in the northern hemisphere, outside the Indian environs. The Upper Air was of course considered an uninvolved factor in respect of this remarkable phenomenon.

In 1934, the German mountaineering expedition to Nanga Parbat (26,182 feet) met with complete disaster. The meteorologist Wien des-

16. G. G. Walker, "Correlations in Seasonal Variations of Climate, "*Ind. Met. Mem.*, Vol. xx, 6 (1906—1910), pp. 117—124.

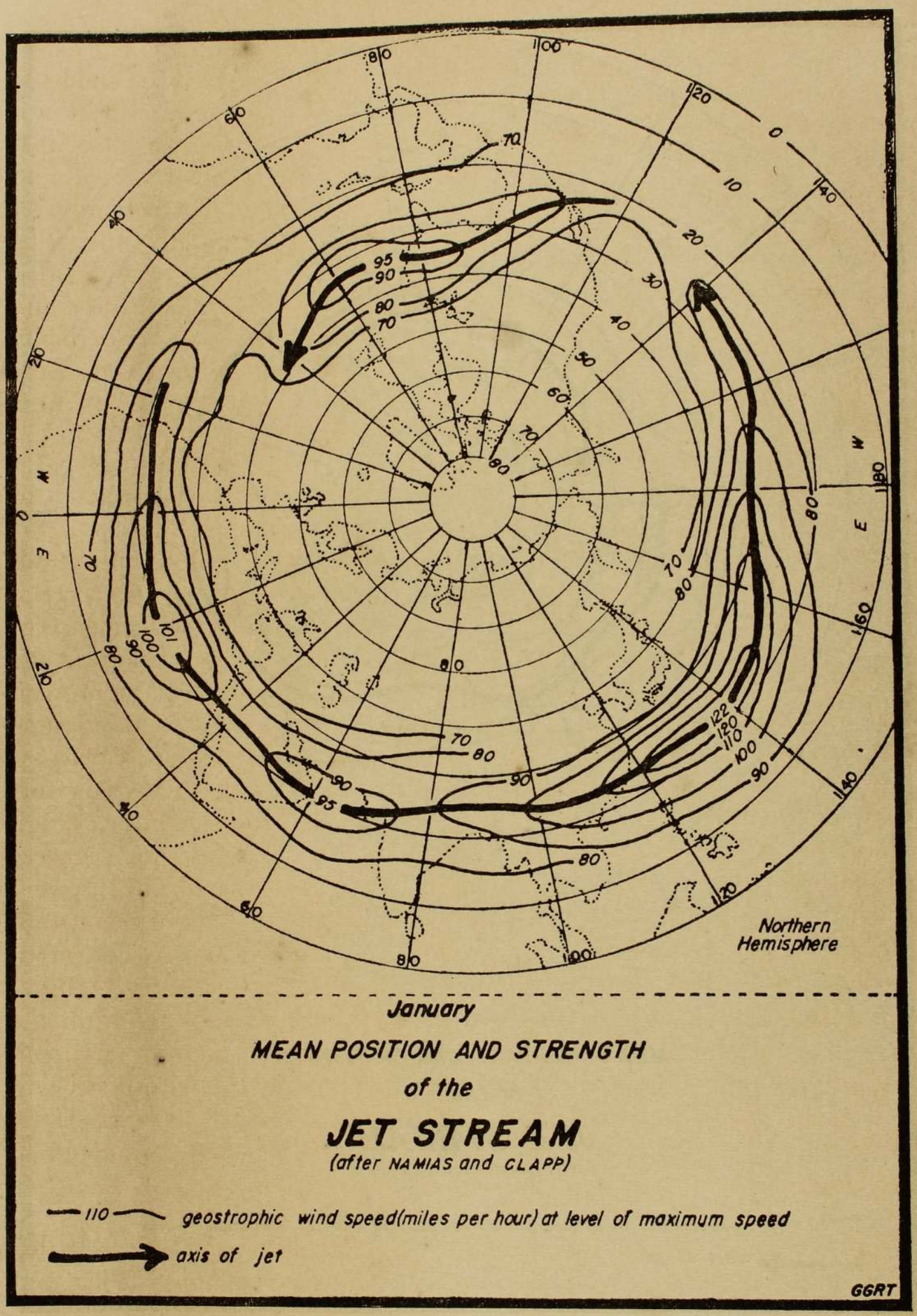

FIG. 2—Mean latitudinal position and zonal velocity of the Jet Stream in the northern hemisphere : winter.

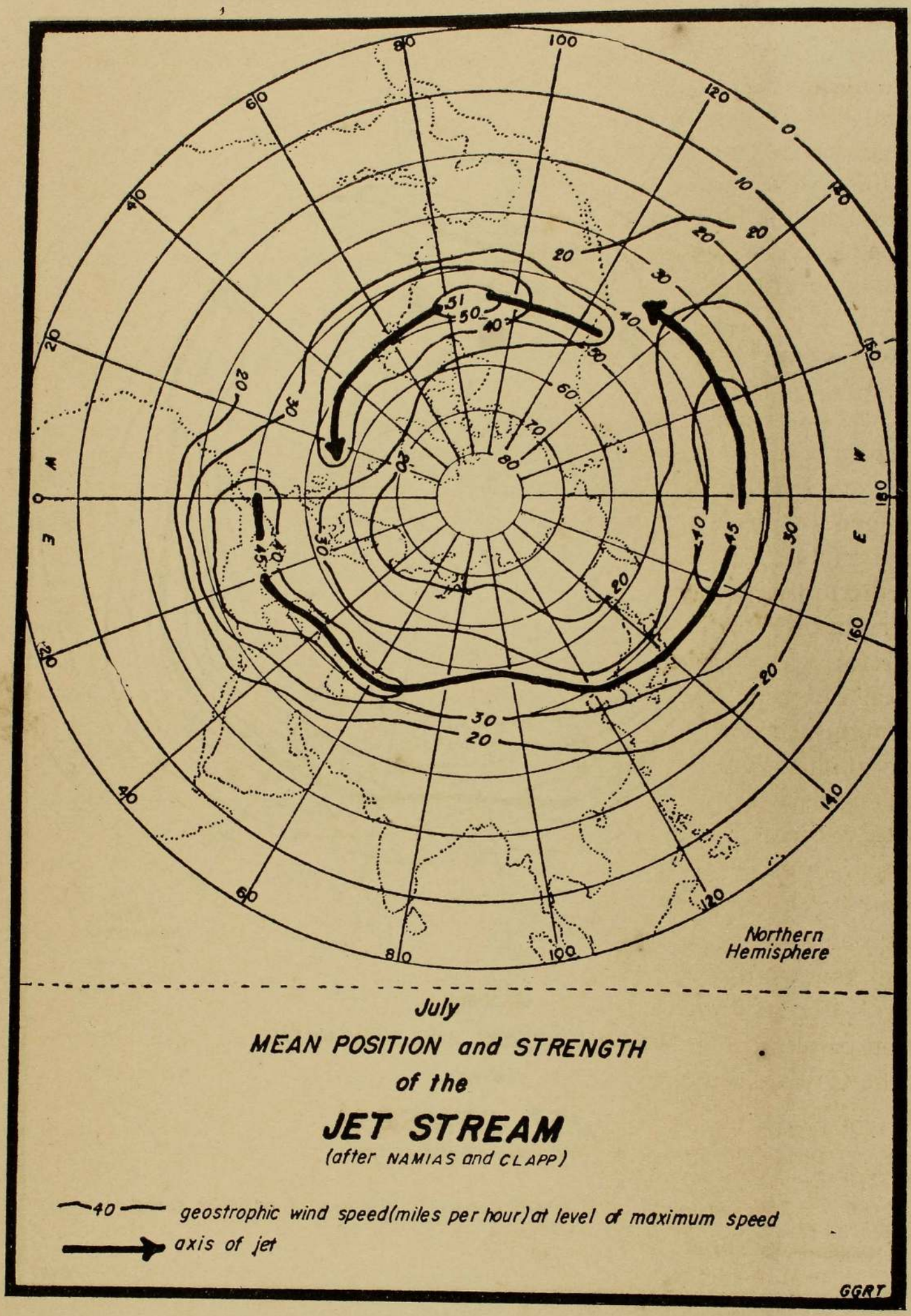

FIG. 3—Mean latitudinal position and velocity of the Jet Stream in the northern hemisphere: summer

cribed the unusual meteorological circumstances that resulted in the early 'surge' of the SW monsoon. Two years later, Rodewald,[17] basing his findings on the circulation patterns (during that period) as revealed by 6 km. wind-flow charts for India and Siberia, suggested that the fatal monsoon surge may have been related to the upper air-flow. More detailed studies of the world pattern of upper air-flow, particularly those by Riehl[18] and Cressman[19] have demonstrated that large-scale exchanges do take place at upper levels between the high and low latitudes. It has also been shown that these interrelations of air flow do profoundly affect tropical weather.

The General Circulation of the Atmosphere: The New Concept

Post-war meteorological investigations have revealed that instead of a return of air aloft in the tropics to compensate for the surface Easterlies, as had hitherto been accepted in conformity with the tri-cellular concept of the general circulation of the total atmosphere, the Easterlies prevail as a deep circulation reaching even to the stratospheric level (Figs 6 & 7). Furthermore, the concept of an Upper Westerly circulation termed the Circumpolar Vortex Circulation[20] had also come to be accepted providing, therefore, an alternative theory to the tri-cellular hypothesis. This circulation observed first in the northern hemisphere (Figs. 2 and 3) is easily distinguished as a wind-flow with remarkably sharp pressure and temperature gradients both on the poleward and the equatorward limits. Within this circulation prevails an wind-flow of intense strength (geostrophic wind speed exceeding 100 miles per hour) termed the *Jet Stream* (Figs. 2 and 3). Observations have also revealed that the total Circumpolar Vortex Circulation (CVC) exhibits seasonal migrations equatorward in winter (Fig. 2) and poleward in summer (Fig. 3). But it also mainfests extraordinary rapid poleward and equatorward migrations lasting very short periodicities. Recent studies[21] have substantiated the occurrence of a similar circulation pattern in the southern hemisphere. The mean latitudinal extension of the CVC is found to be between 55° and 35° in both hemispheres.

