CRITICAL STUDIES IN THE PHONETIC OBSERVATIONS OF INDIAN GRAMMARIANS
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CRITICAL STUDIES IN THE PHONETIC OBSERVATIONS OF INDIAN GRAMMARIANS

BY

SIDDHESHWAR VARMA

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FOREWORD

The treatise is an attempt, for the first time in a modern language, to give a general conspectus of Indian phonetic literature.

The introduction (pp. 1-54) gives a chronological survey of Indian works on phonetics, fifty-five of which have been examined (cf. p. 29). Of these sixteen are absolutely new, being MS. works.

The main body of the treatise (pp. 55-187) is a critical examination of some of the phonetic opinions expressed in Indian phonetic literature and in the works of Pāṇini, Patañjali, etc. The treatise consists of eleven chapters (for detailed plan of these chapters see pp. 18 f.). Of these, the first four deal with the syllabication of sound-groups. Chapter V. examines the opinions on doubling. Chapter VI. on the pronunciation of ɣ and ŭ in different positions. Chapter VII. on Svarambhakti and its bearing on the dialects. Chapter VIII. examines the fundamental basis of the Indian theory of syllabication—viz., Abhinidhāna or incomplete articulation. Chapter IX. deals with nasalization—a striking fact in the living languages. Chapter X. discusses the opinions on the nature of accent. Chapter XI. describes the various views on quantity.

It has been shown that these opinions were on the whole sound, and that some of them may be helpful to modern linguistics (cf. pp. 19 f.).

SIDDHESHWAR VARMA.
## CONTENTS

**INTRODUCTION**

| Interest for Phonetics in Ancient India: Germs of this Interest in the Rgveda | 1 |
| Further Development of this Interest in the Aitareya Brāhmaṇa | 2 |
| Advanced Phonetic Observations of the Aitareya Aranyaka | 3 |
| The Theory of Syllabication | 4 |
| Nature and Scope of “Śikṣā”: its Four Meanings | 4 |
| (1) Rudimentary instruction in pronunciation | 4 |
| (2) General phonetics—as prototype of the Prātiśākhya Was the Pāṇiniya Śikṣā the prototype of the Prātiśākhya? | 5 |
| Its views on r, r, and l radically diverging from the Prātiśākhya | 5 |
| (3) Specific contributions to phonetics | 11 |
| (4) Śikṣā sometimes meaning “Prātiśākhya” | 12 |

| The Nature and Scope of the Prātiśākhya | 12 |
| Their Relation to Grammar | 13 |
| The Object and the Plan of the Present Treatise | 16 |
| Some of the Phonetic Suggestions of the Indian Grammarians may be Helpful to Modern Linguistics | 19 |
| Chronology of Indian Literature on Phonetics: its Difficulties | 20 |
| An Important Passage in Patañjali’s Mahābhāṣya, and its Bearing on the Chronology of the Prātiśākhya | 21 |
| The Prātiśākhya placed in Chronological Order | 21 |
| Anteriority of the Kernel of the Taitt. Prāt. to Pāṇini | 22 |
| Stamp of Recency in Certain Portions of the Taitt. Prāt. Rg Prāt. Anterior to Taitt. Prāt. | 23 |
| Atharv. Prāt. not Positively the Latest Prātiśākhya | 25 |
| The Rktaṃtravyākaraṇa, and its Reference to Skr. as “Bhāṣā” | 27 |

vii
<table>
<thead>
<tr>
<th>Conclusion on the Chronology of the Prātiśākhyaś</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty of Definitely Accepting their Anteriority or Posteriority to Paṇini</td>
<td>27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronology of the Śikṣās</td>
<td>28</td>
</tr>
<tr>
<td>General Characteristics of the Śikṣās</td>
<td>29</td>
</tr>
<tr>
<td>Classification of the Extant Śikṣās</td>
<td>30</td>
</tr>
<tr>
<td>Śikṣās of the White Yajur Veda</td>
<td>30</td>
</tr>
<tr>
<td>The Yājñavalkya Śikṣā</td>
<td>30</td>
</tr>
<tr>
<td>The Pārāśarī Śikṣā</td>
<td>32</td>
</tr>
<tr>
<td>The Māṇḍavī Śikṣā, and its Bearing on Dialects Confusing $v$ and $b$</td>
<td>33</td>
</tr>
<tr>
<td>The Maḍhyandini Ś.: its Attempt to Distinguish between Velar $k̄$ and Cerebral $ṣ$</td>
<td>34</td>
</tr>
<tr>
<td>The Varṇa-ratna-dīpika Ś.</td>
<td>34</td>
</tr>
<tr>
<td>Śikṣās of the Black Yajur Veda</td>
<td>36</td>
</tr>
<tr>
<td>The Cārāyaṇīya Śikṣā</td>
<td>36</td>
</tr>
<tr>
<td>Śikṣās of the Taittirīya School, and their Importance</td>
<td>37</td>
</tr>
<tr>
<td>The Bhāradvāja Ś.</td>
<td>38</td>
</tr>
<tr>
<td>The Vyāsa Ś.</td>
<td>39</td>
</tr>
<tr>
<td>The Śamīhu Ś.</td>
<td>39</td>
</tr>
<tr>
<td>The Sarvasammata Ś. being an Entirely Different Work from the One Published by Franke</td>
<td>41</td>
</tr>
<tr>
<td>The Siddhānta Ś.: its Chronological Importance</td>
<td>43</td>
</tr>
<tr>
<td>The Āpiśali Ś.</td>
<td>44</td>
</tr>
<tr>
<td>The Kālanirṇaya Ś.</td>
<td>45</td>
</tr>
<tr>
<td>The Pārī Ś.: its Authorship a Curiosity</td>
<td>46</td>
</tr>
<tr>
<td>The Vaidikābharana: its Importance for the Study of the Śikṣās</td>
<td>47</td>
</tr>
<tr>
<td>The Nārada Ś.: its Chronological Relation to the Saṃgīta Ratnākara and Bharata’s Nāṭya Sāstra</td>
<td>48</td>
</tr>
<tr>
<td>The Lomaśi Ś.</td>
<td>50</td>
</tr>
<tr>
<td>The Gautamī Ś.</td>
<td>51</td>
</tr>
<tr>
<td>The Māṇḍuki Ś.</td>
<td>51</td>
</tr>
<tr>
<td>General Remarks on the Chronology of the Śikṣās: they seem to record a tradition much older than the form in which they appear to us at present</td>
<td>52</td>
</tr>
<tr>
<td>Geographical Data</td>
<td>52</td>
</tr>
</tbody>
</table>
CONTENTS

CHAPTER I.—THE SYLLABLE

| Definition of the Syllable. The Vowel said to be its Essence | 55 |
| Relation of the Vowel and the Consonant in Syllabication. The Consonant a more "Dependent" Sound | 56 |
| Criticism of the Indian Theory | 56 |
| Probable Meaning of "Svara" and "Vyanjana" | 57 |
| Appendix A: The Svaravyanjana Š. on r as a Consonant and r as a Vowel | 58 |

CHAPTER II.—RULES OF SYLLABIC DIVISION

| (a) Syllabication of Consonant+Vowel: Criticism of the Rule regarding Intervocalic Consonants | 61 |
| (b) Syllabication of Final Consonants. Soundness of the Indian View | 62 |
| (c) Syllabication of Consonant-Groups. The First Member of the Group went with the Preceding Syllable. Soundness of the Opinion as Confirmed by MSS., Inscriptions, and the Living Dialects | 62 |
| (d) Syllabication of Doubled Consonants. Sense in which this Division was Valid | 67 |
| (e) Syllabication of Plosive+Fricative | 71 |
| (f) Syllabication of Consonant+Semi-Vowel and Semi-Vowel+Semi-Vowel | 75 |
| (g) Syllabication of the Yamas. Interesting Divergence of Views implying Dialectical Variation | 79 |
| (h) Syllabication of the Anusvāra | 81 |
| (i) Syllabication of Svarabhakti. Svarabhakti said to be an Independent Syllable after the Svarita Accent | 83 |

CHAPTER III.—SYLLABIC QUANTITY

| Syllabic Quantity cannot be really Studied apart from Syllabic Division; hence Indian Grammarians have not accorded to it a Special Treatment | 88 |
| General Principle of Syllabic Quantity depended upon Duration, and was therefore Phonetically Sound | 88 |
| Conventional Rules were to be set Aside when Phonetically Necessary | 89 |
CHAPTER IV.—RULES OF SYLLABIC QUANTITY

Rules of Syllabic Quantity Fundamentally Sound ........................................ 91
Examples of the So-Called "Metrical License" from Buddhist Prosody .................. 91
Phonetic and Psychological Basis of Rhythm Pointed Out .................................. 93
Consonant-Groups Generally Make Position in Skr.; Statistics from the Śiṣupālavadha .............. 94
Consonant-Groups in Buddhist Skr. Prosody .................................................. 95
Pronunciation of Buddhist Literary Skr. Possibly Paved the Way for Prākrit ................ 98

CHAPTER V.—DOUBLING

Three Views on Doubling .................................................................................. 99
Doubling of Intervocalic Consonants: General Observations of the Vāj. Prāt. and the Śikṣās .... 100
A Survey of Original Doubling of Intervocalic Consonants in Primitive, Middle, and Modern Indian 101
Doubling of Final Consonants ........................................................................... 105
Doubling in Sandhi. The Cā. Śik.'s Observation that in Sandhi Final Consonants Were to Be Always Doubled. The Observation True of Academic Skr. .......................... 106
Definition of the "Saṃhitā" and the "Final" ....................................................... 108
Living Effect of Such Rules on Words Like uccaḥava- ........................................ 109
Limits of Doubling: "The Three Consonant Law" ............................................. 110
Enumeration of Consonants That Can Be Doubled ........................................... 113
s Said to Be Doubled Only in Two Skr. Words .................................................. 113
h Said to Be Sometimes Doubled ....................................................................... 115
Doubling After Long Vowels not Enjoined ....................................................... 116
Detailed Rules of Doubling: .............................................................................. 116
(a) General condition of doubling was vowel+consonant-group ................................ 117
(b) Doubling also said to occur after the Anusvāra .............................................. 118
(c) r+consonant .................................................................................................. 119
   l+plosive. General confirmation of the opinions .............................................. 120
(d) plosive+plosive. Rule confirmed by the living dialects ................................. 120
Reason why MS. Doubling in Skr. sapta- is really a precursor of doubling in Prakrit satta- 121
(e) A breathed plosive to be inserted in fricative+nasal consonant, viṣṇu- to be pronounced viṣṇu- 124
Interesting Suggestions from this Observation 124

CHAPTER VI.—THE PRONUNCIATION OF Y AND V IN DIFFERENT POSITIONS

y and v were said to be of three kinds each: "Heavy" (initial), "Light" (medial), and "Very Light" (final) 126
The Initial of Enclitics was said to be "Light" 126
Further Details regarding certain Prefixes, etc. 127
General Accuracy of these Observations 128
Intervocalic v, or v, the product of Sandhi, said to be "Very Light" 129
Conclusion 131

CHAPTER VII.—SVARABHAHTI

Why Indian Grammarians particularly noticed Svarabhakti before the Fricatives 133
Why Svarabhakti did not Occur when the Fricative was followed by a Consonant 135
Divergent Rules on Pronunciation of Svarabhakti based on Dialectical Variations 135

CHAPTER VIII.—ABHINIDHÂNA (INCOMPLETE ARTICULATION)

Various Terms Used for the Phenomenon of Incomplete Articulation 137
The Phenomenon Generally Described 137
Sound-Groups or Sounds in which it was said to Occur:

(1) Plosive+plosive 138
Three different views on this 138
Probable accuracy of the observation 139

(2) Finals 140

(3) Variation of Abhinidhana among individual consonants 142

(4) Consonant-groups figuratively described in various ways, but their meaning obscure 145
CHAPTER IX.—THE ANUSVĀRA

Three Views on the Anusvāra

(1) As a nasalized vowel

(2) A vowel or a consonant: both tendencies observed by Rg Prāt...

