2. LITERATURE REVIEW

There are many works on the phonology of Assamese, Bengali, English and Malayalam. Also, there are works on theories related to sound change, cluster formations and spectrographic analyses of speech sounds. Some of these works that are directly related to the present research are reviewed below.

In *Assamese, its Formation and Development* by Banikanta Kakati (third edition, 1972; revised and edited by Golok Chandra Goswami and published by Lawyer’s book stall, Gauhati) the author gives a brief sketch of the land and its people, the influence of the neighbouring languages on Assamese, a chronological development of the language and a detailed study of the modern Assamese language in two parts— the first dealing with phonology and the second devoted to morphology. In chapter I under the heading ‘Sounds and Letters’, Assamese phonemes, their description etc. are taken up, but a detailed consideration of the fricatives is taken up in chapter XII under the heading ‘Sources of Consonants’. Here the sources of /s/ and /z/, the changes of O.I.A. sibilants, sources of /x/ etc. are considered. It is based on personal observation and perception, and no scientific equipment was used. Still, this book is indispensable to any student of Assamese language.
Another work on Assamese phonology is An Introduction to Assamese Phonology by Golok Chandra Goswami (First edition, 1966; published by Deccan College Pune). It is a detailed consideration of the Assamese language more or less on the same line as Banikanta Kakati’s Assamese, its Formation and Development. As suggested by the title of the book, it is more concerned with the phonological study of the language. Besides phonemes and their distribution, a study of allophones, consonant clusters and their distribution, structure of a syllable, word stress, junctures etc is also taken up in this book. Fricatives are given a detailed consideration under section 2.324. It includes the description and distribution of fricatives. In this section Goswami makes a distinction among five allophonic variations of /s/. The first variety [sːi] is “Alveolar voiceless spirant, slightly fortis and half long; a slit spirant in production of which the front of the tongue becomes flat and the blade rests against the roof of the alveolar region on both sides, keeping a slit for the air to come out. It occurs (a) utterance initially before and utterance finally after the vowels /i e ε a D/ and (b) before /r/ initially and medially”. The second variety [s'] is “Alveolar voiceless spirant slightly fortis and half long; a groove spirant in production of which the blades of the tongue touch the roof of the alveolar region on both sides keeping a groove passage for the air to come out. It occurs initially before /ɔ u/ and finally after /o u/”. The third
The allophone of /s/ is [ʂ] which is a "Slit spirant, half long and a little palatalized; it freely varies with alveo-palatal [ʂ]; occurs before /j/; initially it is slightly fortis and lenis medially." The fourth allophone [s] is slightly lenis; slit spirant before /i e ε a ḍ/ and before consonants in cluster; a little groove before the back vowels /ɔ u/; slightly palatalized before /i/.” The last variety [s-§] “freely varies with the palatalized spirant [§]; occurs after /t/ in a cluster.”

In like manner six allophones of the fricative /z/, three allophones of /x/ and four allophones of /h/ are given in this book.

The same writer’s Structure of Assamese (First edition, 1982; published by Gauhati University, Gauhati) is a systematic description of the standard Assamese language on the lines of modern descriptive linguistics. This work is entirely given to the study of phonology and morphology with an approach to syntax. In this work too, one section (2.3240) is given to the consideration of fricatives which like in the other book, mentioned above, is dealing with the description and distribution of fricatives. The allophonic variations of all the fricatives are given here as they are given in his earlier book.

In Asamiya Bhasar Itihas by Dr. Ramesh Pathak (first
chapter V is entitled ‘Asamiya Bhasar Dhani Tatwa’ where he considers the sibilant fricatives. He says that the letters representing the sibilant fricatives have lost their special qualities in Assamese. Even in old Assamese too, these sounds were not used... But it has to be kept in mind that /ʃ/ and /ʂ/ were used just like /s/.

Asamar Bhasa by Dr. Bhimkanta Barua (first edition, 1990; students Emporium, Dibrugarh) is a general introduction to the languages spoken in Assam and its neighbouring states. Chapter IV has a part on Assamese language but there is no specialized treatment on different classes of speech sounds, or sound change and the cluster formations in the language.

Golok Chandra Goswami’s Asamiya Varna Prakash (second ed., 1990; published by Bina Library, Gauhati) is yet another book on the Assamese language that gives a definition of fricatives, their articulation process, the source of words containing fricatives etc. Modern laboratory equipments are not used in the analysis of the speech sounds.