17. R. Rodewald, "*Meteor. Zeit.*, Vol. 53 (1936), pp. 182—185.

18. H. Riehl, "Subtropical Flow Patterns in Summer, "*Dept. Met. Uni. Chicago, Misc. Rept.*, No. 22 (1947), pp. 64.

19. G. C. Cressman, "Studies in Upper Air Conditions in Low Latitudes : Pt. II : Relation between high and low latitude Circulations, "*Dept. Met., Univ. Chicago, Misc. Rept.*, No. 24, Pt. II (1948), pp. 68—100.

20. H. C. Willett, *Descriptive Meteorology* (New York ; Academic Press, 1944), pp. 141—149.

21. H. H. Lamb. "The Southern Westerlies : A Preliminary survey : Main Characteristics and Apparent Associations, "*Quart. J. R. Met. S.*, Vol. 85 (Jany. 1959), pp. 1—23.

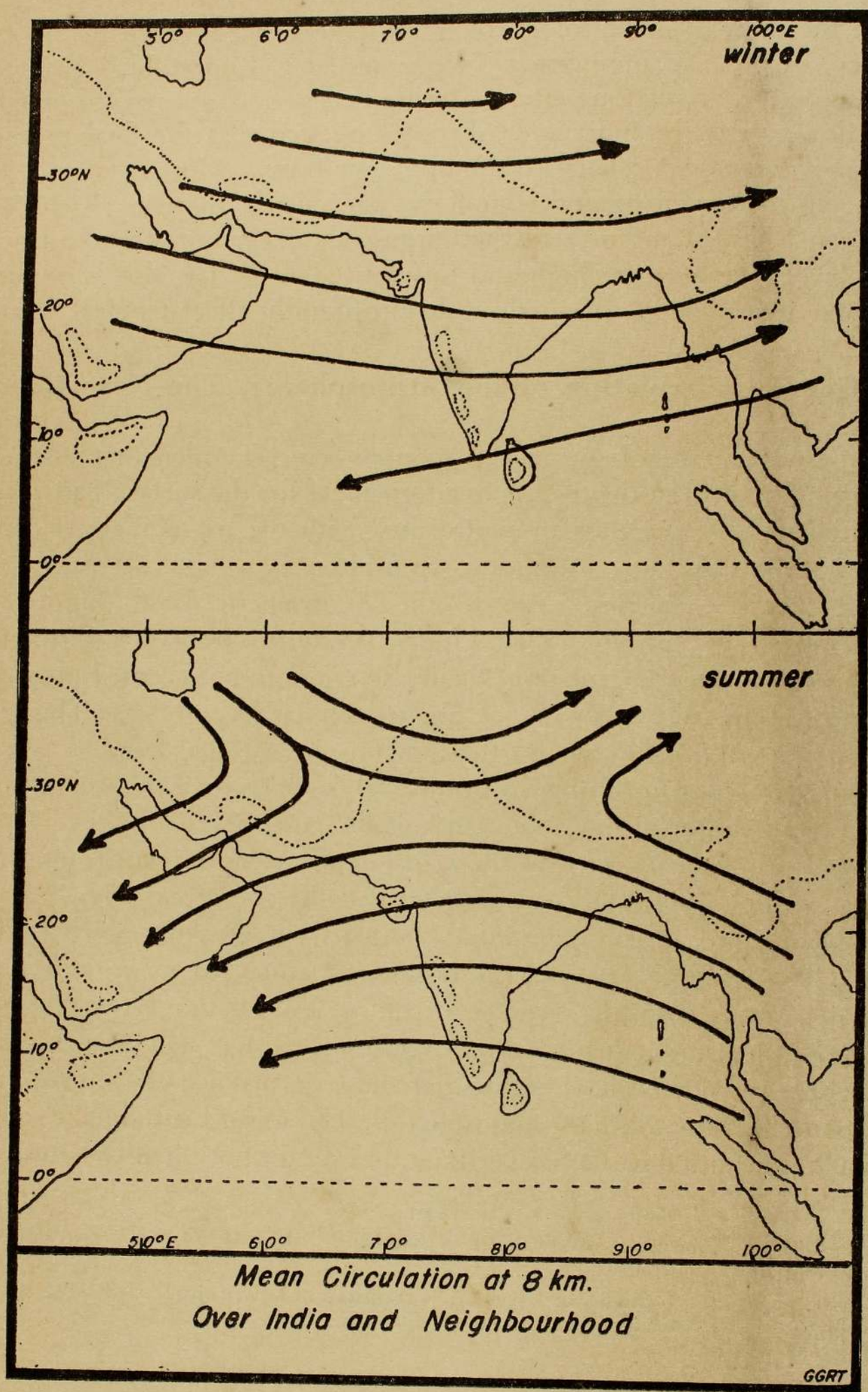

FIG. 4—Mean winter and summer circulation patterns at 8 km. over the Indian region.

Upper Air Flow: Indian Area

Maps showing seasonal flow-patterns at the 8 km. level reveal that exchange of air between India and Central Asia across the Himalayas, do take place. A generalized chart (Fig. 4) demonstrates the following main features :—

(*a*) *Winter*

(i) The great portion of the belt of Westerlies flow south of the Himalayas ;

(ii) Inspite of the altitude the streamlines do seem to conform to the orographic contours ;

(iii) Prescribed by these contours there is an upper trough about 85° E.L.

(*b*) *Summer*

(i) The Upper Westerlies have retreated northward ;

(ii) The Upper-air trough has now shifted at least 10° of longitude westwards and is now located about 75° E.L ;

(iii) A sub-tropical ridge appears about 35° N. L. and so a 'col' appears over NW India.

(iv) The deep Easterlies (NE Trades) occupy most of the Indian mainland.

The two seasonal flow-charts show that the most significant feature is the longitudinal (10°) shift of an upper-air trough from about 85° E.L. to about 75° E.L. It may also be observed that Burma always lies (in both seasons) to the east of the trough, while the Indian mainland is west of (Winter) and then east of (Summer) the trough, respectively. Could this relative positions of Burma and India to the upper-air feature provide a clue to the remarkable circumstance that the SW monsoon sets in over Burma quite unobtrusively, whereas it makes its entry in the Indian region heralded by the dramatic "burst ?" Does it imply, for example, that the upper-air flow-pattern changes superimposed upon the low level circulation system, could cause a retardation in the "burst" over India, while accelerating it in respect of Burma, so long as the upper-air trough is persistently located about 85° E.L. ? It is also observed that once the trough shifts westwards to 75° E.L., southerly wind components persist at high levels over the whole India-Burma region and therefore reinforce the entire monsoonal

circulation. Thus, it is not unwarranted at this stage to suggest that perhaps the shift in position of the upper-air trough may provide some explanation for the differences in the characteristics of the monsoonal " burst " in respect of India and Burma. However, it is yet to be shown that the displacement of the trough takes place suddenly and in fact coincides with the date of the " burst."

The SW Monsoon " Burst " in 1946

In this connection it is necessary at this stage, to consider the findings of an excellent and detailed investigation by Yin[22] in which an attempt was made to demonstrate the relationship between the meteorological developments in May and June (1946) over India-Burma and the upper air circulation features of Siberia and of the northern hemisphere as a whole. Yin's findings are based on 500-mb charts (daily) of the northern hemisphere prepared by the United States Air Force. The findings have been represented diagrammatically and are shown generalized in Fig. 5.

The migration of upper-air troughs and ridges between latitudes 20° N and 30° N and longitudes 40° E and 130° E, are shown for 5-day intervals (Fig. 5A) from May 1st to June 30th, 1946. The following features may be noticed :—

May 1st—21st : the upper-air trough remains steady about 90° E.L. while the ridge is west of the trough and located between 90° and 95° E.L ;

May 22nd—25th : the steady pattern breaks down, the trough splits with one branch moving westward as the equatorial trough (ECZ) makes its advance northward (Fig. 5C) ; " burst " of the monsoon ;

May 26th—30th : once again the trough lies over 90° E.L. and hence the monsoon is ' interrupted.'

May 31st—June 6th : the trough has definitely moved westward to 80° E.L. while the northern edge of the ECZ is established about 23° N.L. (Fig. 5C).

June 7th — the trough continues to be established about 80° E.L.

It has been observed that displacement of the upper-air trough did coincide with the advance (" burst ") of the monsoon and that an inter-

22. Yin, M. " A Synoptic-Aerologic Study of the Summer Monsoon over India and Burma," *Jour. Met.*, Vol. 6 (Dec., 1949), pp. 393—400.

ruption relating to a southward retreat of the forward edge of the ECZ coincided with an eastward shift (temporarily) of the trough. It has also been shown that the westward shift of the trough was abrupt. It could nevertheless be postulated that the monsoon itself may be the cause of these trough-displacements. But such a hypothesis would not explain why the effects over India and Burma differ. Does the chart-analysis therefore support the contention of Rodewald[23] that upper air phenomena outside the Indian environs do affect developments in respect of the SW monsoon ?

The generalized 500-mb. chart (Fig. 5B) for the rest of the northern hemisphere (40°—60° N.L.) for the period May to June, 1946, show features that may be correlated to those revealed for lower latitudes (Fig. 5A) during the same period. The following features may be observed :—

May 1st—May 20th : a prominent ridge appears over central Asia (about 50° E.L.) flanked by troughs ;

May 21st—25th : the trough that had been shifting westward now breaks down ; " burst " of the SW monsoon ;

May 26th—30th : an ' interruption ' occurs similarly dated as in Fig. 5A.

May 31st— : the trough is permanently displaced along 75°—80° E.L. and persists throughout June.

It is seen, therefore, that profound changes in trough-alignments do take place throughout the northern hemisphere and in date are seen to coincide with those trough-displacements demonstrated for the India-Burma region (Fig. 5A). Since the beginning of June it was seen that there persists a steady north-south trough-alignment extending from mid-latitudes to low latitudes. Hence there is no doubt that a definite change takes place from May to June in respect of the position of an upper-air trough extending from at least 20° N.L. to 60° N.L.