(3) "A consonant or half g"—as confirmed by inscriptions and modern Indian languages

In Pre-Classical and Classical Skr. the Consonantal Element of the Anusvāra was more Predominant, but in the Later Development of the Language it has tended more towards the Vocalic Side

PAGE
148
148
150
151
154

CHAPTER X.—THE NATURE OF ACCENT

Accent was said to be Musical. The Seven Notes of the Musical Scale "Arose" from the Three Accents

Connection between Speech and Song distinctly Noticed

The Low Accent was sometimes said to be "Sung very High," while in Certain Musical Connections the udātta became "the Highest"

Part of the Breath in Accentuation

The "Altitude" Theory of Accent

Part of the Eye and the Nose in Accentuation

Accent and Quantity: Long Penultimate, Unaccented Final; Short Penultimate, Accented Final

Longer Duration of Consonants after the Svarita

PAGE
156
157
161
162
164
165
166
168

CHAPTER XI.—QUANTITY

Three Kinds of Speech—viz., Quick, Intermediate, and Slow: Measurement of their Ratios

Intermediate Speech the Basis of Quantitative Measurement

Quantity Independent of Quality

Rate of Speech does not Affect Continuity of Sounds

Patañjali's Interesting Observation on the Partial Vocalization of an Intervocalic Breathed Consonant

Standards of Quantity

PAGE
170
171
171
172
173
174
176
CONTENTS

RULES OF QUANTITY ....... 178
(1) Quantity of vowels .... 178
Four quantities of vowels recognized, including ksipra, the half-long vowel .... 179

WHICH ELEMENT OF THE DIPHTHONGS ai AND au WAS TO BE LENGTHENED IN PLUTI? .... 180

CONDITIONS UNDER WHICH THE Pluta OCCURRED .... 181
(2) Quantity of consonants .... 183
(3) Quantity of the "pause" .... 185
(4) Quantity of the Anusvāra—said to be short after a long vowel: evidence of the living dialects .... 186

CONCLUSION .... 188

INDEX OF WORDS QUOTED FROM INDIAN GRAMMATICAL WORKS 189
LIST OF ABBREVIATIONS

Bloch ... “La formation de la langue marathe.” By Jules Bloch. 1915, 1919.
BSOS ... Bulletin of the School of Oriental Studies.
Cār. or Cārā. Cārṣyaṇḍya.
Chatterji ... “The Origin and Development of the Bengali Language.” 1926.
Cunningham ... “Inscriptions of Aśoka.” By A. Cunningham. 1877.
Geiger ... “Pāli Literatur und Sprache.” By Wilhelm Geiger. 1916.
Hultzsch ... “Inscriptions of Aśoka.” By E. Hultzsch. 1925.
IF ... Indogermanische Forschungen.
JRAS ... Journal of the Royal Asiatic Society.
Māṇḍū. ... Māṇḍūki.
MSLP ... “Mémoires de la Société de Linguistique de Paris.”
Pāñ. ... Pāñini.
Pār. or Pārā. Pārāśāri.
Pischel ... “Grammatik der Prakrit-Sprachen.” By R. Pischel. 1900.
Rāṣṭrp. ... Rāṣṭrapālappariprcehā. Ed. L. Finot (Bibliotheca Buddhica). 1901.
Ṛg Prät. ... Ṛgveda Prātiṣākhya. Ed. Max Müller. 1870.
Ṛkt. ... Ṛktantravyākaraṇa. Ed. A. C. Burnell. 1879.
Siddh. ... Siddhānta.
Ś. or Śik. ... Śikṣā.
SS ... Śikṣāsaṅgraha. Benares Sanskrit Series. 1893.
Śkm. ... Śikṣāsamuccaya. Ed. C. Bendall (Bibliotheca Buddhica). 1897.
Taitt. Prät. ... Taittirīlya Prātiṣākhya. (Bibliotheca Sanskritica.) 1907.
Varṇ. or Varṇa. Varṇa-ratna-dīpikā.
Vedica ... “Vedica und Verwandtes.” By T. Benfey. 1877.
Wackernagel ... “Altindische Grammatik” (Vol. I.). By J. Wackernagel. 1896.
Yājñi. ... Yājñavalikya.
ZDMG ... Zeitschrift der Morgenländischen Gesellschaft.
CRITICAL STUDIES IN THE PHONETIC OBSERVATIONS OF INDIAN GRAMMARIANS

INTRODUCTION

The study of phonetics was pursued in ancient India with an interest which has few parallels in antiquity. The germs of this interest may be traced in the Rgveda, which dedicates two entire hymns\(^1\) to Speech. It mentions three stages in the development of language: (1) inarticulate speech, (2) primitive articulate speech, (3) language proper. As regards the first, it states\(^2\) that three out of the four grades of speech are “deposited in secret, and move not, being inarticulate”: the lowest grade of inarticulate speech, according to the explanation of the Satapatha Brāhmaṇa,\(^3\) being the hissing of serpents, or the humming of insects, etc., the next higher grade of inarticulate sounds being the notes of birds, and the third grade being the inarticulate speech of brutes. As regards the second stage, the Rgveda points out that the primitive articulations of speech were first employed by men in imparting names to objects,\(^4\) thus leading to the third stage—viz., language proper, which “was created by the wise,\(^5\) as men cleanse cornflour in a cribble.”

A strict cleavage between inarticulate and articulate speech may be open to question, for it is difficult to determine where inarticulate speech ends and articulate speech begins. Moreover, the creation of language by men, if strictly intended, may suggest that language was independent of natural development. With these reservations, the observation of the Rgveda was an interesting contribution to the early history of linguistics.\(^6\)

1 X. 71 and X. 125. 2 I. 164, 45. 3 IV. 1, 3, 16. 4 X. 71, 1. 5 X. 71, 2.
6 There is another well-known passage (IV. 58, 3) in which speech, according to Patañjali’s interpretation (cf. the introduction to his Mahābhāṣya), is compared to a bull, the sounds of which are attributed to three organs—viz., the lungs, the throat, and the head. But as the hymn in question is dedicated to gāṛTa, it is doubtful whether Patañjali’s interpretation was relevant.
A further development of this interest may be noticed in the Aitareya Brāhmaṇa, which attributes speech to Indra, and compares it to the ocean, on account of its inexhaustible nature. It prescribes that the stotriya verses should be recited in intermediate speech, which refines the soul, and its prescription of the nyūṅkha pronunciation indicates that the study of phonetics had reached a considerably advanced stage even during this period (circa 800-1000 B.C.), if the traditional data of the Āśvalāyana Śrauta Sūtra are based on the actual occurrence of the pronunciation in the time of this Brāhmaṇa. This pronunciation was prescribed during the recitation of certain verses on the fourth day of the Navarātra Ceremony. A single vowel was to be repeated sixteen times in varied quantity and accent. Thus the final o of āpo in āpo revdāḥ kṣāyathā was (1) first pronounced with a quantity of three moras and the high tone: 03; (2) then five times as a short unaccented vowel—half 0 or 0; (3) again like (1), i.e. 03; (4) again five times like (2), i.e. 0; (5) like (1), i.e. 03; (6) three times like (2), i.e. 0. So the final o of āpo in this particular recitation was pronounced as follows: 03 00000 03 00000 03 000.

As regards the half-quantity of o in āpo, cf. Patañjali, Mahābhāṣya (ed. Kielhorn, 1880), pp. 22, 117.

These data indicate that the study of phonetics was still subservient to the needs of the liturgy, but the minuteness of the details

2 XIII. 21: vāg vai samudro na vāk kṣīyate.
3 XII. 13: tāṃ mahāyāyā vācā śaṃsāyā ātmānam eva tat śaṃskṛte.
4 VII. II. Cf. Śāyaṇa on Ait. Br., XXI. 3; Keith on Ibid., p. 226.

The commentator (Āś. Śrau. Sū., VII. 11) speaks of the half o here as “alaukika”—i.e., not used in current speech (ardhaukāra-svarūpasyālaukikatvā).

Patañjali states in this passage that the Śatyamugri and the Rāṇāyaniya schools of the Śāma Veda pronounced e and o as short, viz. of half-quantity. According to Patañjali, this pronunciation was the regulation of certain Prātiśākhya (Pārśada) or phonetic schools of the Śāma Veda only: “Neither in the world, nor in any other Veda, does there exist a half e or a half o.” In other words, the shorter quantity of e and o was only dialectical (cf. the above footnote).

Nam asa bhoś chandroforgettable śatyamugri-rāṇāyaniyā ardham ekāram ardham okāram caḥhiyate “sūjate e dāvasūnte” (Śām. V., I. 5, 1, 4, 3), “ādhyāyro o ṛdhibhiḥ satam” (I. 6, 1, 2, 3), “sukṛm t e anyād yataṁ t e anyād” (I. 1, 2, 3, 3), iti, pārśadaksārip eṣā tatrābhavatāṁ, naiva hi loke nānyayamin vede ‘ṛdha ekaro ‘ṛdha okāro ’eti.
suggests that the interest for phonetics had reached a further stage of development.