Suniti Kumar Chatterji’s The Origin and Development of Bengali Language (1975 edition, published by Rupa & Co. Calcutta), first published in 1926, is the earliest and full length consideration of the growth of Bengali Language and a
description of the then language. Volume I, chapter V deals with sibilant fricatives. He holds the view that Bengali has only one sibilant phoneme which is /ʃ/, and /s/ is only a subsidiary form of /ʃ/ occurring in certain phonetic environment. The sound change from /ʃ/ to /x/ in East Bengali and Assamese is also part of this chapter. According to him, “Bengali has one sibilant phoneme, the palato-alveolar /ʃ/ and the dental or alveolar [s] is only a subsidiary form of it —-/ʃ/ normally becoming [s] when occurring before /t, d, n, r, l/. In East and North Bengali, of course, [ʃh] is reduced to [s]. The pure palatal sibilant is preserved in Bengali only among the Magadhan speeches.... In early Assamese, intervocal /ʃ/ became /ɦ/ and in recent Assamese single /ʃ/ initial or intervocal is pronounced as the gluttural spirant /x/.... It is only in West Bengali that the original Magadhi value is kept intact. In this point, more than in anything else, Bengali has remained faithful to the Magadhi character.... In fact [s] rather than /ʃ/ is till found among certain communities in Western Radha and elsewhere, although it is regarded as very vulgar in Standard Colloquial speech.” The voiced and voiceless varieties of /h/, their distribution, the dropping of /h/ in medial position, occurring alone or in clusters are also dealt with here. Chatterji has also traced the source of /ɦ/ and /h/ in this work. Another attempt he has made in this book is that he has made a frequency count to see the percentage of occurrence of all the consonants and finds
that /f/ has 3.64% and [s] has only 0.35% of occurrence.

In Sukumar Sen’s Bhashar Itibritta (1994 edition, published by Anand Publisher pvt. Ltd., Calcutta) chapter two has a part on sound changes. He has laid down two principles of sound change. The first is, sound change takes place in a particular language under certain conditions. In other conditions the change is not possible. The second is, sounds inside a word undergo changes according to definite rules. This book too clearly points out how sibilants are either modified or dropped in Bengali.

_A Bengali Phonetic Reader_ by Suniti Kumar Chatterji (1986 edition, published by Rupa & Co. Calcutta) describes the Bengali phonemes and deals with the sound attributes such as length, stress and intonation. Transcription of Bengali texts and finally a short list of vocabulary in transcription are given at the end. This book, originally published in 1928 in London, records the pronunciation of Bengali words of that time. In the section, ‘Details Regarding the Bengali Sounds and their Formation’, Chatterji has contradicted what he had said earlier in the _O.D.B.L_. There he treats /s/ as a subsidiary form of /f/ and not as a separate phoneme. But in this book he writes under section /s/, “occurs only before /t, th, n, l, r/; some might regard it as a subsidiary member of the /f/ phoneme, but since it occurs in foreign names, and since, at least in the speech of some, it would seem to distinguish words, its
recognition as a separate phoneme in Standard Colloquial Bengali is justifiable.”

In *Bengali and Other Related Dialects of South Assam* by S. S. Tunga (1995 edition, Mittal Publications, New Delhi) the author devotes chapter IV of this book to sound system where he draws lines of differentiation between Standard Bengali and Cachar Bengali with special reference to sound change in /k/, /tʃ/ and /p/ which are turned fricatives in Cachar Bengali. It is because of factors such as these that Cachar Bengali becomes even unintelligible to the speakers of Standard Bengali.

*A Comparative Grammar of East Bengali Dialects* by Gopal Haldar (first edition 1986; published by Puthipatra, Calcutta) is yet another book on East (Cachar) Bengali. After outlining the linguistic area, groups and varieties of East Bengali dialects in the ‘Introduction’, he devotes Part I of the book to Phonetics. Under the section, consonants, their distribution and modification, he discusses the fricatives. He traces the sound change of /ʃ/, the common variety of Eastern Prakrit, first to /h/ in Eastern dialects and from this to /x/ in Assamese. He asserts that this change was well established in East Bengali by the time of Sri Chaitanya Deva (1485-1533). According to him /ʃ/ is extremely rare in initial position and quite common in medial position.
Mike Davenport and S. J. Hannah's *Introducing Phonetics and Phonology* (1998, Arnold Publishers) has specified the distribution of all the fricatives and explained the variation in fricatives. Some of the sound changes in fricatives in English are dealt with here. The change of /v/ to /f/ when followed by a voiceless consonant, the elision of /θ/ and /ð/ when followed by /s/ and /z/, the dropping of /h/ in unstressed pronouns and auxiliaries etc. are discussed in this book.