During these considerations reference was made to the northward shift of the equatorial convegence zone (ECZ) or the equatorial trough. A diagram based on Yin's findings is here reproduced (Fig. 5C) to show the correlation between trough displacements, ECZ shifts and the " burst " of the SW monsoon. The following features stand out :—

May 1st— : at the beginning of May, the region of strongest Westerlies (Jet Stream) is located about 30° N.L., i.e., mainly south of the Himalayas ;

23. Rodewald, *op. cit.*

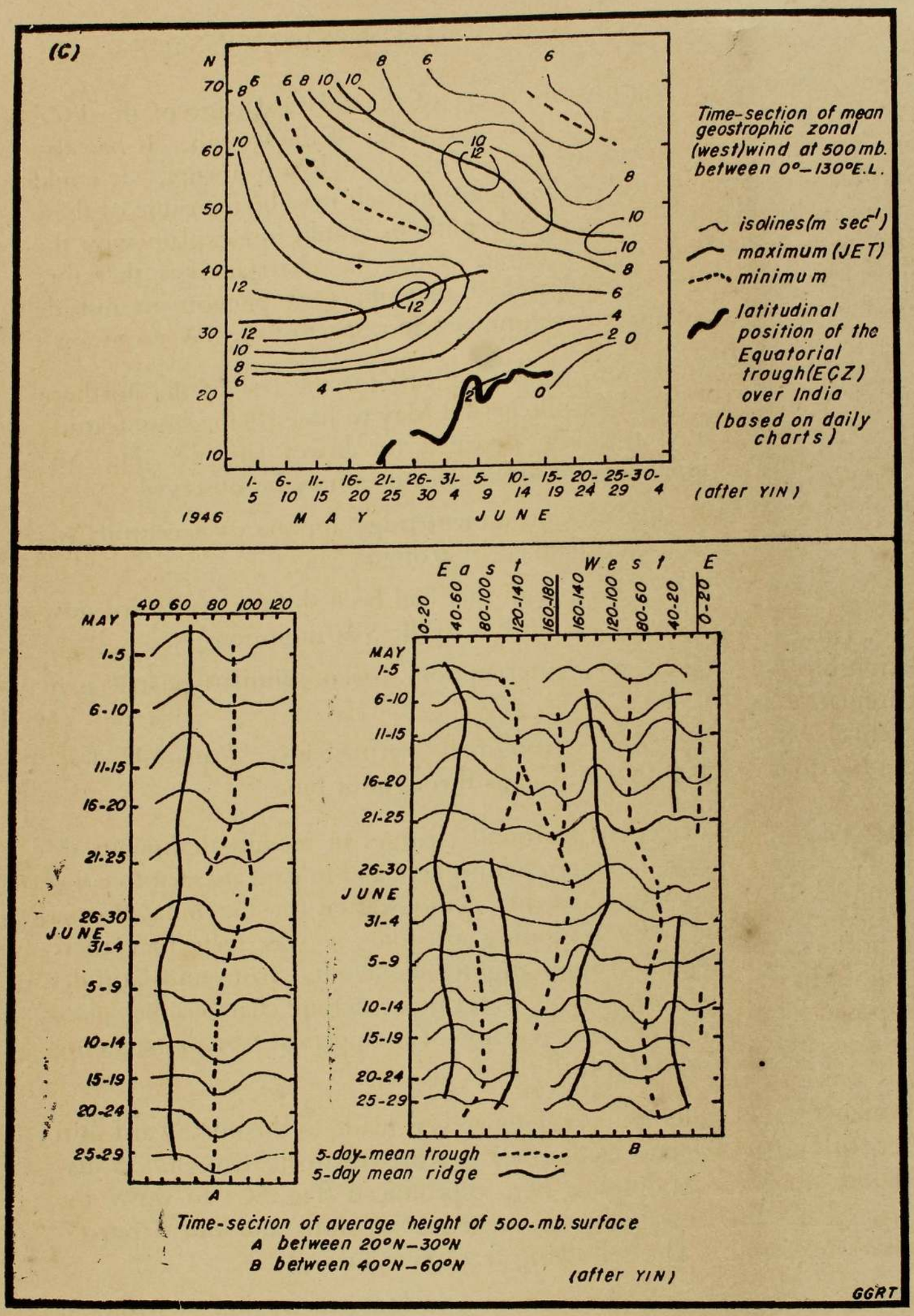

FIG. 5—Time-section graphs showing fluctuations in the longitudinal positions of troughs and ridges in the northern hemisphere (A) between 20°N and 30°N (B) between 40°N and 60°N and (C) latitudinal migrations of the Equatorial Convergence Zone (ECZ) and the Jet Streams, during the period May 1st to July 4th, 1946.

May 6th—June 5th : the Jet gradually has migrated northward to reach 40° N.L., the latitudinal position of the ECZ over India exhibits a sudden northern spurt from 10° N.L. to about 15° N.L. between the 21st and 26th May ; then an 'interruption' occurs and temporarily the ECZ retreats south, though after the 31st May it makes a second northward spurt so as to occupy a position about 23° N.L. by the 5th of June ;

June 6th—9th : the Jet disintegrates rapidly and the ECZ temporarily retreats ; a new Jet from the Arctic (appearance in chart since mid-May) has been moving south gradually, so that during the latter half of May there had been in existence in fact two Jets, i.e., two Upper Westerly maxima ; by beginning of June the northerly Jet becomes dominant and the southerly Jet has disappeared ;

June 10th— : the northerly Jet continues to persist north of the Himalayas ; the ECZ also persists in its northerly location.

Thus, it has been demonstrated that there does exist some definite relationship between the northward migrations of the Circumpolar Vortex Circulation and the Jet Stream, while in the Indian region this sequence of events is accompanied by northward spurts of the ECZ or more significantly the Northern Convergence Zone (NCZ).

The Major Features

It is seen that the displacement of the Upper Westerlies (CVC) and the Jet Stream, southward and northward of the Himalayan Massif, plays an important role in the onset of the monsoon. Theoretical studies by Bolin[24] have provided the explantion for the validity of an orographically-imposed Jet Stream displacement. It is now also known that a sub-tropical Jet does prevail in latitudes south of the Himalayas, in winter. In an analysis recently into the mechanics of the cool season weather of India, Ramage[25] has pointed out that the Jet stream is of real significance. According to Chaudry[26] the main Jet is located about 31° N.L. while a second maximum appears over 40° N.L. This bifurcation of the Jet is

24. B. Bolin, "On the Influence of the Earth's Orography on the General Character of the Westerlies, *Tellus*, Vol. 2 (1950), pp. 82—85.

25. C. S. Ramage, "Relationship of the General Circulation to Normal Weather over Southern Asia..... during the Cool Season," *Jour. Met.*, Vol. 9 (1952), pp. 403—408.

26. A. M. Chaudry, "On the Vertical Distribution of Wind and Temperature over Indo-Pakistan along the Meridian 70°E in winter, "*Tellus* Vol. 2 (1950), pp. 56—57.

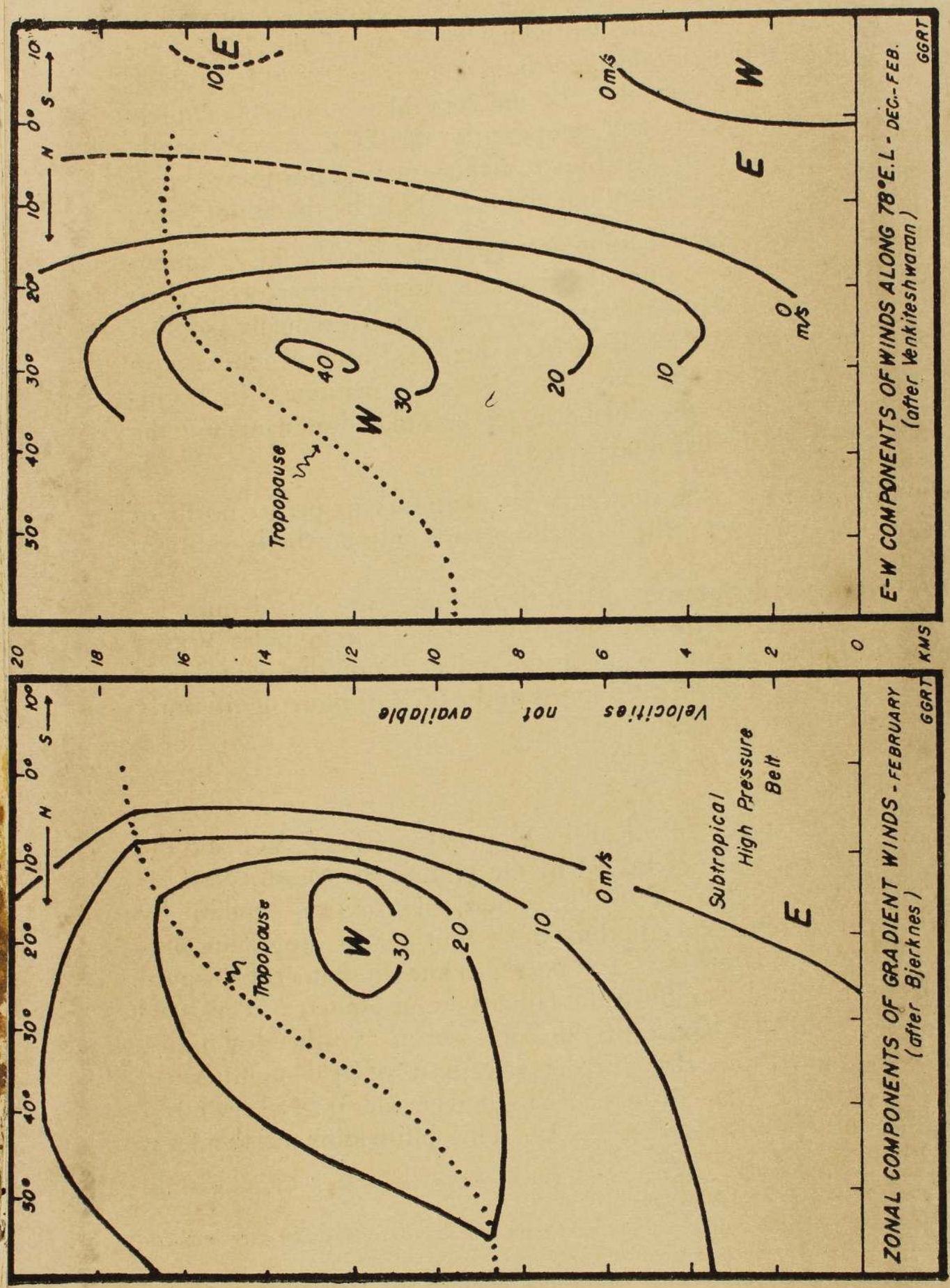

FIG. 6—Zonal components of winds in the Indian region, showing limits of the surface and upper Westerlies and Easterlies during the northeast monsoon period (northern winter).

imposed by the Himalayas. More recent studies[27] based on a mean January—February cross-section (i.e. an average for longitudes 70° E to 100° E) suggest that the Jet Stream is centred about 27° N.L. In summer the Jet definitely is located north of the Himalayas.