This taste grew during the period of the Aitareya Āranyaka, which describes various sounds in terms of different objects in nature.

The following may be of interest:

1. It compares the consonants to the nights, and vowels to the days, presumably owing to the superior perceptibility of the latter in normal speech.

2. Again, the consonants are compared to the body, the voice to the soul, and fricatives to the breath. The comparison of the consonants to the body was apparently due to their inferior perceptibility, but the exclusion of breath from the soul of speech may appear to be primitive, unless it was an error of omission, as the Prātiśākhyas include both breath and voice in the "sound-material" (anupradāna). Nevertheless, the Āranyaka does not neglect breath, for it connects it with the fricatives in which breath is prominent. It ascribes to breath a position inferior to voice, because the former is more tangible.

3. In another passage, the plosives are said to be a form of the earth, the fricatives of the atmosphere, and the vowels of the firmament. Here the comparative solidity of plosives presumably called forth the analogy of the earth; the predominance of breath in the fricatives, that of the atmosphere; and the superior perceptibility of the vowels recalled the brightness of the firmament.

4. Again, in another passage, the fricatives are compared to breath, plosives to the bones, vowels to the marrow, and semi-vowels to flesh and blood. The first two comparisons are evident, but the last two are obscure, for the vowels, being more perceptible, should have been compared to flesh and blood, and not to the marrow. Perhaps the analogy of "support," as in the "bones" corresponding to the plosives, is continued in these two comparisons: the marrow was possibly conceived of as being the "support" of flesh and blood, and consequently the vowel, being the basic sound in the Indian theory of syllabication, was compared to the marrow.

5. But another remarkable passage indicates that phonetics had

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1 II. 2, 1. Cf. Keith ad loc., whose translation has been consulted.
2 Ibid., op. cit.
3 Rg Prāt., XvII. 1; Tatt. Prāt., XXIII. 2.
4 III. 2, 5.
5 III. 2, 2.
reached a very advanced stage during this period (circa 800-700 B.C.)
It gives us three theories of syllabication, in connection with the
definition of Saṃhitā. The following definitions of Saṃhitā have been
given:

(a) Saṃhitā was the interval between two syllables. This was
rather indefinite, for it throws no light on the nature of the interval,
and it suggests that the syllables in juxtaposition were independent
unities. If this meaning was intended, it was a primitive theory of
syllabication.

(b) Saṃhitā was the interval by which the accent or the quantity
of two syllables was distinguished. This was a more satisfactory
definition, owing to inclusion of accent and quantity, which play an
important part in syllabication.

(c) Saṃhitā is a pronunciation of two syllables which are neither
entirely separated nor united. This indicates a view of syllabication
which will be generally accepted by modern science. For the basic
principle of syllabic division is relative, the hearer perceiving a break
in the chain of prominence in connected speech. What may be the
end of a syllable to the perception of one hearer may be the con-
tinuity of the syllable to another hearer, though all hearers may be
agreed as to where occur very prominent breaks in the chain of speech.

These observations, then, indicate how far advanced was the study
of phonetics in India as early as 700 B.C.

Nature and Scope of "Sīkṣā."

But the Aitareya Āraṇyaka does not give any designation for
phonetics, the specific term for which has been "sīkṣā," and four
stages in the development of its scope may be mentioned:

1. Originally, the term seems to have been restricted to rudimentary
instruction in pronunciation, as the literal meaning of the word implies.
This scope is first mentioned in the Taitt. Upaniṣad,1 and included
instruction in individual sounds, accent, quantity, and chanting of
Vedic verses. This sense of the term has been pointed out by various
commentators such as Viṣṇumitra,2 Sāyaṇa,3 and Madhusūdana
Sarvasvātī.4

1 I. 2.
INTRODUCTION

2. In the next stage the scope of "śikṣā" was further developed into "general phonetics." We find the term used in this sense in the Vāj. Prāt., which speaks of the sounds "prescribed by the śikṣā," and further specifies those sounds as treated in the Vāj. school. As will be presently shown, "śikṣā" implied "general phonetics," while "prātiśākhya" signified "applied phonetics." In the second stage, then, śikṣā emerged from a schoolmaster's vocation to those general principles of phonetics which were further applied by the Prātiśākhyaśas to the various Vedic texts with which they were concerned. It is a significant fact that Pāṇini's list of Kramādīgāṇa, which enumerates five subjects, keeps "śikṣā" apart from "krama" and "pada," which therefore, were beyond the scope of Śikṣā proper.

The important question now arises, whether we can at present identify any śikṣā text or texts which offered to the Prātiśākhyaśas the general principles of phonetics. The answer is No! so far as the Śikṣās, as we find them in their present form, are concerned. Tradition ascribes the position of the Vedāṅga to the Pāṇiniya Śikṣā. Thus Madhusūdana Sarasvatī states that the Śikṣā common to all the Vedas is the one propounded by Pāṇini in five sections, beginning with the words "atha śikṣāṃ pravakṣyāmi," etc., while Rāmaṅkarṣaṇa in his introduction to Pāraskara Gṛhya Śūtra speaks of this Śikṣā as the "basic Śāstra"—mūlāgama.

There are indications, however, that the Pāṇ. Śik. was not the Śikṣā to which the Vāj. Prāt. refers:

(a) Tradition ascribes the authorship of the Pāṇ. Śik., not to Pāṇini, but to Piṅgala, who was said to be "younger brother" to Pāṇini. Thus the opening verse of the Śikṣāprakāśa, a commentary on the Pāṇ. Śik., says: "After expounding the Śūtras of Piṅgala, I shall explain his Śikṣā, which follows the opinion of Pāṇini," and then speaks of Piṅgala as "being directed by his elder brother (Pāṇini), and as being his follower in grammar." Now if Piṅgala's authorship of the

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3. Prastāhāndaheda, p. 16.
5. SS, p. 385: Vyākhyāya piṅgalācārya-sūtrāṇy ādau yathāyatham, śikṣān tadiyāṃ vyākhyāye pāṇiniyūnāsūrinīṃ, jyeṣṭha-bhṛtṛbhīr vīhito vyākaraṇe 'nujānus tatrābhaga śārpiṅgalācārayah. Śadguruśīsya also speaks of Piṅgala, as younger brother of Pāṇini (Weber, "Ind. Stud.", VIII. 160).
Sikṣā be accepted—and there is nothing against the acceptance of the tradition—it is hardly likely that he lived earlier even than the Prātiṣākhyas. For, firstly, his copious treatment of classical metre indicates that he did not precede the Prātiṣākhyas; and, secondly, the kernel of at least some of the Prātiṣākhyas being probably ante-Pāṇineyan (see p. 22), and Pīṅgala being admittedly post-Pāṇineyan, his date could not be earlier than the Prātiṣākhyas. Tradition is therefore unable to substantiate the fact that the Pāṇ. Sik. offered to the Prātiṣākhyas the principles of general phonetics. Nor are there any positive grounds for the supposition that the substance of this Sikṣā may have preceded the Prātiṣākhyas, for the same substance is common to several other Sikṣās as well, e.g. the Yājñ. Sik., the Nārada Sik., the Māṇḍū. Sik., and the Pār. Sik. The only positive assumption for which there is considerable probability is that the substance common to these Sikṣās may have formed the original text in question.

(b) But we have also interesting internal evidence indicating that the Pāṇ. Sik. was not the prototype of the Prātiṣākhyas. This internal evidence is that relating to the pronunciation of r, r, and l.

As regards r, all the Prātiṣākhyas state that its place of origin is either the teeth, the roots of the teeth, or the teeth-ridge, as the following details will show:

Rg Prāt.¹: Roots of the teeth: cr, according to some authorities, the teeth-ridge.
Vāj. Prāt.²: Roots of the teeth
Athārv. Prāt.³: Roots of the teeth, or a point close to the teeth.
Taitt. Prāt.⁴: The middle of the front of the tongue touches a point close to the teeth. The Vaidikāṇṭharaṇa⁵ thus explains the designation of r as repha: "it is called repha because it is pronounced like the sound of tearing ('ripping') a piece of cloth."
In other words, it was a rolled sound, and was therefore observed as a dental.
Rkt.⁶: The teeth or the roots of the teeth

² I. 28 and commentary. Cf. Whitney ad loc.
³ II. 41.
⁵ 8: repha mule vā (com.: rephas tu dantyo dantamule vā).
INTRODUCTION

We see, then, that according to all the Prātiśākhyaśas r was either dental or alveolar; but according to the Pāṇ. Śīk. it was cerebral.\(^1\)

Somewhat similar difference may be noticed regarding the pronunciation of r and l:

Ṛg Prāt.\(^2\): Both r and l velar (jihvāmūliya)—their place of origin being the root of the tongue.

Vāj. Prāt.\(^3\): r velar; l dental.

Atharv. Prāt.\(^4\): According to the commentary, both r and l velar.

Taitt. Prāt.\(^5\): Both r and l alveolar.

Ṛkt.\(^6\): r velar; l not located.

We see, then, that none of the Prātiśākhyaśas speaks of r as being cerebral, which the Pāṇ. Śīk.\(^7\) maintains. As regards l, the older and perhaps more correct opinion is expressed by the Ṛg and the Atharv. Prātiśākhyaśas, for they maintain it to be velar. But the Pāṇ. Śīk. holds it to be dental.\(^8\) Moreover, it seems that this difference between the articulation of r and l, as maintained by the Pāṇ. Śīk., was not held by the older grammarians of the Pāṇineyan school. For, commenting on Pāṇ. I. 1, 9, both Kātyāyana and Patañjali\(^9\) point out that a similarity between the articulation of r and l ought to have been laid down by Pāṇini in order that, as Patañjali illustrates it, the lengthening of r or l in the combination of hotr+lkāraḥ= hotṛkāraḥ or hotṛkāraḥ may be effected. It seems, then, that these grammarians followed the opinion of the Ṛg and the Atharv. Prātiśākhyaśas, according to which both r and l were velar sounds. The much later\(^10\) grammarian Bhaṭṭoji Dīkṣita slavishly records both the views side by side—viz., of Kātyāyana and of the Pāṇ. Śīk.—without noticing the contradiction\(^11\) involved.


\(^2\) I. 18.

\(^3\) II. 18.

\(^4\) I. 65, I. 69.


\(^6\) 4: jihvāmūle r kṛ.

\(^7\) syur mūrdhanyā ṛṭurasāḥ, ŚS, p. 379.

\(^8\) danyā Ṛtulasā smṛtāḥ, Ibid., p. 379.