In *Phonology in the Twentieth Century* (1985, The University of Chicago Press, Chicago and London) R. Anderson has traced the history of twentieth century phonology from Saussure up to the 1980s. In chapter twelve, the author considers the decline of American Structuralism and the ascendancy of generative phonology. The confrontation between the structuralists and the proponents of generative phonology like Chomsky and Halle and the final replacement of structuralism by generative model are considered at length. Chapter thirteen takes up the developments in this field after *The Sound Pattern of English* (1968). He says that this very year marked the beginning of reactions against the generative model. For instance Kiparsky's paper in that year asked the question, 'How Abstract is Phonology?' This was in response to the body of analyses represented by SPE and other generative works of the 1960s. His concluding remark is, "neither a theory of rules nor a theory of
representations constitute a theory of phonology by itself.”

An Outline of English Phonetics by Daniel Jones (1992 Indian edition, published by Kalyani Publishers, Ludhiana) is an introductory book to the learners of phonetics. Jones has used photographs showing the lip formation and strictures involved in the articulation of all the speech sounds. These are supplemented by diagrams wherever necessary. This book is of much use to the second and foreign language learners of English as the photographs showing the position of speech organs at the time of articulation tells him or her the accurate formation needed for acquiring the correct speech sounds of English. In describing each speech sound, Jones has pointed out the errors committed by foreign learners of English and has suggested appropriate remedial measures. For instance in the section dealing with the voiceless labio-dental fricative, /f/, he writes, “The Japanese generally replace /f/ by a breathed bilabial fricative φ….. The error may be remedied by holding the upper lip out of the way, and practising the sound with the lower lip firmly pressed against the upper teeth.”

In chapter VII of English Phonetics and Phonology: An Introduction by Philip Carr (1999, Blackwell Publishers, Oxford) the author explains the syllable structure, the knowledge of which is essential in drawing the syllable boundaries. While deciding whether a consonant sequence is a cluster or not it is of immense help. If two
or more consonants fall within the same syllable only the sequence becomes a cluster. He writes, "The two main constituents within a syllable are the onset and the rhyme. In the word 'bile', for instance, the first segment /b/ constitutes the onset of the syllable and the last two segments /ai/ and /l/ taken together, constitute the rhyme." He has given a number of reasons for justifying this kind of division. "The rhyme may be further subdivided into constituents nucleus and coda. Thus in the word 'bile' the diphthong /ai/ constitutes the nucleus, and the consonant /l/ constitutes the coda." Secondly he has enumerated and explained the universal principles of syllabification such as the sonority scale principle and the maximal onset principle. Applied to a syllable structure sonority scale implies that the most sonorous element in a syllable will be located within the nucleus, and that the further one gets away from the nucleus, the less sonorous are the segments. Maximal onset principle means that where the language specific phonotactics will allow for two or more syllabification across a syllable boundary, it is the syllabification which maximizes the material in the following onset which is preferred.

*Universals of Human Language* Ed. by Joseph H. Greenberg Vol. II (Phonology) (1978, Stanford University Press, Stanford) has one essay by the editor himself entitled 'Some Generalizations Concerning Initial and Final Consonant Sequences' which has brought out many
generalizations regarding the possible consonant sequences. One such generalization is: ‘Every initial or final sequence of length \( m \) contains at least one continuous sub sequence of length \( m - 1 \). Forty such generalizations are given in this essay. Distinctive features of the various elements of the consonant sequences too are given here.

In *A Course in Phonology* by Iggy Roca and Wyn Johnson (1999, Blackwell Publishers, Oxford), the authors have devoted the first chapter of their work to ‘The Production of Obstruents’ where they discuss all the fricatives of English. The strictures formed in the production of various fricatives are shown with the help of diagrams. Chapter nine and ten are devoted to syllable and syllable complexity. Most of the things discussed here like onset, rhyme, nucleus, coda, sonority scale, maximal onset principle etc are presented likewise in Philip Carr’s *English Phonetics and Phonology* (1999).