It has also been shown that the sudden northward spurt of the ECZ also is an important factor to be reckoned with, in respect of the "burst" of the monsoon. The northward edge in effect represents the northern convergence Zone (NCZ) which since February begins its northward journey. It has been shown that over Ceylon, the NCZ generally appears in April and May[28] and is accompanied by singular weather deterioration. Synoptic studies for Ceylon also seem to suggest[29] that the characteristic "burst" of the SW monsoon occurs, when a 'wave' occurs along the NCZ. The edge of the NCZ also marks the limit of the air of southerly component since May. Generalized charts for winter (Fig. 6) and summer (Fig. 7) show that the deep Easterlies and the Upper Westerlies are fairly defined during the respective seasons. Thus in 'winter' the boundary between the Easterlies and the Westerlies is as far south as the equator. On the other hand in 'summer' the bounding surface is as far north as about 30° N.L. The southwesterly monsoonal streamlines are seen to be relatively 'shallow' within the total atmosphere over the Indian environs, yet reach to nearly 8 km.

It has been shown earlier that in Ceylon the onset of the true monsoonal circulation does not take place until late May or early June. It is by June that the monsoon attains sufficient depth. It has also been observed in Ceylon that once the depth-flow of 10,000 feet is reached, fluctuations may take place and the depth may reach below 10,000 feet. Could these 'relapses' be explained in terms of 'interruptions' in the latitudinal positioning of the ECZ (NCZ), when the Jet itself re-occupies its position south of the Himalayas ? Does it mean that the ECZ spurts northward rapidly to occupy as it were, the place vacated by the Jet Stream ? Can these circumstances be related to "failures" of the monsoon ?

Conclusion

The foregoing analyses have served to bring out certain significant aspects of the meteorological circumstances that must be taken into account

27. P. Koteswaran, C. R. V. Raman, and S. Parthasarathy, "Thee Mean Jet Stream over India and Burma in Winter," *Jour. Met.*, Vol. 5 (Dec., 1949), pp. 393—400.

28. G. Thambyahpillay, "Secular Fluctuations in the Rainfall Climate of Colombo," *Univ. Cey. Rev.*, Vol. xvi, Nos. 3 and 4 (July-Oct., 1958), pp. 95—96.

29. Jayamaha, *op. cit.*,

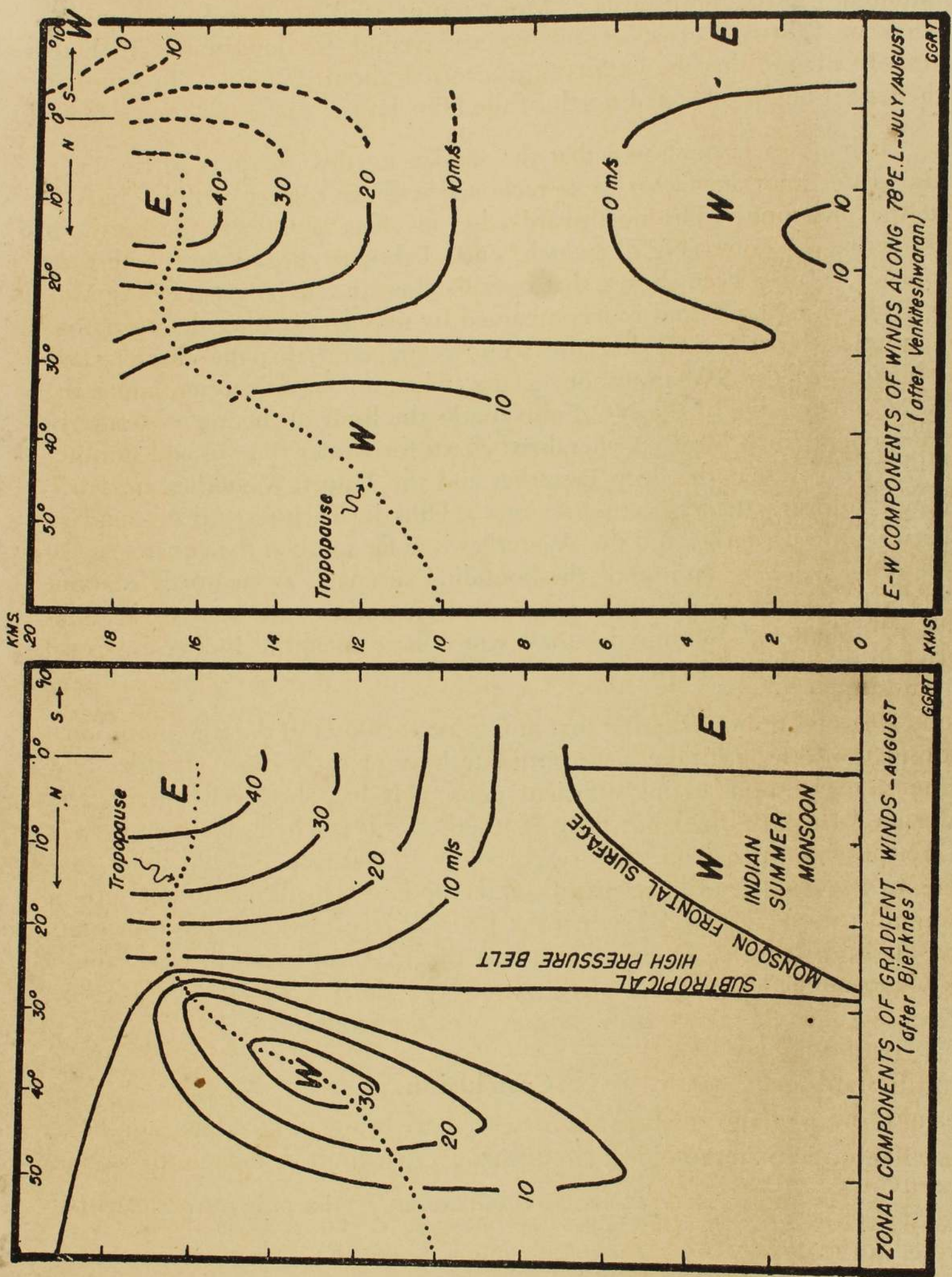

FIG. 7—Zonal components of winds in the Indian region, showing limits of the surface and upper Westerlies and Easterlies during the southwest monsoon period (northern summer).

in attempting to seek a solution to the *modus operandi* of the "burst" of the SW monsoon. It has been demonstrated that three sets of circumstances are involved, namely :—

(i) a westward displacement of an upper-air trough from about 90° E.L. (in winter) to about 75° to 80° E.L. (in summer).

(ii) a northward migration of the Upper Westerlies and the Jet Stream, from south of the Himalayas to north of it ;

(iii) a northward displacement of the NCZ (ECZ), from about 10° N.L. (in April-May) to about 23° N.L. since late May.

It has also been shown that these 'changes' are effected rapidly and take place, coinciding in time with the "burst" of the SW monsoon over India. It was also brought out that large-scale upper-air circulation patterns in the northern hemisphere exhibit remarkable 'changes' during the period between late May and early June. It may, therefore, be surmised that the SW monsoon does seem to be related to meteorological circumstance taking place as far north as the Siberian region. The question, however, still remains whether the large-scale readjustments in the Siberian region are the cause or the result of the adjustments that have been noticed to take place in the Indian environs. Or, are the Indian-area displacements in fact, readjustments effected to conform to the large-scale changes that have been found to take place in the Siberian region ? It may even be justified to consider whether the total atmosphere of the earth itself is involved. The latter consideration is warranted in view of the concept of the Circumpolar Vortex Circulation (in some way related to the High- and Low-Index Circulation patterns),[30] as providing the clue to climatic aberrations. If this new concept of the General Circulation of the Atmosphere may be accepted as an alternative to the tri-cellular concept first propounded in 1735 by Hadley, then it may be suggested that climatic 'singularities' like the SW monsoon must surely be related to the total atmospheric activity.

In the light of the evidence presented here, it may be claimed with justification that the new perspective does provide some of the answers that cannot be explained by the 'thermal' concept of the SW monsoon "burst." The Thar Low, therefore, while it must not be considered an uninvolved factor in respect of the "burst" characteristics, may be regarded to perform at most only a secondary role and not any more the main role, in the onset of the SW monsoon.

30. Willett, *op. cit.*,

While these suggestions are based on the findings of an investigation in respect of meteorological events of 1946, substantiation of the new perspective must be provided by analyses of other years. The sequence of the circumstances that preceded and followed the "burst" of the SW monsoon in 1946, have been resolved not merely in terms of statistical and time correlation, but also in the provision of a fairly tenable physical reasoning. Nevertheless, there yet remain a number of unresolved features relating to the "burst" of the SW monsoon. Hence, while an attempt has been here made to present the new perspective, it may be concluded that the providing of a completely statisfactory *raison d'etre* for the "burst" of the Indian monsoon—the meteorological singularity *par excellence*—must needs await further research.

GEORGE THAMBYAHPILLAY

The Rakkhanga–Sannas–Curnikava and the Date of the Arrival of Arakanese Monks in Ceylon

THE *Rakkhaṅga-sannas-cūrṇikāva* is a short document of eight palm leaves now deposited in the Library of the British Museum, London[1]. On the evidence of the Sinhalese script employed in it, the document can be assigned to the eighteenth century. The script is, however, more developed than that used in the letter sent by King Narēndrasiṃha to the Dutch Political Council in 1726[2]. The first four leaves of the manuscript are devoted to a long list of pompous epithets intended to glorify the King of Kandy at the time the *cūrṇikāva* was indited. Of the other four leaves, three leaves and the first page of the last leaf are devoted to a very brief account of the first mission sent by King Vimaladharmasūriya II to Arakan in the year 1693 for the purpose of examining the possibilities of obtaining the services of some competent Buddhist monks to re-establish the *upasampadā* in Ceylon.

A more detailed account of this mission together with a brief account of the subsequent mission that ultimately accompanied the monks from Arakan to Ceylon had been found by D. B. Jayatilaka who published a summary of this account some years ago, leaving the task of editing the document with notes and explanations to a later occasion.[3] Judging from this summary already published, this document would have been of great interest to those engaged in studying the cultural and social history of the kingdom of Kandy, if it had been published in its entirety. The *Rakkhaṅga-sannas-cūrṇikāva* will also be of interest to such scholars, for, besides supplementing what is contained in the document referred to by Jayatilaka, it also throws some light on some aspects of Kandyan diplomatic practice.