\(^9\) Kāt.—ṭkāraḥkārayoḥ savarṇavidhikāḥ: Pat. kim pravojanam? ahaḥ savarṇaṃ dirgho vṛtyā syāt.

\(^10\) His date, according to Belvālkar (“Systems of Skr. Grammar,” pp. 46-47), is 1830 A.D.

There are, however, three Śīksās which prescribe the pronunciation of ī, ī and ī as maintained by the Prātiśākhyas. These are the Vyāsaśa Śīk., the Yājñ. Śīk., and the Varn. Śīk. Now the Vyāsa Śīk. does not seem to have been the prototype of the Prātiśākhyas, as it admittedly1 follows the Taitt. Prāt. The Yājñ. Śīk., in prescribing this pronunciation, actually quotes Vāj. Prāt. I. 65. The Varn. Śīk.5 seems to be a compilation, as a subsequent discussion will show.

Of the Śīksās which prescribe the pronunciation in question in accordance with the view of the Pān. Śīk. are the Āpiśali6 and the Cār.7 Śīksās. Now the Pān. Śīk. mentions the country of Surāṣṭra,8 corresponding to modern southern Gujrat, and at first sight it might appear as if the pronunciation in question of ī, etc., was current in this part of the country, or somewhere in the adjoining territories. But this illusion vanishes when we note that the Yājñ. Śīk.9 also, which prescribes the opposite pronunciation, gives a similar verse regarding Surāṣṭra. The earliest available record of the cerebral pronunciation of ī and ī may be noticed in the Varna-Sūtra of Candragomin,10 the lower limit of whose date, according to Liebich, was the seventh century A.D.11 It is possible that the later grammarians of the Pānineyan school and some of the Śīksās borrowed this opinion from Candragomin, whose work exercised considerable influence on the later development of Indian grammatical literature. That both the dental and cerebral pronunciations of ī and ī were actually current in certain areas of the country cannot be doubted. For corresponding to Sanskrit groups ī+t we have in some dialects it and in others īt̄, while corresponding to Skr. ī+t we have in western dialects i, u+t, in southern dialects a+t, and in eastern aṭ. Thus in eastern Aṣokan inscriptions

1 XXIV. 13, 14: madhyaantaḥḥyaḥ ca tālau ye rephe jihvāgramadhyataḥ, tākure dantamuleṣu jihvāgreṇopari svpatet.
2 ŚŚ, p. 33: aṣṭau dantyaḥ īvāṇa-lakāra-sakāra-tavargā iti, eko dantamulīyo rephaḥ, paṇca jihvāmulīyā ḍṛkkau (Vāj. Prāt., I. 65) kavargā iti.
3 ŚŚ, p. 110: ṛvarṇo 'tha kavargā ca jihvāmulīya eva ca, etc.
4 Lüders, Vyāsa Śīk., p. 4 ff. 
5 See p. 34.
6 21: ṛurasā mūrdhanyāḥ.
7 Fol. 2: mūrdhanyārasā jīneya dantyaḥ ṛulasāḥ emptāḥ.
9 ŚŚ, p. 27: also Nārada Ś., p. 435; Māṇḍū Ś., p. 473.
11 "Das Datum Candragomin's und Kālidāsa's," Breslau, 1903, p. 11.
and in Sinhalese we have vattati vatanu for Skr. vartta- (cf. Modern Bihari bāte, "he is"), but in West Aśokan and some of the western Indian languages we have the dental group tt, e.g. vattati, Sindhī vatanu. ¹ It is not unlikely, therefore, that the Pāṇ. Śik. was composed in an area connected with the eastern group of Indian languages, but as no definite geographical data are available from the Śikṣās, the matter is shrouded in uncertainty. At any rate, the above data seem to indicate that the Pāṇ. Śik. was not the prototype of the Prātiśākhyaas.

The Pāṇ. Śik. in a more concise form occurs in the Agni Purāṇa,² which, according to Wilson,³ was composed a little before the Muslim invasion of India. It has only twenty-two verses, while Pāṇini’s name is not even mentioned therein. The Śikṣā as published in Benares edition has sixty verses, and the beginning as well as the end refers to Pāṇini.⁴ It is possible, then, that the Pāṇ. Śik. in its present form was composed later than the Muslim invasion, and was adopted by the more recent grammarians of the Pāṇineyan school. But the earlier grammarians of this school hardly give any definite indications that they followed this Śikṣā only. On the other hand, Kaiyयaṭa’s reference to the eleven kinds of accessory movement⁵ in articulation indicates that he did not have the Pāṇ. Śik. in his mind, but possibly the Āpiśali Ś. For the Pāṇ. Śik., “like the Taitt. Prāṭ.,” classifies sounds on five principles—viz., accent, quantity, place of origin, effort (prayatna) and sound-material. But Kaiyyaṭa mentions eleven kinds of accessory movement (bāhya-prayatna) alone, which include, among others, breath, voice, closure, opening, and the three accents.⁶ Thus while the Śikṣā considers accent, breath-voice material (anupradāna), and articulatory movement as three different categories, Kaiyyaṭa brings these under “external prayatna”—a very unsatisfactory

¹ I owe the above data to Professor R. L. Turner.
³ JRAS, VI. 483.
⁴ ŚS, pp. 379, 383.
⁵ On Pāṇ., I. 1, 9: tatra pūram aprastadayah catvārah, paścān mūrdhāni prətihe nivṛtte prənākhya vayau vivṛādavyo bāhyā ekādasa prayatnā utpadyante.
⁶ ŚS, p. 379: svarālah kālalah sthanāt prayatnānupradānālaḥ.
⁷ XXIII. 2. The Taitt. Prāṭ.’s classification is slightly different: instead of accent it mentions closure (samsarga).
treatment indeed. Now this classification of external prayatna—attributed to organs other than the main articulating organs, the tongue, the lips, etc.—is given in the Āpiśali Ś.,¹ and as Āpiśali is traditionally said to be older than Pāṇini (see p. 44), Kaiyāṭa may have had this Śikṣā in his mind when he referred to the eleven kinds of external “effort.”

3. In the above paragraphs we have considered the second stage in the development of the Śikṣā when it offered to the Prātiśākhyaś the principles of general phonetics. But it should not be supposed that with the advent of the Prātiśākhyaś the observation of the general principles of phonetics was stopped. On the other hand, the Prātiśākhyaś seem to have further stimulated the interest for phonetics, and hence, side by side with the rigorous details of the Prātiśākhyaś which were called forth by the need for strict accuracy in the pronunciation of Vedic texts, there developed a minute observation of phonetic phenomena in their pronunciation of Sanskrit. The Śikṣās, as they exist in their present form, are not mere summaries of the Prātiśākhyaś. Many of them, as will be shown, can claim a number of distinct contributions to phonetics. A few of these contributions, rarely to be met with in the Prātiśākhyaś, may be mentioned:

A. Minute details regarding the general conditions of correct pronunciation.

According to the Yājñi. Ś. these are:

(a) Sound health; (b) calm temperament; (c) freedom from nervous-

¹ 32: kālo vivārah saṃvārah śvāsa-nāḍāv aghosatā ghoṣo 'lpaśraya-kāla'd ca mahā-
prāṇa-svarāstrayaḥ bāhyam karaṇam ābhaus tān varṇānām varṇa-vedināḥ. This would give twelve kinds of external prayatna, for they include quantity (kāla) also. Perhaps Kaiyṛaṭa further reduced it to eleven, or had another recension of the Śikṣā before him.

This “bāhya-prayatna” has also been mentioned by Candragomin (Candragoṭi, p. 516), but he gives only four kinds thereof—viz., viśītaḥ, saṃṛṣṭa, śvāsa, and nāda. This classification possibly offered material to the Pāṇi. Śikṣā. The eleven kinds of “bāhya-prayatna,” however, are mentioned by Jīnendrabuddhi in his Nyāsa (ed. S. C. Cakravarti, p. 56), whose date has been assigned to the eighth century A.D. (Belvalkar, “Systems of Sanskrit Grammar,” p. 38). His phraseology on this point (cf., e.g., sa eva prāṇo nāma vāyur ārdhavam ākraman mūrdhāni pratikato yadā koṣṭham abhiḥanti, etc., p. 56) somewhat resembles Kaiyṛaṭa’s (cf. footnote on p. 9), and Kaiyṛaṭa seems to have followed it. But whether Jīnendrabuddhi borrowed the idea (of these eleven kinds of external effort) from the Āpiśali Śikṣā or from some other source is a matter for further investigation.
ness; (d) abstention from omission of sounds, over-stress, singsong and faltering tone; (e) beginning and end of the speech to be consistently distinct; (f) abstention from habits of roughness, projecting the lips, indistinct pronunciation, nasal twang, broken speech, and rigidity of the tongue; (g) good teeth and lips. Among other essentials the Nārada Ś. mentions a clear throat, and recommends, on the authority of Audbrajī, the cleaning of the teeth and the throat with a twig-brush (danta-dhāvana).

B. Minute details regarding the relation of the vowel and the consonant (see Chapter I.). But for the data from the Śikṣās, this point would have remained much more obscure. It is important to note that for the explanation of all such subtle points the commentators on the Prātiśākhyaśyas rely upon the Śikṣās, which have thus proved guiding lights for advanced phonetics in India.

C. The nature of accent. While the Prātiśākhyaśyas are rather obscure, the Śikṣās throw definite light on the nature of Vedic accent. Thus the Yājñī. Śik. directly tells us that the Vedic accent was musical: “the seven musical notes mentioned in the science of music are exactly the three accents, udātta, etc., in the Vedaś.”

The Śikṣās also give interesting observations on the teaching of accent, and the relation of accent and quantity (see Chapter X.).

D. Quantity. Several remarkable observations of the Śikṣās in this connection will be examined in Chapter XI.

E. Svarabhakti as an independent syllable after the Svarita accent (see pp. 84-87).

F. The nature and quantity of Anusvāra and Raṅga (Chapter IX.).

G. Further development of observations on Abhinidhāna, consonant-groups, and doubling (Chapters VIII. and V.).

1 ŚŚ, pp. 3-4:

svasthaḥ pradānto nirbhito varṇān uccared budhaḥ
nābhyāhanyān na nirhanyān na āyena na ca kampayet.
yathādāv uccared varṇān tathaiva itān samāpayet.
na karālo na laṁboṣho nāvyakto nānunāsikāḥ
ghadgad baddhajīvaḥ ca na varṇān vaktum arhati.
prakṛtir yaṣya kalyāṇi dantoṣṭhau yaṣya sōbhanau
pragadbhaḥ ca vinitaḥ ca sa varṇān vaktum arhati.