The *Sound Pattern of English* by Noam Chomsky and Morris Halle (1968, Harper & Row Publishers, New York) was an interim report on work in progress and also the most conclusive response to the structuralist criticism. In chapter seven of this book, ‘The Phonetic Framework’, the authors consider the distinctive features in detail. They consider these features “to be the minimal elements of which phonetic, lexical, and phonological
transcriptions are composed, by combination and concatenation.” They say that the symbols used for transcription are nothing more than convenient ad hoc abbreviations for feature bundles. All the features of a speech sound taken together is called a ‘feature complex’ or a ‘unit’. The classificatory and phonetic functions of the distinctive features are clearly distinguished. In their classificatory function all features are strictly binary. But “as phonetic parameters, the distinctive features provide a representation of an utterance which can be interpreted as a set of instructions to the physical articulatory system, or as a refined level of perceptual representation.” The theory of distinctive features is more accurate and scientific than the traditional three-term label description of speech sounds.

In *Malayalam Verbal Forms* by Prabodh Chandran Nair (1972, Dravidian Linguistics Association, Trivandrum) the author has devoted a considerable part of this book to the study of the phonology of Malayalam. A lot of scientific methods are used in describing the articulation of speech sounds. Written in the Firthian framework, this book is one of the first books of its kind.

*The Phonetics and Phonology of Malayalam* by Tara Warrier (1976, unpublished M. Litt. dissertation, C. I. E. F. L., Hyderabad) is a scientific approach to the study of speech sounds of Malayalam. X-Ray photographs of the various strictures involved in the production of speech sounds of Malayalam are used to scientifically
determine the place of articulation. One of the rare works of its kind, this dissertation is of immense help to the students of Malayalam phonology.

In 'Sanskrit Influence on Malayalam' by Kunjunni Raja (1992, Indian Journal of Dravidian Linguistics, No. XXI vol. 2) the author has given enough and more examples of Sanskrit sibilants being either dropped in Malayalam or replaced by other speech sounds. This, he explains, was because of the fact that Malayalam didn’t have sibilants, and the present day sibilants in the language were borrowed from Sanskrit.

In Dravidian studies : Selected Papers by Emeneau M. B. (1994, Motilal Banarsidas Publishers Pvt. Ltd., Delhi) the author observes that the frequency of occurrence of fricatives varies from language to language, but one thing is certain and that is the most frequently occurring and common fricative is /s/. He says that the most pertinent study on fricatives is done by Nartey (1979). His data is based on 319 languages and he makes some valuable statements regarding the fricatives. In chapter 21, he deals with the Proto-Dravidian /tf/ and its developments. He writes, "Proto-Dravidian initial /tf/ is defined phonetically as a palatal affricate by comparative examination of the
phonetics of its continuants in the various languages. It is more complex than the other plosives, and is unstable and subject to simplification. This results in some languages in loss of the stop component, resulting in a sibilant, which is preferably the universally most favoured /s/ but in some Tamil dialects it is /s/. In some central Dravidian languages and dialects there is progressive development from s — to h — to zero.”

R. E. Asher and T. C. Kumari in their Malayalam (1997, Routledge, London and New York) has devoted Chapter III to Phonology. They state here that “underlying fricatives occur only in loan words. Three of the segments that have entered the language through the influx of Sanskrit namely /s, f, s/ are not differentiated in all dialects.” They have also indicated the position of occurrence of the fricatives in Malayalam. All of them occur only in initial and medial positions.

In Comparative Dravidian Linguistics: Current Perspectives by Bhadriraju Krishnamurti (2001, Oxford University Press) the author takes up the study of ‘Patterns of Sound Change in Dravidian’ in chapter eighteen. He classifies the major sound changes in Dravidian Languages into Historical and Typological kinds. “The historical changes are classified into (a) those internal to Proto-Dravidian and (b) innovations confined to major branches, sub-branches, and individual languages.” The different kinds of sound changes like the palatalization of velars, /tf/ changing into /s/ and this further changing into /h/ and finally this being dropped etc. are discussed here.