1. Or. 6611 (258).
2. The Ceylon Antiquary and Literary Register, Vol. I, 1915-1916, Plates III and IV.
3. Jayatilaka, D. B., Sinhalese Embassies to Arakan, Journal of the Royal Asiatic Society, Ceylon Branch, Vol. XXXV, Colombo, 1941, pp. 1-6.

The account of the first mission to Arakan is given in this document in the form of a narrative clearly meant to be recited in the presence of the King. It is written throughout in an eulogistic vein and the author, possibly, expected to be rewarded for his literary labours.[4] Unlike the authors of the accounts of the mission sent to Siam by King Kīrti Śrī Rājasiṃha,[5] the author of this document does not appear to have been very keen to give a full account of the mission to Arakan. His sole aim, it would seem, was to relate the main events of the mission all too briefly in a manner suitable for formal recitation.

According to the *Rakkhaṅga-sannas-cūrṇikāva* the envoys selected to proceed to Arakan were Bämiṇivattē Disānāyaka Mudiyansē, Doḍaṁvela Hērat Mudiyansē and Śivāgama Paṇḍita Mudiyansē. They left for Arakan in the year named Śrī Mukha, i.e. the year 1615 of the Śaka era.[6] The envoys were accompanied to Colombo by Galagama Mohoṭṭāla and Māradagoḍa Muhandirama. At Colombo the envoys embarked on a small ship named *Ūkuru*[7] on Thursday, the seventh day of the bright half of the month of Äsaḷa,[8] with the intention of re-embarking on a *kappara*[9] at the South Indian port of Tūttukuḍiya.[10] The ship left Colombo on Sunday, the tenth day of the bright half of the same month.[11]

Though it is not stated so in the document, the envoys evidently travelled in a *kappara*, as they intended, from Tūttukuḍiya to Arakan, with the object, we are told, of finding out the state of the latter country and of getting a letter from the king of that country indicating his willingness to help the King of Kandy in the matter of re-establishing the *upasampadā* in Ceylon.

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4. A *cūrṇikāva* is a speech in prose where there is a pause at intervals of every five *mātrā*, syllabic instants. Usually there is an attempt to introduce rhyme and alliteration into the words. *Cūrṇikāvas* are usually employed to eulogise or bless a person. It is possible that this particular *cūrṇikāva* was composed by one of the envoys and recited by him before the King, on the occasion when *sannas*, land grants, were presented to the envoys. Hence the name *Rakkhaṅga-sannas-cūrṇikāva*.

5. Pieris, P. E., Kirti Sri's Embassy to Siam, J. R. A. S., C. B., Vol. XVIII, 1903, pp. 17-44 ; Fernando, P. E. E., An Account of the Kandyan Mission sent to Siam in 1750, The Ceylon Journal of Historical and Social Studies, Vol. II, Peradeniya, 1959, pp. 37-83.

6. The date given in the MS. in words is 1605. Obviously it should read 1615.

7. This name is suggestive of a Burmese name.

8. 29th June 1693. The writer is indebted to Mr B. Liyanamana for converting the dates given in the two MSS. into their modern equivalents.

9. From Tamil, *kappal*, ship. Here, perhaps, it indicates a larger ship than craft used in journeys between Colombo and South Indian Ports.

10. Modern Tuticorin in South India.

11. Sunday, 2nd July, 1693.

The document does not say anything about the experience of the envoys either on their way to or after their arrival in Arakan. However the envoys returned to Colombo with a royal message from the King of Arakan to the King of Kandy. On hearing of their arrival in Colombo the King despatched nine officers to fetch the royal letter to Kandy. The officers who were thus sent to Colombo were : Yālegoḍa Hērat Mudiyansē, the Adigar ; Golahäla Kuruppu Mudiyansē, the *gajanāyaka nilamē;* Bōgomuvē Ēkanāyaka Mudiyansē, the *batvaḍana nilamē ;* Kirivavulē Vīrakōn Mudiyansē, the *disāva* of the Four Korales ; Girāgama Hērat Mudiyansē, the *disāva* of the Seven Korales ; Raṃmolaka Vīrasiṃha Mudiyansē, the *disāva* of Mātalē ; Kobbāvala Disānāyaka Mudiyansē, *the nānāyakkāra lēkam* and Gampahē Vijayatuṅga Mudiyansē, the *paḍikāra lēkam.*[12]

These nine officers received the royal letter sent by the King of Arakan at a place called Kosgama[13] and brought it to Kandy with due honour, and handed it over to the *Maha-Aramudala*[14] on Wednesday, the full moon day of the month of Vesak in the year called Bhava, i.e., the year 1616 of the Śaka era.[15] Then the royal letter was wrapped in a *saḷuva,*[16] sealed and deposited securely in the upper story of the *vayiyāliya.*

In the same year, on Thursday, the second day of the dark half of the month of Äsaḷa,[17] Vaṇigasēkara Vannakku-rāla,[18] Doḍaṃvala Mohoṭṭāla, the Brahmin of the *Gaṇa-devi-kōvila,*[19] Vīrasēkara Kankānama[20] and Vēvälvala Liyana-Nayide[21] brought the royal letter to a pavilion near the *jambu* tree, where the seals of the letter were broken open and the contents of the letter read by the King. Then the letter was again wrapped in the *saḷuva,* sealed and handed over to the five officers mentioned above to be securely deposited in the upper storey of the *vayiyāliya.* The document ends here and does not deal at all with the second mission sent to Arakan by King Vimaladharmasūriya to fetch monks to Ceylon.

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12. It is to be noted that some of the most important officers of the King, including the Adigar, were sent to meet the party bringing the letter from the King of Arakan.
13. A village in Hēvāgam Kōralē in the Avissāvēlla Electoral District.
14. The Royal Treasury
15. 29th April, 1694, which was a Sunday and not a Wednesday as stated in the MS.
16. A piece of silk, a shawl.
17. Thursday, 28th June, 1694.
18. One of the two principal officers of the Royal Treasury.
19. The temple of Gaṇeṣa.
20. A *kankānama* had both military and civil duties to perform. His rank was equal to that of a corporal.
21. A clerk, a scribe.

Inspite of the difference in length between the document referred to by Jayatilaka and the *Rakkhaṅga-sannas-cūrṇikāva*, they agree substantially with regard to the main events of the journey to and from Arakan. There are a few apparent discrepancies in the dates given in the two documents, but they can easily be reconciled as the dates given in the two documents refer to two different sets of events. The present document, for example, does not mention the date on which the mission left Kandy but states that the envoys embarked on a ship at Colombo on Thursday, the seventh day of the bright half of the month of Äsaḷa.[22] Jayatilaka's document, however, states that the envoys left Kandy on Thursday, the seventh day of the dark half of the month of Poson in the year 1693[23] and arrived in four days in Colombo, where they remained for ten days before taking ship for Tūttukuḍiya. Thus even according to this document the date of embarkation should fall on Thursday, the seventh day of the bright half of the month of Äsaḷa.[24] The present document again does not mention the date on which the envoys returning from Arakan arrived in Kandy but states that the envoys handed over the letter they brought from the King of Arakan to the *Maha-Aramudala* at Kandy on Wednesday, the full moon day of the month of Vesak in the year 1616 of the Śaka era,[25] whereas according to Jayatilaka's document the envoys returned to Kandy on the eleventh day of the bright half of the month of Vesak.[26] It is quite possible that the envoys actually did arrive in Kandy on the eleventh day and handed over the letter to the *Maha-Aramudala* four days later.

An important detail that is not mentioned in Jayatilaka's document is the procedure that was followed by the Court, evidently, according to well-established practice, in receiving the letter sent by the King of Arakan. According to the present document it was not placed in the hands of the King immediately after it was brought to the capital but was at first deposited in the *vayiyāliya* and on an appointed day it was brought to a pavilion in the vicinity of the Palace by some officers. It was here in the pavilion that the King formally read the letter. Presumably the letter was not shown to the King immediately after its arrival in the capital because a special auspicious day had to be found for such formal acts to be performed by the King. It is also significant that among the five officers who placed the letter in the pavilion were the Brahmin priest of the *Gaṇa-devi-kōvila*,

22. Thursday, 29th June, 1693.
23. Thursday, 15th June, 1693.
24. Thursday, 29th June, 1693. The envoys would have sailed on the tenth day.
25. 29th April, 1694, which was a Sunday.
26. 25th April, 1694.

the clerk named Vēvälvala Liyana-Nayide and the *vannakkurāla* named Vaṇigasēkara. These officers, it would appear, were by custom required to perform these duties in the Palace on such occasions.

Another important detail that is mentioned in the *Rakkhaṅga-sannas-cūrṇikāva* is the manner in which the letter from the King of Arakan was wrapped and sealed to be deposited in the *vayiyāliya*. It is evident that this document was not sealed in the manner such diplomatic documents were sealed in the courts and chancelleries of Europe at the time. Here the document was wrapped in a *saḷuva* and then the whole packet was tied up and sealed. Then it was deposited in the *vayiyāliya* which may have performed the functions of a palace archives in Kandyan times. The *vayiyāliya* or the *vayiyāli-maḍuva* as it was sometimes called, appears to have been situated in a section of the Palace itself. In the last stages of Kandyan rule the *vayiyāli-maḍuva* had been situated on the northern verandah of the Old Palace at Kandy. There had also been a well called the *vayiyāli-liňda* just below the Old Palace. According to a tradition which has been recorded by Turner the name *vayiyāliya* had been given to a section of the verandah of the Palace and to the well mentioned above on account of a man named Veyiyāli who used to sleep in the verandah of the Palace.[27] This explanation of the name, however, seems to have been invented in the reign of the last king of Kandy. But the name occurs in the present document which was written probably towards the end of the seventeenth century and the explanation of the name has to be sought elsewhere. In the seventeenth century, in addition to being a palace archives, the *vayiyāliya* seems to have been the office where deeds and other land documents were prepared to be issued to members of the public. A land document dated 1700 states that it was granted at the *vayiyāliye-kammattama*.[28] The word *kammattama* has been explained as a smithy or forge,[29] but here it appears to have the sense of 'office,' and *vayiyāliye-kammattama* probably indicated that section of the *vayiyāliya* where land documents were prepared to be issued to the public.