2 ŚŚ, p. 443.
3 ŚŚ, p. 1: gāndharva-vede ye proktaḥ sapta padiṣṭhayaḥ svarāḥ, ta eva vede viññeyōs traya uccādyayaḥ svarāḥ.
4. The fourth scope of the term Śikṣā, not necessarily developed in a chronological order, was its identification with the treatises on applied phonetics—viz., the Prātiśākhyaśas. Thus Viṣṇumitra\(^1\) speaks of the Rg Prāt. as a Śikṣā Śāstra composed by Saunaka, while the Rg Prāt.\(^2\) speaks of itself as a Śikṣā of Sounds. It should be borne in mind that a hard-and-fast line between Śikṣā and Prātiśākhya was not possible. The authors of the Prātiśākhyaśas were themselves authorities on phonetics, and their minute observations on syllabication, accentuation, etc., are distinct contributions to general phonetics. There was, therefore, a close interaction between Śikṣā and Prātiśākhya, leading to the advancement of both. But when the term Śikṣā was applied to the Prātiśākhya, it was done so in a secondary sense, as our next discussion will show.

**THE NATURE AND SCOPE OF THE PRĀTIŚĀKHYAŚA.**

The original, and perhaps more significant, term for the Prātiśākhya was the Pārśada, and the commentators\(^3\) sometimes speak of the Rg Prāt. as a Pārśada. This name was said to signify that the treatise in question belonged to a social group (*pariśad*) or groups in which, among other things, the general principles of phonetics were adapted to Vedic texts, by oral instruction or public discussion. The term Pārśada indicates that for a long time these phonetic treatises were not put in writing. Hence the kernel of these works dates back considerably earlier than Yāska\(^4\) (circa 500 B.C.), who mentions them.

The term Prātiśākhya has been etymologically explained by Mādhava\(^5\) as a treatise "belonging to each individual (*prati*) branch or school (*śākhā")." This derivation, however, is not satisfactory; for it might suggest the existence of as many Prātiśākhyaśas as there were schools in the Vedas, and for this we have no evidence. The Vaidikā-

\(^1\) Rg Prāt. (Benares Edition), p. 10: *atha ācāryo bhagavān saunakaḥ...

\(^2\) XIV. 30:

\[ \ldots \text{nindanty akṣetneti ca varṇa-śikṣām} \]
\[ \ldots \text{kṛtenaṁ ca vedāṅgam anindyaṁ āryam}. \]

\(^3\) E.g. Viṣṇumitra, Rg Prāt. (Benares), pp. 1, 10.


\(^5\) Jñānendra Sarasvatī on the Siddhānta Kaumudi Pān., IV. 3, 59: *pratiśākhyaṁ bhavaṁ pratiśākhyaṁ...

\[ \text{iti mādhavaḥ}. \]
bharaṇa¹ gives the more probable suggestion that the “Prātiśākhya” referred to a group of Śākhās, “just as the Rg Prāt. pertains both to the Śākala and the Bāṣkala Śākhās.” The Vaidikābharaṇa stoutly combats the view that the examples quoted by the Taitt. Prāt., but not available in the extant texts of the Taitt. Samhitā, refer to the Jaṭā Pāṭha. These examples, it maintains, “belong to other (extinct) Śākhās of the Samhitā.”² The Prātiśākhya, then, was a treatise on phonetics applied to a group of schools of a particular Veda.

The basis of the Prātiśākhya, according to the Vaidikābharaṇa³ and Uvaṭa,⁴ was Śīksā and grammar. Concerning its relation to Śīksā, Uvaṭa points out that “sounds of the alphabet are taught in the world; the Rg Prāt. selects only those sounds of this alphabet which pertain to its own Śākhā.”⁵ The Vaidikābharaṇa⁶ throws further light on the point by stating that the “sounds enumerated in the Śīksās are common to secular and Vedic pronunciation; thus some Śīksās mention sixty-eight sounds and others sixty-four sounds, the Prātiśākhyaś specify the sounds peculiar to their Vedic texts.” Again, as Uvaṭa⁷ says, “In one Śīksā r is said to be cerebral, and in another dental. The Śīksās thus prescribe rules of pronunciation common to all the Śākhās, but do not specify in which Śākhā r is cerebral and in which it is dental. Now it is this specification which is made in the Prātiśākhya.” Unfortunately the Prātiśākhyaś do not help us to determine where to locate the cerebral pronunciation of r, for all of them prescribe it to be dental or alveolar. Nevertheless, it will now be clear that the Prātiśākhyaś presuppose a Śīksā or Śīksās of a general character. This is further corroborated by the fact that the Prātiśākhyaś do not actually enumerate the sounds of the alphabet, as Pāṇini does. Thus the Taitt.

⁵ Rg Prāt. (Benares), p. 21: upadiśa varṇa-samāṃnāyo laukiko vidyate, tatra yāvanto varṇaḥ asyāṁ sākhāyām upayoktyante . . ., etc.
⁷ On Rg Prāt. (Benares, p. 17): Cf. Max Müller ad loc.
Prāt.\(^1\) describes the sounds in this manner: “Now the first nine are simple vowels”; similarly the Rg Prāt.\(^2\): “In the beginning there are eight simple vowels,” without specifying what those vowels are. The pre-existence of a Śikṣā also seems to be confirmed by the observation of the Atharv. Prāt.\(^3\) that “the origin of accent is not seen in the Pada or the Saṃhitā texts.” As the relation of the Pada and the Saṃhitā texts was the main scope of the Prātiṣākhya, the Atharv. Prāt. probably refers here to those wider principles of accentuation which were embodied in the Śikṣas.

To sum up, then, the scope of the Prātiṣākhya was the specification and adaptation of sounds, prescribed by the Śikṣā. When, therefore, the term Śikṣā was used for the Prātiṣākhya, it was so employed in a secondary sense.

But now comes a somewhat surprising point. It is the above-mentioned observation of the Vaidikābhañāṇa and Uvaṭa that the Prātiṣākhya was based on grammar as well. In fact, the Vaidikābhañāṇa goes even further, and states that the Prātiṣākhya was predominantly grammatical. The reasons given by the Vaidikābhañāṇa are the following: (1) The Taitt. Prāt. sums up the items or general phonetics (quantity, accent, breath, voice, syllabication) at the end (in XXIV. 5), after the work is over. This indicates, says our commentator,\(^4\) that the work is not so much based on the Śikṣā.

(2) It is based more upon grammar, for the Taitt. Prāt., referring to its “predecessors,” says that in their opinion all syllables should be pronounced in a monotone. Now by “predecessors,” says the Vaidikābhañāṇa, “is meant the grammarians who composed the basis (viz., grammar) of this Śāstra, i.e., the Prātiṣākhya. For it is grammarians who prescribe optional monotone in the recitation of Vedic verses (cf. Pāṇini, I. 2, 34).”\(^5\) (3) The Taitt. Prāt. in another Sūtra\(^6\) states that the kampa accent is not prescribed by the preceding Śāstra.

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\(^1\) I. 2: aha navāstah samānākṣaraṇī.
\(^2\) I. 1: aśtau samānākṣaraṇy āditaḥ.
\(^3\) IV. 109.
\(^4\) śikṣā-ganopadipaśā tu kāryaṁ nātra samoghitam, vyākaraṇa-pradhānatvāt prātiṣākhyaṁ. On Taitt. Prāt., XXIV. 4; also on XIX. 5.
\(^6\) On Taitt. Prāt., XIX. 5: asya śāstrasya mūlabhātaṁ vyākaraṇaṁ pūrva-śāstram ity ucyate. 'asmin kampa na vidhiyate, sāksaci chikāyāṁ tu vidhiyate.
INTRODUCTION

Now by “the preceding Sästra is meant grammar, by which kampa is not prescribed. In Śikṣā, however, it has been directly prescribed.”

The arguments of the Vaidikābharaṇa, however, do not seem to be adequate, for the mere use of “predecessors” does not prove that it necessarily referred to grammarians. There is no doubt that the data regarding the monotone and kampa are true of the grammarians of the Pāṇineyan school; but this may have been a mere coincidence.

Nevertheless, it is an important observation; for it reveals the weakness of Goldstücker’s opinion that the Prātiśākhyaśas were entirely different from grammar, and that to treat them as grammar was a fallacy. Goldstücker’s main argument seems to be that tradition never considered them to be grammar; while here we have the authority of Uvaṭa and the author of the Vaidikābharaṇa, who relate them to grammar. Moreover, there is no doubt that the Prātiśākhyaśas take the ready-made word as the base; but, as Benfey has rightly pointed out, it was the grammatical form of words which constituted the basis for the phonetic observations of the Rg Prāt., and, as he adds, the Prātiśākhyaśas are based on grammar of a very advanced stage. Again, the observation of the two commentators is further corroborated by the very first Sūtra of the Atharva Prāt., which throws light on the basis of a Prātiśākhya. It says: “The object (of this treatise is to describe) the characteristic features of the four parts of speech—viz., the noun, the verb, the prefix, and the particle—in the Pada and the Samhitā Pātha.” And although this statement betrays the influence of a later stage in grammatical studies, it is a well-known fact that the Prātiśākhyaśas take the Pada Pātha as their basis. Had their foundation been only Śikṣā, they would have treated only individual sounds in relation to the Samhitā Pātha. But as they start from words in their strictly grammatical form—i.e., including the suffix and the termination—their basis was partly, though not entirely, grammatical. Whitney is therefore not right when he says that the Atharv. Prāt.’s mention of the four parts of speech was not relevant. But the Vaidikābharaṇa also stumbles into extremes by stating that the Prātiśākhyaśas are

3 I. 1.
4 On Atharva Prāt., I. 1. Whitney is more accurate in another passage (Ibid., p. 579) when he says that “the Prātiśākhyaśas are no complete grammatical treatises.”
predominantly grammatical. For they handle grammatical problems only incidentally,\textsuperscript{1} although, being partly based on and closely related to grammar, they gradually began to incorporate into themselves grammatical subjects.\textsuperscript{2}

**THE OBJECT OF THE PRESENT TREATISE.**

In the above pages we have traced the general trend of phonetic studies in India, with special reference to the leading features of the specific literature on the subject. As regards the title of the work, "Critical Studies in the Phonetic Observations of Indian Grammarians," the word "grammarians" is taken in a wider sense including works on grammar proper (such as Pāṇini's) and on phonetics.