According to Burmese sources the despatch of Buddhist monks to Ceylon from Arakan had taken place in the last year of the reign of an Arakanese king named Sandathudamma, namely, in A.D. 1684.[30] If we trust the

27. Turner, L. J. B., The Town of Kandy about the Year 1815, The Ceylon Antiquary and Literary Register, Vol. IV, Colombo, 1918-1919, p. 74. Here Turner discusses the name *vayiyāliya* and the situation of the *vaiyāliya*.

28. Lawrie, A. C., A Gazetteer of the Central Province of Ceylon, 2 vols. Colombo, 1896-1898, p. 877.

29. Pieris, Ralph, Sinhalese Social Organization, Colombo, 1956, p. 297.

30. Harvey, G. E., History of Burma, London, 1925, p. 145.

dates given in the Sinhalese documents the King of Arakan who was on the throne when the first mission was sent from Ceylon must have been King Sandathuriyadamma whose reign lasted for twelve years from 1684 to 1696.[31] It is possible, therefore, that the Burmese sources had confused the two names Sandathudamma and Sandathuriyadamma and also assumed that the monks were sent from Arakan immediately after the arrival of the first mission from Ceylon in Arakan. According to the document referred to by Jayatilaka the Arakanese monks arrived in Kandy towards the middle of the year 1697 and were formally received by King Vimaladharmasūriya II on the 13th day of the bright half of the month of Bak in the year 1619 of the Saka era.[32] Thus these monks must have been despatched from Arakan in the reign of King Mayokpia, 1696-1698.[33] The Dutch Governor of Ceylon at the time, Gerret De Heere, has recorded in his Diary that he received from the Dutch Political Council in Colombo, on 20th August 1697, a letter addressed to the King of Arakan.[34] In De Heere's Diary the King of Arakan is referred to as King Moeroepia Dhammarajia. The letter was probably in regard to the monks already brought to Ceylon in Dutch ships. The same Diary has recorded that the Arakanese monks arrived at Sitavaka on 12th July, 1697.[35] The monks were evidently on their way to Kandy though this is not made clear by De Heere. It will be seen that there is a discrepancy between the date given in the document referred to by Jayatilaka and that given in De Heere's Diary for if the monks arrived at Sitavaka, on their way to Kandy, in July, they could not have been in Kandy in the month of Bak. Possibly it may be that an advance party of monks arrived in Kandy in the month of Bak and that a second batch of monks, probably, those who travelled in the second ship,[36] arrived at Sitavaka on 12th July, 1697, on their way to Kandy.

In view of the evidence provided by these two Sinhalese documents and the Diary of De Heere it can be concluded that the monks from Arakan arrived in Ceylon in 1697 and not in 1684 as is stated in Burmese sources. If the monks were sent from Arakan in 1684, they would have reached Ceylon in the reign of King Rājasiṃha II, 1629-1687. But there is no record of such an event having taken place in the reign of this king.

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31. Ibid., p. 372.
32 Thursday, 25th March, 1697.
33. Harvey, p. 372.
34. Diary of Occurrences During the Tour of Gerret De Heere from Colombo to Jaffna, translated by Sophia Anthonisz, Colombo, 1914, p. 24.
35. Ibid., p. 8.
36. In 1697 Arakanese monks travelled to Ceylon in two ships, provided by the Dutch, and also returned in Dutch ships to their country after completing their work in Ceylon. Memoir of Cornelis Joan Simons, translated by Sophia Anthonisz, Colombo, 1914, p. 7.

Echo-words in Sinhalese

OF the different types of repetitives found in various Indian languages, echo-words are of great interest. They are noticed in Indo-Aryan as well as Dravidian and other families of languages. Professor Suniti Kumar Chatterji, in his 'Origin and Development of the Bengali Language' (Introduction p. 176) points out a few such forms in a variety of modern Indian languages, and discusses in brief their behaviour. He also hints at the possibility of establishing some relationship among languages through similarity in the formation of echo-words.

In the present article[1] an attempt is being made to state the formation of echo-words in Sinhalese, and to indicate their function.

Professor Emeneau, in his article[2] on the echo-words in Toḍā, gives us a fairly detailed account of such formations in that language. e.g.

po:ṭ	*po:ṭ,xi:ṭ*	*song*
ka:k	*ka:k,ki:k*	crow
ni:ɹ	*ni:ɹ,xi:ɹ*	water

He points out that in Toḍā, an echo-formation is a reduplicative one, with the insertion of a substitutional morpheme between the stem and the reduplicating portion. Thus in his own words, a noun makes "an extended form by partial end-reduplication, with the insertion of an element between the noun and the reduplication."

Professor Zellig S. Harris too analyses[3] certain echo-formations in Koṭā like:

puj (v)	*tiger*	>	*puj-qij* (v v)	*any tiger*
kaḷṇ	*thief*	>	*kaḷṇ-qiḷṇ*	*some thief*

and groups all the echo-words into one morphemic unit, with the meaning 'any, some, and the like' and says that the general form of the unit is *qiX*, where *X* is whatever follows the initial CV of the first member of the compound.

1. I have derived much profit from my discussions on this subject with Professor G. H. Fairbanks of Cornell University, and with Mr. M. W. S. de Silva of the University of Ceylon.
2. New Indian Antiquary 1 1938-39 pp. 109-117.
3. Readings in Linguistics, p. 112.

The above statements of Emeneau and Harris are as applicable to Sinhalese, as they are to Toḍā and Koṭā. The only difference lies in the nature of the so-called substitution morpheme, or the initial segment of the echo. *e.g.*

datə	*tooth*	>	*datə-patə*
kæ:li	*pieces*	>	*kæ:li-bæ:li*

In most of the echo-formations in Sinhalese, it is either the uninflected form of a noun, or an adjective, that forms the base. However there are instances where a noun with a case inflection or a verbal form also forms the base.

The schematizing of this formation in Sinhalese becomes clearer when we examine a sufficient number of examples. The examples noted below are in the order of the consonant that forms the initial segment of the echo, which Professor Emeneau called the substitutional morpheme. It may be noted that in Sinhalese this particular consonant is *p* or *b* most often, and rarely *v*, *h* or *d* (ʔ).

p	*as-pas*	*arranged, orderly*
	atə-patə	*hand etc.*
	daňga-paňga	*mischief, naughty doing*
	avul-pavul	*confused*
	atərin-patərin	*from here and there*
	ædak-pædak	*a bend or curvature*
	hit-pit	*thought, consciousness*
	ivum-pivum	*cooking etc.*
b	*tadə-badə*	*hard, pressed*
	kata:-bata:	*talks*
	kaňdə-baňdə	*body*
	taṭṭu-baṭṭu	*knocking at*
	yakku-bakku	*devils*
	kavicci-bavicci	*couches*
	karettə-barettə	*carts*
	ka:r-ba:r	*motor vehicles*
	a:ni-ba:ni	*yawning*
	sa:ri-ba:ri	*sarees*
	ka:nsi-ba:nsi	*melancholy*
	hæṭṭə-bæṭṭə	*skirts etc.*

kæ:li-bæ:li	*pieces*
iňgi-biňgi	*hints*
usi-busi	*urging on, instigation*
suḍḍə-buḍḍə	*pure*
su:ṭ-bu:ṭ	*suits*
sereppu-bereppu	*sandals*
roḍu-boḍu	*dirt*
kollo-bollo	*boys*
ko:ṭ-bo:ṭ	*coats*
ko:ṭu-bo:ṭu	*sticks*
v *mœrə-vœrə*	*obstinate, rowdy*
h *ba:rə-ha:rə*	*vows*
d *mahatə-dehetə*	*build, stature.*

t, m (see below).

Although normally the initial vowel of the base occurs as the initial vowel of the echo as well, in certain cases a different vowel seems to occur. *e.g.*

gaman-biman	*journeys*
ivak-bavak	*smell, sense, indication*
ka:si-bu:si	*coins, money*
kaṭu-boṭu	*bones*
vadənə-podənə	*giving birth to*
udav-padav	*help*
tovil-pavil	*devil dancing ceremony*
aḍukku-puḍukku	*cooked food*
mudal-hadal	*money*
vihilu-tahalu	*jokes*
tarəmə-tirəmə	*extent*
iḍam-kaḍam	*lands*

Whether any of these forms have been borrowed from or have been modelled on similar forms in Dravidian languages needs investigation.

The reduplicating segment of an echo-word can be schematized as :
R = CVX

where C = p, b, (v, h, d, t, m, k)
added to the initial vowel of the base or replacing the initial consonant of the base.

V = repetition of the initial vowel of the base or (in some cases) replacement by a different vowel.

X = whatever appears in the base after the first vowel.

It may be added that the allomorphs occurring as the reduplicating segment and beginning with p, b etc., are always in complimentation. The function of an echo-word is to indicate generalization or ' any, some and the like ' as is referred to by the base.

As against the echo-formation referred to above, in certain other nstances, reduplication seems to have taken place in the reverse order. The meaningful base is the second member, and the first member is an echo of it. *e.g.*

aka:-maka: (*damənəva*)	*to erase*
olə-molə	*fierce, savage, unruly*
a:vərə-me:vərə	*ministering to, rendering service.*

In another type which, to all appearances, conforms to echo-formations, neither member can be considered the base as the meaning is attached to both segments as a whole, and not to either of them.

a:ṃ-ba:ṃ	*control*
anaṃ-manaṃ	*frivolous talk, gossip*
aḍə-daḍə	*confused, flurried*
laṭə-paṭə	*gossip*
æ:li-mæ:li	*lazy, indolent*
daňḍi-paňḍi (*ga:nəva*)	*to labour in haste*
daḍi-biḍi (*ga:nəva*)	*to bustle about.*

A few of them like daḍi-biḍi seems to be also onomatopoeic. *Anaṃ-manaṃ* may probably be a contaminated form that has had a separate origin. In any case these forms need an explanation, as they largely conform to the echo-pattern.

D. E. HETTIARATCHI

A Note on Syllable-Quantity in Sinhalese metre

මතෙක් ලුහු ගුරු වේ — දෙ මත් දිගු හා පසු හල්.
Matek luhu guru vē — de mat digu hā pasu hal.

A light syllable is one mātrā. A heavy syllable, namely, a long vowel or a vowel and consonant, is two mātrās.[1]

This aphorism on syllable-quantity comes in the second verse of the Saňdäs Lakuṇa (13th century A.D.), the earliest extant, but nonetheless current, treatise on Sinhalese metrics. This statement provides a two-term system of quantity which may be stated as follows by generalizing the syllable in terms of C and V[2] and using the macron to indicate vowel length :

light (luhu) syllables :	V,	CV	= one mātrā.
heavy (guru) syllables :	V̄,	CV̄	= two mātrās.
	VC,	CVC	
	V̄C,	CV̄C	

In this note I propose to make a few observations on this concept.[3]

The statement of luhu and guru syllables in Sinhalese is identical with the statement of laghu and guru in Sanskrit. In Sanskrit, a laghu syllable (V, CV) is one mātrā and a guru syllable (V̄, CV̄, VC, CVC, V̄C, CV̄C is two mātrās.[4]

So far as Sanskrit poetry[5] is concerned, this system is applicable without any lapses. Where a laghu syllable is prescribed by metrics, one may have V or CV. Where a guru syllable is prescribed, one may have V̄, CV̄,

1. The mention of only the vowel and the final consonant shows that the initial consonant, if any, is immaterial for the mātrā structure of the syllable.
2. C = consonant ; V = vowel.
3. Quantity, which is a two-term system, is different from length. Length is said to be a three-term system, harasva (short), dīrgha (long) and pluta (extra long). But pluta, they say, cannot be written. It is only the prolongation of a vocalic sound.
4. See also W. S. Allen, Phonetics in Ancient India, pp. 83 ff.
5. See A. A. Macdonell, a Sanskrit Grammar for Students, pp. 234-5.

VC, CVC, V̄C or CV̄C. In Sinhalese poetry, however, this is not applicable in the same way. For non-Sanskritic metres, I find it necessary to recognize a three-term system as follows :

V,	CV	=	one mātrā.
VC,	CVC	=	two mātrās.
V̄,	CV̄		
V̄C,	CV̄C	=	three mātrās.

Before stating the data for the recognition of a three-term system of syllable quantity for Sinhalese, I propose to illustrate the adequacy of the two-term system of syllable quantity in Sanskrit by giving below a Sanskrit verse and generalizing its syllables in terms of, C, V and macron. The verse chosen is composed in the ' mandākrāntā ' metre which needs four lines of the following pattern :

— — — — ⏑ ⏑ ⏑ ⏑ ⏑ — — ⏑ — — ⏑ — — (27 mātrās)[6]

There are 17 syllables in a line of which 10 (1-4, 10-11, 13-14, 16-17) are long. The verse chosen is :

ye[7] *samrambhot*patanarabha*sāh svāṅ*gabhan*gāya tasmim*
muktādhvānam sapadi śara*bhā laṅ*gha*yeyur*bha*vantam*
tānkurvīthās tumulakara*kāvṛṣṭipātāva*kīrṇān
ke vā na syuh paribhavapa*dam niṣ*phal*āram*bha*yatnāh.*
(Meghadūtaṁ. 1,57).

The heavy syllables are underlined. Each line has ten heavy syllables and seven light syllables in the prescribed sequence. The syllable structures in these lines are given below in terms of C V and macron paying special attention to the heavy syllables.

1	2	3	4	5	—	9	10	11	12	13	14	15	16	17
CV̄	CVC	CVC	CV̄C	CV	CV	CV	CV̄C	CV̄C	CV	CV̄C	CV̄	CV	CVC	CVC
CVC	CV̄C	CV̄	CVC	CV	CV	CV	CV̄	CVC	CV	CV̄	CV̄C	CV	CV̄C	CV̄C
CV̄C	CVC	CV̄	CV̄C	CV	CV	CV	CV̄	CVC	CV	CV̄	CV̄	CV	CV̄C	CV̄C
CV̄	CV̄	CVC	CVC	CV	CV	CV	CVC	CVC	CV	CV̄	CVC	CV	CVC	CV̄C

6. Macron (—) = guru (heavy) syllable. Micron (⏑) = laghu (light) syllable. In the Saňdas lakuṇa however, the prescribed notation is the opposite. It recommends that heavy syllables must be marked with the micron and light syllables with the macron.
' guru vak ḳotin aňdanē—luhu idu aňdu äňdamē '
ගුරු වක් කොටින් අඳනේ ලුහු ඉදු අඳු ඇඳමේ
7. In Sk. e and o are long vowels.

These syllable structures show that where a heavy syllable is prescribed, any of the three, CV, CVC and CV̄C (or, for that matter, V, VC and V̄C) can occur without any restriction. The light syllables are CV (or, for that matter, V) in structure.

The concept of luhu and guru syllables in Sinhalese is a borrowing from Sanskrit, and can be applied in the Sanskritic metres in Sinhalese in the same way as in Sanskrit. This two-term system is, however, insufficient to analyse the non-Sanskritic metres. For them it is necessary that a three-term system of mātrā structure should be recognized, as :

V, CV	:	one mātrā.
V̄, CV̄, VC, CVC	:	two mātrās.
V̄C, CV̄C	:	three mātrās.

In order to illustrate this point I give below four first lines of certain four-line verses[8] of the mātrā pattern 9—11—9—14[9]. These lines, then must contain 9 mātrās each[10].

(1)	දඹදිව් තල පතර	daṁbadiv tala patara
(2)	එතුවක් සිට දුහද	etuvak siṭa duhada
(3)	යේසුස් කිරිස්තු	yēsus kiristū
(4)	සෙබළිඳු කාන්ගර	sebaliṅdu kāngara.

To scan them :

(1)	◡ ◡ — ◡ ◡ ◡ ◡ ◡	= 9
(2)	◡ ◡ — ◡ ◡ ◡ ◡ ◡	= 9
(3)	— — ◡ — —	= 9
(4)	◡ ◡ ◡ ◡ — ◡ ◡	= 9

The structures of syllables denoted by — are as follows :

(1)	—	=	CVC
(2)	—	=	CVC
(3)	— — — —	=	CV, CVC, CVC, C V respectively.
(4)	—	=	CV̄C.

8. *Kustantinu hatana*, vv 9-12.

9. In many Sinhalese metres the number of syllables in a line is not prescribed by the metric rules ; only the number of mātrās in a line is prescribed. Therefore, the number of syllables is immaterial so long as the number of mātrās is correctly preserved. This particular metre is one of them.

10. See *Kustantinu hatana*, ed. S. G. Perera and M. E. Fernando. 1933 pp. 42 ff.

In counting the mātrā structure by allotting one mātrā to each light (⏑) syllable we find that—

in (1) the light syllables count 7, and therefore CVC = 2.
in (2) the light syllables count 7, and therefore CVC = 2.
in (3) the light syllable counts 1, the two CVC syllables count, as shown in (1) and (2), 4 ; therefore the two CV syllables = 4, whence CV = 2,
in (4) the light syllables count 6, and therefore CV̄C = 3.

This observation indicates that a three-term system of mātrā structure should be recognized for non-Sanskritic metres in Sinhalese as—

(C) V	=	1 mātrā.
(C) V̄, (C) VC	=	2 mātrās.
(C) V̄C	=	3 mātrās.

On this basis a three-term system of syllable quantity may be set up for analysing Sinhalese as light, medium and heavy, whereby the phonetic distinction of length between such pairs as pan, pān ; gat, gāt ; mas, mās ; etc., can be phonologically stated in terms of the category of quantity.

M. W. S. DE SILVA

Obituary

EDWARD Joseph Thomas, M.A. (B.A. 1905), died on 11 February, 1958 at the age of eighty-eight. He was born on 30 July 1869. His father was gardener at Thornhill Rectory in Yorkshire, during the incumbency of the Reverend Joshua Ingham Brooke, a man of some wealth, part of which it was his pleasure to spend in assisting promising local boys to a grammar school education. But E. J. Thomas was not one of them, though he was of a studious turn, and almost as early as he could remember used to save his pennies till they would buy something at the secondhand bookshops in the adjacent towns. At fourteen he left school and went to work as a gardener for the next twelve years ; but we should be wrong in interpreting this as a reluctant apprenticeship to his father's trade ; despite an unlucky handicap of colourblindness he retained all his life a profound love of flowers and gardening ; and he did well at it. But he busied himself in other ways too ; for when in 1894 he went to spend a year as a student gardener at Kew he already had the London Matriculation Certificate (1st Division) in Botany, Mechanics, Latin, Greek, English and Mathematics. While there he obtained certificates in Elementary Physics and Chemistry and in various branches of Botany. It was presumably during this period that he decided to devote himself to linguistic studies. In 1896 he entered the University of St. Andrews, where under John Burnet as Professor of Greek he eventually graduated M.A. (1900-01) with first class honours in Classics. His other subjects of examination were Mathematics, Moral Philosophy, and Modern Greek. In this last, which foreshadows his subsequent philological learning, he was a pupil of A. N. Jannaris, author of what is still perhaps the only scholarly dictionary of English and Modern Greek. In 1903, at the age of thirty-four, when with most men the zeal and capacity for learning have begun to wane, Thomas came to Emmanuel as an Advanced Student, drawn, possibly, by the already wide repute of Peter Giles ; at all events, philology was his special subject in the Classical Tripos Part II, which in 1905 gave him his Cambridge B.A. It was by this course that he came to the study of Sanskrit and Pali, and so of the Buddhist scriptures and religion, on which he became in time the most eminent English-speaking authority ; and by his appointment in 1909 as an Under-Librarian at the University Library, Cambridge became his home for the remainder of his long life. For a long time he was in charge there of all foreign books, and his knowledge of languages continued to grow pheno-

menally in all directions ; any book in an unrecognised tongue would be referred to him, and he could usually identify it ; but for the latter part of his time at the University Library he was head of the Oriental Languages Department, and when he " retired " in 1940, he was almost at once asked to take charge of the Library of the Oriental Faculty, where he worked till about 1950. Though his publications included an edition of Plautus's *Aulularia* (1913) and a Danish conversation-grammar (1926) his really important works were all concerned with Buddhism ; they included *The Life of Buddha as Legend and History* (1927, revised 1949), a *History of Buddhist Thought* (1933), and a number of volumes of translations of Buddhist scriptures, the latest of which were published as recently as 1952. In this field Thomas was the master scholar, not only in Cambridge, but throughout Europe and beyond ; even in his eighty-sixth year and later he was in demand, examining research theses, reviewing books, and corresponding with scholars from Holland to India who sought his advice or his contributions to learned publications. He was a Litt.D. of his old University of St. Andrews ; the London School of Oriental and African Studies made him an Honorary Fellow ; as erudite a man as Professor Hector Chadwick could declare that Thomas was the most learned man in Cambridge ; but there were very few who were even capable of knowing how much he knew, and he would have been the last man in the world even to dream of telling them. He was indeed a most modest, shy, and retiring man ; knowing so many foreign tongues he was yet never heard to utter a sentence in any of them ; even in his own he asked to be excused when invited to speak at a Library Staff Annual Dinner. But when asked for information or advice, whether in the Library or elsewhere (and if he had his bowler on he was not officially there), he was unfailingly kind and helpful; he still knew the British flora by heart ; but in far more unexpected subjects he could give an answer ; on almost all he could set the enquirer in the way of finding it. He examined for authorities as far apart as Dublin and Ceylon ; perhaps he really did more teaching than if he had been formally a lecturer or professor ; and it was done effectively because so modestly. Professor Dasgupta's preface to his *History of Indian Philosophy* reveals one who was indebted to his help ; and there must have been hundreds more. Those who as undergraduates have had him among the audience for their papers at the Emmanuel Classical Society would have been appalled to know before what massive learning they delivered themselves ; but he never let on. He was signally silent in company but could take a quiet pleasure in such occasions as the "E" Book Club auction, or a river-outing of the Library staff, when his favourite shag (carried sometimes in a paper bag) took the place of small-talk. He had married, but his wife (who was German) died