The primary object of the present treatise is a critical and connected study in the phonetic observations of Indian grammarians. But its secondary object is also to show—

1. That the phonetic views of Indian grammarians were not fanciful speculations, but on the whole, sound and accurate observations.
2. That the language which they dealt with was not a grammarian's language, as Benfey and Whitney supposed,\textsuperscript{3} but a living language.
3. That this language, spoken by the educated classes,\textsuperscript{4} was not a merely religious or imperial language 'superposed' upon the people, but rather a secondary language used by the educated classes, both for literature and conversation, general as well as technical.
4. That the accuracy of our grammarians' observations regarding the pronunciation of Sanskrit as defined in the above paragraph is generally corroborated by (a) the phonetic structure of Skr., particularly Sandhi; (b) the evidence of inscriptions; (c) parallel phenomena in the living dialects; and (d) the principles of linguistics.
5. That, therefore, the Prātiśākhya were not "dead Prātiśākhya" composed for "priests who had to be drilled into a proper recital of the sacred texts," and do not indicate "a time of degeneration

\textsuperscript{1} Max Müller, "Hist. of Anc. Skr. Litt.," p. 120.
\textsuperscript{2} Weber, "Ind. Stud.," IV. 76 ff.; Lüders, Vyāsa Śik., pp. 102-3.
\textsuperscript{3} Liebich, "Pāṇini," p. 44.
\textsuperscript{4} "Hochindisch," as Liebich calls it (Ibid., p. 48).
after Panini,” as Goldstücker\(^1\) supposes, but manifest a thrilling
interest in the living phenomena of the language.

6. That our grammarians show not only accurate observation generally,
but have also observed some of the most important phonetic
facts of Indo-Aryan languages, some of which may be helpful to
modern philology (cf. p. 19).

7. That if the morphology of the language dealt with by Pāṇini was
that of a living language, as Liebich\(^2\) has shown it from the evidence
of grammatical structure, its phonology, as handled by Pāṇini and
the Prātiśākhyaśas also referred to a living language.

As regards the plan of the present treatise, it follows the recent
methods of comparative philology. Thus if the phonology or the
morphology of a standard dead language as noticed by its grammarians
was actual, it should be not only confirmed by a copious number of
occurrences in its structure, but must be reflected in the living dialects.
The method followed, then, is twofold—direct and indirect. The former
resorts to Skr. inscriptions, MSS., etc. The latter is “dialectal,”
which has no doubt its limitations, especially when the opinions of
grammarians are to be considered. For, firstly, some of the “living
dialects” are also now dead languages, so that the actuality of their
forms should be further corroborated by the parallel forms in the modern
languages—an infinitely vast work; and, secondly, whenever gram-
marians step in, they tend to obscure the natural history of a standard
language. Vendryes\(^3\) aptly compares them to “the cold which pro-
duces the ice that restrains the flood of a stream.” For the gram-
marians’ motive is to guard the language against provincialism; and it
may then be expected that the pronunciation prescribed by them would
be different from the living dialects. But these drawbacks may be
counterbalanced by some advantages. As regards the first, the task
is facilitated by the results already established by the philology of
modern dialects; and as regards the second, our grammarians have

\(^1\) The remarks of this close scholar of Skr. grammarians on the Prātiśākhyaśas
are so astounding, that they may be quoted here more fully (Ibid., p. 198):

“In the Prātiśākhyaśas there is mechanism and death... linguistic death
reigns in these Sūtras”... “they (i.e., the priest) had none of the spirit,
learning and intelligence which Patañjali would wish... “... between
Pāṇini’s living grammar and these dead Prātiśākhyaśas there lies a space of time
sufficient to create a want.”... 

\(^2\) Ibid., pp. 48 ff.

\(^3\) “Language,” p. 276.
fortunately observed important facts of the language which could not but be reflected in the dialects, and they have also given us minute details on mispronunciation of Sanskrit, which betray the actual dialectical tendencies of the people.

**The Plan of the Present Treatise.**

The treatise consists of eleven chapters:

*Chapters I.-IV.*—The first four chapters deal with the syllabication of sound-groups. The reason for devoting so much space to this item is that a fundamental basis of linguistic change is the variation in the affinity of one sound for another. For, as Tucker¹ has pointed out, “in language proper single sounds are not articulated independently, but in combination with others. . . . Hence a change of one sound in such a breath-group may induce a change in another sound of that group, not because of any difficulty in regard to the latter sound in itself, but because in this particular conjunction it becomes less congenial than some other.” It will be shown in these chapters that the leading features of syllabication observed by Indian grammarians have been a great fact in the history of the language—a fact² which distinguishes Indo-Aryan from Avestan. Chapter I. states the basic principle of syllabication; Chapter II. examines the detailed rules of syllabic division; Chapter III. states the general principles of syllabic quantity, with reasons for its separate treatment; and Chapter IV. examines the detailed rules of syllabic quantity.

*Chapter V.*—The main evidence for the accuracy of these rules on syllabication has been doubling, and so the opinions of our grammarians on doubling will be examined in Chapter V. It will be shown that, on the whole, the diversity of opinion was based on living facts. These new data would effect a solution of Whitney’s difficulty when he remarked:

“Thus is brought to an end the tedious subject of duplication, the physical foundation of which is the obscurest, although the pains with which the Hindu Śākhinaḥ have elaborated it, and the earnestness with which they assert their discordant views respecting it, prove that it had for them a real, or what seemed like a real, value.”³

¹ “Natural History of Language,” p. 289.
² I owe this suggestion to a private communication from Professor Meillet.
³ Tuit. Prāt., p. 313.
Chapter VI.—Another linguistic fact noted by them was the pronunciation of \( y \) and \( v \) in different positions, and this will be considered in Chapter VI.

Chapter VII.—An examination of some of the views on Svarabhakti and their bearing on the dialects.

Chapter VIII.—But the grand fundamental basis of all the above-mentioned views was Abhinidhāna, examined in Chapter VIII.

Chapter IX.—Another fact in Indo-Aryan languages has been nasalization. The nasalization of finals in Indian languages has been noticed by phoneticians from Śākalya\(^1\) to Daniel Jones.\(^2\) These nasal sounds will be described in Chapter IX., under the heading "Anuvāra." When anusvāra arose before a fricative, it was a case of abhinidhāna.

Chapter X.—Another important fact definitely pointed out by the Śikṣās was the musical nature of accent, dealt with in Chapter X.

Chapter XI.—But by far the most remarkable proof of our grammarians' accuracy is their description of quantity, examined in Chapter XI.

It has been hinted above that some of the phonetic suggestions of Indian grammarians may be helpful to modern linguistics. A few of these may be mentioned:

1. The short quantity of the anusvāra after a long vowel (see p. 187) will explain why some of the modern Indian vernaculars have long vowel without the anusvāra, corresponding to Skr. long vowel + anusvāra. Thus Nepāli, Panjabi have mās, Siṅā mos, for Skr. māṃsa-, but after the original short vowel the anusvāra has been preserved, as in Panjabi vāṅjh for Skr. vamśa-.

2. The insertion of a plosive in the group fricative + nasal consonant (see p. 123) will explain modern Indian forms like viṭṭhal for Skr. viṣṇu-, kiṭṭ for krṣṇa-, and forms like aphe, tuphe (see p. 124) for Skr. asmān, yuṣmān occurring in Aśokan inscriptions.

3. The divergent treatment of Skr. plosive + nasal consonant may well be explained by the observations on the Yamas (see p. 80). Thus Pāli pañña for Skr. prajñā, but soppā for Skr. svapna-, may be explained on the ground that in some dialects there existed an actual tendency

\(^1\) Rg Prāt., I. 26; Pāṇ., VIII. 4, 57.

\(^2\) He tells me in a private communication that Indians have a general tendency to nasalize final vowels.
for strong nasality, the observation of which led some grammarians to
the view that the Yamas belonged to the preceding syllable, while
the opposite tendency, which led to the opposite view, also existed.

4. The divergent treatment of Skr usava- as uccaça- in Māgadhī,
but ussava- in Ardhamāgadhī, may be explained on the ground that
in the former case (uccaça-) the doubling of semi-finals was either
parallel to, or possibly the effect of, the academic pronunciation of Skr.
—as, for instance, enjoined by the Cār. Śik. (see pp. 106, 109) that
the final consonants in Sandhi were to be doubled.

Chronology of Indian Literature on Phonetics.

Chronology in this line, like Indian chronology in general, is ex-
tremely obscure, and nothing can be asserted with certainty. The
question, in fact, is even more difficult than chronology in several
other lines, because phonetics being par excellence a subject for oral
instruction, any particular treatise may have been put into writing
far later than the period of its actual propagation; and it is impossible
to determine how many stages of development each treatise has under-
gone. The main arguments have been hitherto based on (1) gram-
matical terminology used by the treatises in question, (2) style,
(3) authorities quoted. As regards the first point, Whitney¹ has rightly
pointed out that the appearance in a Prātiśākhya of a later phase
of grammatical phraseology is not a necessary evidence of its later
composition, and he goes even so far as to say that discussions on this
point are “nearly barren of any positive results.” In order that the
chronological data may have even a relative value, many more things
than mere terminology or style have to be taken into account. Never-
theless, considering the fact that research in the chronology of authors
like Kālidāsa and Bhāsa is being kept up, although they have said
little about themselves, the following pages may perhaps throw more
light on the subject, although they do not claim any positive results.

Chronology of the Prātiśākhya.

A definite starting-point for the chronology of the Prātiśākhya is
the date of Patañjali, who admittedly² lived about 150 B.C. Now in

¹ Atharv. Prāt., p. 519.
² Liebich, “Materialien zum Dhātupāṭha,” p. 59; Belvākara, “Systems
Patañjali’s Mahābhāṣya I have discovered a passage from the Taitt. Prāt. on the definition of high and low accent. Patañjali not only cites the passage, he explains every term occurring therein, so that the passage cannot be his own composition, and considering the fact that he refers in another passage² to the Taittirīyas, it may be taken as very probable that he knew the Taitt. Prāt. The lower limit for the date of the Taitt. Prāt. may therefore be taken as 150 B.C.; while the upper limit for the kernel of Indian phonetic literature should go as far back as 800-700 B.C., the period of the Aitareya Āraṇyaka, which betrays a very advanced stage of phonetic study, as shown above; but the upper limit for the Prātiśākhyaśas proper was not earlier than Yāska, for the Rg Prāt., probably the oldest, quotes him.³ The upper limit is therefore Yāska’s date, 500 B.C.⁴ As regards the extinct Śikṣā or Śikṣas which were the prototype of the Prātiśākhyaśas, they were very probably synchronous with the period of the Aitareya Āraṇyaka, if not earlier, because even Yāska⁵ refers to phonetic literature under the name of Pārśadas. The chronology of the earlier but extinct phonetic literature should therefore range between 800-500 B.C., while that of the Prātiśākhyaśas proper between 500-150 B.C.