in the 1920's after an unhappy illness. So for many years he lived quietly in lodgings, or later with a housekeeper, childless, but very fond of children, whose society he cultivated, like flowers, with a happy devotion. A friend once found him at his desk near Room Theta in the Old Library doing something strange with a sheet of paper ; he was making a square,* to be worn by the guy at a Guy Fawkes party he was holding for his intimates. Some of them retained his confidence into later life ; those of us who only met him occasionally may well wish now that we had really known him. He was born in a world that is gone, and learning such as his is hardly allowed in the one that has replaced it. (From The Emmanuel College Magazine, Vol. XL, 1957-58, pp. 106-8.)

Dr Edward Joseph Thomas, M.A., formerly Head of the Department of Oriental Languages of the University of Cambridge and Librarian of the Library of the Oriental Faculty died on 11th February 1958.

Before his death he had bequeathed his entire library to the University of Ceylon. It is but fitting that the memory of such a generous benefactor should be preserved in permanent form.

No better could be found than publication in our Review, of the Obituary notice contributed to the Emmanuel College Magazine by Dr F. H. Stubbings. It is reproduced in these pages by courtesy of the editor.

S. C. BLOK
Librarian

* " Square " is the mortar-board, the square head-gear with a tassel, part of the academic costume.

Reviews

The Oxford History of India, Third Edition—1958 (Edited by Percival Spear) Oxford University Press, Rs. 27.00.

THE re-issue of a popular text-book, the Oxford History of India, after a lapse of nearly thirty five years certainly calls for comment even though it is a new edition with a fresh format. The present edition will be a welcome addition to the numerous books that have appeared from time to time dealing with the whole range of Indian History in a single handy volume. The Oxford History of India of Vincent Smith in spite of its many short-comings was widely read by many a generation of students. The sub-headings for easy reference and the numerous illustrations that broke the tedium of the printed word were added attractions.

But the re-edition of a text book after so many years during which so much new research had been accomplished and so many momentous chages have taken place is without doubt rather a delicate task. It would be particularly so when the work is that of a personality such as Vincent Smith and also when the revision is the work of as many as four hands. It is a task beset with difficulty since the new editor has to beware on the one side of the danger of too little revision lest the work continue to be out-of-date or on the other hand too much revision lest the personality of the original author be buried under a heap of emendations and the individuality of the work be lost. The present edition has succeeded in avoiding these dangers but the remedy does violence to Vincent Smith whose name appears prominently in the dust-cover. The paucity of the changes in the first and second parts of the work dealing with the Ancient and Medieval periods is indeed a tribute to the scholarship and accuracy of judgement of Vincent Smith. But the replacement of the entire third part dealing with the British in India by a new section written by Percival Spear of Cambridge (author of *Twilight on the Moghuls* and the *Nabobs of India*), the editor of the Third Edition, reveals both the weakness of the earlier editions as well as the tremendous changes that have taken place after 1923 (the date of the second edition) both in the Indian scene as well in attitudes and habits of thought. Though the resultant volume has lost somewhat the unity it had in the original edition, it is an eminently readable and accurate work that will take its place alongside the other composite histories of this genre.

The original Oxford History of India brought the history down to 1911 and was published in 1919. A few years later in 1923 a new edition appeared under the hand of S. M. Edwardes who made some revisions and brought the narrative down to 1921. This original edition was good only in parts. It deteriorated badly in quality, accuracy and historical judgement as it approached the present day. Vincent Smith was at his best in dealing with the Ancient period which was his field and the Muslim period presented few difficulties of judgement as the material was limited and the main outlines quite clear. But he was quite out of character in dealing with the British period. It was to begin with difficult for him to forget that he was a member of the Indian Civil Service and therefore bound by loyalty to uphold the British point of view in the reading of history. But it does not appear that he even tried to do so for he seems to have fallen in line with the accepted official version without any violence to his conscience. A second defect in his work is the application of his sub-heading method of writing history which though adequate for the early period leads to the over-simplification of history in the modern period. The division of history merely into the terms of office of various governors-general may also be questioned. Thirdly he was too involved and much too close to the events to appraise them adequately or impartially. Moreover the issue of the conflicts that raged around him were yet in the womb of the future and gave him no vantage point for a perspective.

In this new edition there is hardly any revision in the first part which deals with Ancient India. The work as it stands is competent and adequate within its compass. To bring the work up to date Sir Mortimer Wheeler has contributed a small section on prehistory and the Indus Valley Civilisation and Dr A. L. Basham has made some minor corrections and additions in the light of recent research. He tends to err on the side of restraint for like most histories of a few decades ago there is a tendency to concentrate on the period before the Guptas and on the region north of the Vindhyas. A new chapter on Indian expansion overseas makes good a serious oversight of Vincent Smith.

Part Two, dealing with the Muslim and Moghul periods has been revised by Dr J. B. Harrison. This has been altered a little more than the first part but it stands much the same as before and is very much the work of Vincent Smith. Some of the spicy quotations and anecdotes drawn from Muslim sources have been excised for reasons that are a bit difficult to understand. Minor blemishes and inaccuracies have been corrected. The sub-heading method of treatment which does not lend itself easily to narrative history is retained. It is possible that the revisor considered the task would have involved a major revision. But this method lends itself easily to the comprehension of material and should be useful to the student.

The task that faced Dr. Percival Spear, the editor, in revising the third part must have seemed insuperable and he was wise to put aside Vincent Smith's work and to re-write the whole section anew. As he explains in the preface—" For the British period, however, such methods would not suffice. The change in perspective has been too great ; repair of the garment would have produced a patch-work, not a renovated piece. The whole part has therefore been re-written by a single hand from what must be plainly stated to be a different point of view." Though this was the only adequate method of revision open to him and since his contribution now consists of practically half the volume, he stands as part-author of the work and it would be invidious to describe the work as Vincent Smith's Oxford History. Further it is ironical that a work which still bears Vincent Smith's name in large-type on the dust-cover should incorporate a history of British India based on a point of view so wholly contrary to that adopted by him.

Spear's contribution is a landmark in the historiography of British India—It is the first attempt by a serious historian to deal with the entire British period of Indian history from its from earliest beginnings to its final denouement in 1947. Ten years is a period sufficiently far-removed from the clangour of politics to make a sober appraisal of this period of Indian history possible. Spear claims in this work that " the whole British period has been treated as a completed episode." He says further—" we see it now, not as did nineteenth century historians, as the consummation to which all Indian history has been moving but as one episode among many in the long story of India." It is in the light of this perspective that he entitles the period from 1905 to 1947 " National India," a title unthinkable by any British historian before 1947. He thus places the national movement in its proper setting as the most significant element of this period.

Apart from this new perspective that he adopts, his historical judgement is refreshingly impartial. He has not confined himself to the mere setting down of narrative and fact but makes his comments upon them, castigating the activities of his compatriots where censure was due and showing a marked sensitivity to Indian national opinion. He combines the scholarship of Dodwell without his scholarly aloofness with a sympathy towards Indian sentiment reminiscent of Thompson and Garrat without their emotional entanglements. He sums up his aim in saying that the British period " has been regarded not as the story of the rise and decline of British period in India, but as the story of the transformation of the Indian under the impact of western power, techniques, and ideas of which the East Indian Company was the harbinger and Britain the creative intermediary." It is of course difficult for any one but an Indian scholar or one in close touch with Indian life and thought, to do justice to such an aim and that is as it should be. The author is still somewhat tied down to a past tradition of historiography to succeed wholly in such an aim. But his work is a significant contribution to the history of this period.

Taken as a whole though there is a certain disparity in aim and emphasis between the two halves of this work and though lacking the unity of a single hand, this edition of the Oxford History of India is a useful and worthwhile volume and will be read with profit and interest.

L. S. P.

Parliamentary Government in Ceylon 1948-58 by S. Namasivayam, K. V. G. de Silva, Colombo 1959, pp. 126

Mr. Namasivayam's Parliamentary Government in Ceylon 1948—58 is largely a summary of the more important constitutional documents of the period. As such it may prove helpful to the lay reader who may find it difficult to get to the original documents. Neither in the text, nor in the references, however, is there any evidence that Mr Namasivayam is conversant with the considerable literature which examines various aspects of parliamentary government in Ceylon. Much of the weakness of this book arises from this defect. Mr Namasivayam, for instance, hopefully suggests that were the Senate reconstituted to represent vocational and occupational interests, it might serve a useful purpose. In this Mr Namasivayam is not aware of or ignores the fact that the preponderant majority of Senatorial speeches are so much limited by their narrow economic or professional interests as to inhibit the expression of a broad and national view-point.

Again at page 47 he says that " . . . . in the other House on most days. . . . question time was exhausted. . . ." The fact of the matter is the contrary. In the first Parliament on the average less than one-third of the question time was utilised. A careful reading of the Hansard will also show thta the financial procedure and practice in Ceylon is in many fundamental ways different from that of the British House of Commons, quite contrary to what he says at page 75. It is also disappointing to find that in an academic work of this nature the author sees fit to lavish adulatory encomiums on all the Governors-General and on all the Prime Ministers including the present holders of these offices.

Mr Namasivayam is not new to writing. One is therefore entitled to expect something better than the present production. In fairness to Mr Namasivayam he should be judged not on this work but on his previous more scholarly and valuable book on the Legislatures of Ceylon.

I. D. S. W.

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