As regards their relative chronological position, the Prātiśākhyaśas may be placed in the following order:

1. Rg Prāt. (the oldest)
3. (a) Atharv. Prāt. (kernel)  
   (b) Vāj. Prāt.  
   {nearby contemporaries.
5. Taitt. Prāt. (later phase of).
7. Ṛkt. (of the Sāmaveda).

The above chronological order differs from the one laid down by Liebich, Weber, and Lüders. According to Liebich,⁶ only the Rg and

¹ On Pāṇini, I, 2, 29-30: ayāmo dāruṇyam aṣuṭā khasety uccaih-karaṇi śabdasya, annavasargo mārdavam urutā khas eti nicaaih-karaṇi śabdasya. He then explains the meaning of every term—e.g., ayāmo gātrānām nigrahāḥ, dāruṇyam svarasya dāruṇatā, etc. The same passage occurs in Taitt. Prāt., XXII. 9-10.
³ XVI. 9.
⁵ Nirukta, I. 17.
the Vāj. Prāt. precede Pāṇini; all the other Prātiśākhyas, in his opinion, are posterior to him. His opinion regarding the Vāj. Prāt. is not improbable: the crude verbosity of the Vāj. Prāt. seems to be primitive before the concise style of Pāṇini. But the view regarding the posteriority of all the other Prātiśākhyas (except the Rg) is open to question. As regards the Taitt. Prāt., Liebich says that as this Prāt. is familiar with a few grammatical terms used by Pāṇini, it must be later than he. But though a few terms used by the Taitt. Prāt. are common to both, the substance and the treatment of the Prātiśākhyas is very different from that of Pāṇini, as the following examples will show:

1. Anusvāra is a term used both by Pāṇini and the Taitt. Prāt. (and in fact all the other phonetic treatises except the Atharv. Prāt.), and yet the use of this term by the Taitt. Prāt. in word-building is very different. It explains forms like raksāṃsi, jyotimśi by prescribing the rule that after ā, ī, and u, when followed by śi or si, anusvāra is inserted, and then, in a succeeding rule, it states that forms like dadāsi, dadhāstī, etc., are exceptions. Had it been post-Pāṇineyan, it would have found it more convenient to use Pāṇini’s differentiation between sī as a verbal termination and i as a nominal termination. In that case there could have been no question of an anusvāra before the former. Again, in connection with the word māṃśā- as distinct from māsa-, it states that the initial syllable mā when anudātta gets an anusvāra before s, and implies that it does not get the anusvāra when it is udātta, as in māsa-. Pāṇineyan grammarians, on the other hand, would construct the word māṃsa- from the verb man, the n of which was said to be changed into anusvāra and then lengthened before s. And again, regarding the forms śiṃha-, ṭṛṃh-, and ṃṛṃh-, it prescribes that si, tr, and ṃr get the anusvāra when followed by h. But Pāṇini enumerates ṭṛṃh and ṃṛṃh among verbs, while he would have probably explained śiṃha- as a modified metathesis of hims.

2. Pāṇini defines Saṃhitā as the closest contiguity of sounds; but the Taitt. Prāt. takes Saṃhitā in a wider sense. “Saṃhitā is that which is within the compass of a single breath,” i.e. “a breath-group,” and it was said to be of four kinds—viz., word-groups,
accent-groups, (individual) sound-groups, syllable-groups. In such cases there could be no question of borrowing from Pāṇini.

It may here be objected that the treatment of the Taitt. Prāt. differed from Pāṇini because it was a work on phonetics and strictly confined itself to that subject. But it should be borne in mind that Pāṇini’s work did not exclude phonetics, just as the Taitt. Prāt. did not entirely exclude grammar from its scope. Had its kernel been post-Pāṇineyan, it would have shown some traces of Pāṇini’s influence in its treatment of phonetic subjects like the Anusvāra, Sāṃhīta, etc.

The fact seems to be that the grammatical terminology of the Taitt. Prāt. was among those transitional to Pāṇini, who perhaps incorporated these terms into his own system. The Taitt. Prāt., then, was not later than Pāṇini: its kernel was probably earlier.

While Liebich places the Taitt. Prāt. after Pāṇini, Lüders goes to the other extreme and suggests that it was “perhaps the oldest of all the Prātiśākhyas.” It seems to be more probable, however, that (1) the later phase of the Taitt. Prāt. was posterior even to the Atharv. and the Vāj. Prāt., while (2) its kernel, though anterior to the latter, was posterior to the Rg Prāt.

As regards the first point, the Taitt. Prāt. indicates a development of phonetic study which is much more advanced than any of the other Prātiśākhyas, as may be noticed in Chapters XVII.-XXIV.; cf., e.g., (a) the various opinions on the degree of nasality in the anusvāra and the nasal consonants (Chapter VII.); (b) the mention of new kinds or terms for accent, as vikrama and dhṛta of the Śikṣās; (c) the minute details on the various kinds of “pause” so copiously dealt with in later Śikṣās; (d) further rules of syllabication (as plosive + -fricative, plosive + semi-vowel, semi-vowel + semi-vowel) not mentioned in any of the other Prātiśākhyas; (e) details on the seven musical tones in their relation to accent, and the relation of tone and whisper, the former of which is the main subject of the Nārada Ś. Had these remarkable theories been anterior to the other Prātiśākhyas, they would have been mentioned and possibly developed by them.

9 XXIII. 5-12.
10 The Rg Prāt. mentions the seven tones (XIII. 17), but its treatment is indefinite.
But there is a further interesting indication of the relative recency of the Taitt. Prāt. While all the other Prātiśākhyaśas, in their treatment of the lengthening of finals, take the Pada Pātha as their basis, and so maintain the old tradition pointed out by Yāska, the Taitt. Prāt. in III.1 takes the reverse position, and states that a final long vowel, under certain conditions, is shortened in the Pada Pātha. In V.2, however, it takes the usual traditional Pada Pātha as the basis, stating that “the Pada Pātha, as it stands, will be taken as the basis” (for the purpose of lengthening of finals, and other Sandhi rules). Why the Taitt. Prāt. breaks away from tradition in its third chapter and maintains it in its fifth chapter is a point on which the Vaidikābharaṇa throws very interesting light. It points out that “the real basis (prakṛti) is the Saṃhitā Pātha, the treatment of the Pada Pātha as the basis is designed to facilitate understanding, and in order to ward off the illusion, to which dull-minded persons are liable, that the Pada Pātha is the Veda, the undivided Saṃhitā is here (in III. 1) taken as the basis.” One of the “dull-minded persons” was presumably the earlier commentator, the author of the Tribhāṣyaratna, who speaks of the Pada Pātha as “eternal and immovable.”

The Taitt. Prāt.’s treatment of the Saṃhitā as the real and of the Pada Pātha as a conventional basis was more scientific and unique in the history of Prātiśākhya literature. This is a distinct indication of advancement in the methods of exposition, and hence this point further confirms the relative recency of this Prātiśākhya.

It is difficult to determine which portions of the extant recension of the Taitt. Prāt. constituted its kernel. The following chapters seem to be older:

Chapter II., in which purely phonetic phenomena are described, and few traces of Pāṇini’s method are visible.


2 Whitney (V. 2), misled by the Tribhāṣyaratna, translates “yuktāt”; as “combined with,” which is admittedly unsatisfactory. The Vaidikābharaṇa gives a satisfactory paraphrase: “yathābhūtaṁ śabdam āśārya.”


4 On V. 2: kālasthan avicālaṁ.
Chapter VIII., in which the treatment of Visarga-sandhi, as in 14-15, is more empirical than Pāṇini's.

Chapter XVI. Similar treatment of the Anusvāra and the pragṛhyas. The following chapters seem to be later accretions:

Chapter I. (on definitions). It defines accent exactly as Pāṇini does.\(^1\) But recency cannot be attributed to the whole of this chapter, for side by side with such rules, Sūtras like I. 57 (vinaso lopah) and I. 33-37 (crude definitions of short and long sounds, a short vowel being defined as that which has the quantity of a short \(a\)), do not seem to be post-Pāṇineyan.

Chapters XVII.-XIX.,\(^2\) which give distinctly advanced theories as we find them in the Śikṣas.

As regards the Rg Prāt., Liebich, as mentioned above, places it earlier than Pāṇini, while Lüders is inclined to consider it as posterior to the Taitt. Prāt. The question then arises as to the relative chronology of the Rg and the Taitt. Prātiśākhyas. Now although it has been shown above that the Taitt. Prāt. gives indications of a development more recent than any of the other Prātiśākhyas, its kernel probably passed through much longer stages of development, and hence was far earlier. But even then, it indicates posteriority to the Rg Prāt. For, firstly, the style of the Rg Prāt. indicates considerable traces of archaism, as Maṅgala Deva Śastrī has shown from copious examples—\(^3\) an archaism which is hardly to be met with in the Taitt. Prāt. And, secondly, the Taitt. Prāt.'s treatment of the rudimentary items of phonetics is more precise and advanced, as the following data will show:

1. Rg Prāt., I. 11: "In the beginning there are eight simple vowels."

Taitt. Prāt., I. 2: "In the beginning there are nine simple vowels."

The Rg Prāt. omits the vowel \(i\), and Uvaṭa explains it on the ground that \(i\) does not occur in the Rg Veda, an error which has been pointed out by Max Müller.\(^4\) Moreover, the Rg Prāt. itself, in a later verse,\(^5\) does mention \(i\), including it among velar sounds. The Taitt. Prāt., however, includes it among the list of vowels in the very beginning.

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1 Liebich, Ibid., p. 47.  
4 On Rg Prāt., I. 11.  
5 I. 18.
2. As regards the Anusvāra, the Rg Prāt. first states\(^1\) that the anusvāra is either a vowel or a consonant, and then\(^2\) includes it among the "eight fricatives." The treatment of the Taitt. Prāt. is more precise and advanced. It mentions only six fricatives,\(^3\) and keeps the anusvāra as a separate category.

3. A similar advance may be noted in its treatment of articulation. For instance, while the Rg Prāt. simply states\(^4\) that \(a\) is a velar sound, the Taitt. Prāt. points out that in its articulation\(^5\) the lips and the jaws are neither brought very near each other, nor very much separated. Again, while the Rg Prāt.\(^6\) merely states that \(l\) is a cerebral, the Taitt. Prāt.\(^7\) specifies that "in a sound of the \(t\)-class the tip of the tongue is rolled back against the mūrdhan." Similarly for several other sounds.

If, therefore, the anteriority of the Taitt. Prāt. to Pāṇini be accepted, that of the Rg Prāt. would then be even more probable. Goldstücker\(^8\) argues for the posteriority of the Rg Prāt. to Pāṇini by stating that "the Rg Prāt. is infinitely more complete than Pāṇini," basing his arguments on its longer details—e.g., on the Sandhi of \(s\) and \(n\) and the lengthening of finals. But he has ignored the fact that the so-called exhaustiveness of the Rg Prāt. is only cataloguing of individual words; its treatment being almost exclusively empirical, and should therefore belong to a more primitive period.\(^9\)

As regards the Atharv. Prāt., Weber\(^10\) is of opinion that it is "the most systematic and therefore the latest of the Prātiśākhyaas." But it should be borne in mind that in spite of its superior treatment it does not seem to be much later than the Vāj. Prāt. In fact, there are indications that its kernel was possibly even earlier than the Vāj. Prāt. For, firstly, it points out in the very beginning its traditional object as a Prātiśākhya\(^11\)—viz., the relation of Pada and the Saṃhitā Pāṭha. The Vāj. Prāt.,\(^12\) however, mentions its object as being the treatment

\(^1\) I. 11.  \(^2\) I. 12.  \(^3\) I. 9, I. 18.  
\(^4\) I. 18.  \(^5\) II. 12.  \(^6\) I. 19.  
\(^7\) II. 37. Cf. Taitt. Prāt., II. 13, 14; II. 36, etc.  \(^8\) "Pāṇini," p. 199.  
\(^9\) The metrical style of this Prātiśākhya, however, may presumably be traced to an earlier stage, in which its kernel was composed in the prose or sūtra style, being the form in which works of this class were composed.  
\(^10\) "Ind. Stud.," IV. 79.  
\(^11\) I. 1: Caturām padajatānām nāmākhyaōtopaśarangaipitānām sandhyāpadayau guṇau prātiśāham.  
\(^12\) I. 1: svara-saṃskārayoḥ chandasi niyamaḥ.
of "accent and Sandhi (samskāra)"—indicating a little deflection at least from the way of putting the traditional object. And, secondly, the Vāj. Prāt.,¹ attributes to Śaunaka the opinion that a plosive followed by a fricative (of a different class) becomes a breathed aspirated consonant—e.g., in samyakh-srawati. Now this rule (without, however, the reservation "of a different class") occurs in the Atharv. Prāt.,² and as tradition ascribes the authorship of the Atharv. Prāt. to Śaunaka,³ it is not unlikely that the Vāj. Prāt. refers here to the Atharv. Prāt. Nor can this opinion be referred to Śaunaka, the traditional author of the Rg Prāt., for there⁴ it is spoken of as "the opinion of some authorities." It is probable, therefore, that the Atharv. Prāt. and the Vāj. Prāt. were nearly contemporaries. To speak of the Atharv. Prāt. definitely as "the latest" Prāt., without any positive evidence, would be over-elaborating a merely relative chronology.

As regards the Rktantra Vyākaraṇa, the "Prātisākhya" of the Sāmveda, Burnell⁵ has adequately shown that it is post-Pāṇineyan. And yet it does not seem to be a very recent production: it was possibly composed when Sanskrit was a spoken language, for it speaks of Skr. as bhāṣā—unless it merely imitates Pāṇineyan phraseology. Thus about the formation of svairinī, aksauhinī, it says⁶ that in bhāṣā, the simple vowels in these words become the diphthongs ai and au (by Sandhi) when the syllable ni follows. Again, it makes the interesting observation⁷ that in bhāṣā the finals of pra and apa are lengthened before er in the sense of "closing or guarding," as in prāṃvute (otherwise prāṃvute ītvijam). Its contribution to quantity will be examined in Chapter XI.

CONCLUSION.

The above discussion leads to the following conclusions:

1. Patañjali knew the Taitt. Prāt.
2. Of the Prātisākhyas, the Rg and the Taitt. seem to be the oldest.
3. The Prātisākhyas seem to be essentially older than Pāṇini.
4. Portions of the Taitt., the Vāj., and the Atharv. Prātisākhyas bear the stamp of recency, and possibly the influence of the Pāṇineyan school.

¹ IV. 120.
² II. 6.
³ Note the colophon of the Atharv. Prāt. (Whitney's Edition): iti śaunakīya-caturādhikāyikā.
⁴ VI. 15: āṣmodayāṃ prathamaṃ sparēam eke dvīgam āhur apadaṇtabhājām.
⁵ Preface, p. iv.
⁶ 96: bhāṣāyāṃ ni-parayoḥ.
⁷ 212: dirghaṃ bhāṣāyāṃ prāṃvuto ītvijam.
The last three conclusions, however, cannot be maintained without reservation. For their evidence rests mainly on style and treatment. As regards the former, two contemporary persons may use styles with a varying degree of diffuseness or precision. Thus the Vāj. Prāt. need not be earlier than Pāṇini on the ground of its inferior style.

The same may be said of treatment. Hence it is not necessarily 'most probable' ¹ that the Prātiṣākhyas are older than Pāṇini.

As regards 4, an example may illustrate the possible influence of Pāṇini on the later phase of some of the Prātiṣākhyas. Pāṇini uses the genitive case to indicate the substitution of one sound for another. But the Vāj. Prāt. nearly always uses the accusative, and so prescribes its² use. The same Prātiṣākhyā, however, on two occasions uses the genitive case in this sense, and gives another prescription to this effect, using exactly the same words as Pāṇini.³ The use of the genitive case in the Vāj. Prāt., then, indicates the later influence of Pāṇini.⁴

The only advance made by the above inquiry, then, is the discovery of the passage from Patañjali’s Mahābhāṣya (cf. p. 21). This passage gives us a definite starting-point for the chronology of the Prātiṣākhyas.

**Chronology of Sikṣās.**

While the chronology of the Prātiṣākhyas is obscure, that of the Sikṣās is infinitely more obscure. Very few of them quote any authorities or name any localities, and if they are mentioned, some of them are found in several Sikṣās, so that it becomes difficult to determine in which of them these data originally appeared. Few of them have any commentaries, and when they have, most of them are obscure and carelessly written. But the greatest difficulty lies in the corruption of their text. The same verses on the same subject appear in many Sikṣās, sometimes irrelevantly and without a plan, sometimes unnecessarily repeated, and so it becomes almost impossible to judge what the original text of a particular Sikṣā was. A few Sikṣās of the Taitt. school are an exception, as they are written on a more consistent plan; but the scarcity of chronological and geographical material characterizes these works as well. Many of them contain a number

² I. 133; but cf. Pān., I. 1, 49. ³ paṭṭhi ABāne yoḍā (I. 133), Pān., I. 1. 49.
of very valuable and striking phonetic observations not available in
the Prātiśākhyas; they were really short monographs on certain points
in phonetics, to some of which the common material of the "general"
Śikṣā was subsequently added, in order that they might be introduced
for class instruction in the schools. We shall therefore have to be
contented with a general conspectus of these Śikṣās, pointing out
the geographical or chronological material wherever any is available.
Generally speaking, however, most of the Śikṣās as they exist in their
present form bear the stamp of recency. Some of them quote or
closely follow the Prātiśākhyas, while others propound opinions which
betray Prākrit influence.

There is a large number of extant Śikṣās. I know of as many as
sixty-five. Of these I have actually examined fifty—viz., thirty-one
published in the Benares Edition of 1893 (Śikṣāsaṃgraha), sixteen MS.
works in the Madras1 Government Oriental MSS. Library, and three
MS. works belonging to the Bhandarkar Oriental Research Institute,
Poona. Many of these Śikṣās, however, are mere catalogues of certain
sounds in the Vedas, and contain very little matter of any general
interest for linguistics. For instance, the Māṇḍavī Ś. gives a list of
words in Yajur Veda containing the consonant b; the Śamāna Śikṣā
(Mad. MS. No. 977) catalogues the elisions of the Visarga in the Ṛgveda;
the Vīlāṅghyam (No. 960) enumerates words in the Yajur Veda with
a final e, ai, o, au; the Padakārikāratnamālā (No. 921), attributed to
Śaṃkaraśārya, has forty chapters, and among other similar lists,
contains an index of Vedic words with a final n. Even more famous
Śikṣās like the Bhārādvāja and the Siddhānta Śikṣā are on the whole
mere catalogues of words containing different sounds in alphabetical
order, and were presumably prepared to insure accuracy in Vedic
pronunciation, or to facilitate research work. Nevertheless, even these
minor Śikṣās do not differ from several portions of the Prātiśākhyas
themselves, which are mere catalogues of words; cf., for instance,
Chapters VII.-IX. of the Ṛg Prāt., which enumerate lengthened finals,
and similar chapters in the other Prātiśākhyas. These minor Śikṣās
illustrate the way in which the Prātiśākhyas seem to have been
built up—a gradual addition of material, general as well as
particular.

1 Unfortunately the Madras Government does not lend MSS. Only copies
of those MSS. were sent to me.
The extant Śikṣās may be classified as follows:

1. The "general" Śikṣā.
2. The Śikṣās of the Rg Veda.
3. The Śikṣās of the White Yajur Veda.
4. The Śikṣās of the Black Yajur Veda.
5. The Śikṣās of the Sāma Veda.
6. The Śikṣās of the Atharva Veda.

1. Particulars of the "general" Śikṣā, called the Pāñinīya Śikṣā, have been given above (pp. 5, 8 ff.). It has been shown that this Śikṣā was not the prototype of the Prātiśākhyaśas, and that it is a more recent work. Nevertheless, it may be designated the "general" Śikṣā, as it has enjoyed a leading position among the extant Śikṣās owing to its complete character as a Śikṣā proper, and as it has been found in two recensions, one belonging to the Rg Veda, and the other to the Yajur Veda (both ed. Weber, "Ind. Stud.," Vol. IV.). It has dominated the Pāñineyan school of grammarians, who quote this Śikṣā more often than any other, while the portion common to this and the other Śikṣās has possibly been borrowed from this Śikṣā.

2. There are very few extant Śikṣās of the Rg Veda. Of these the Svara-vyājana Śikṣā will be examined in Appendix A (see pp. 58 ff.). It will be shown there that it actually quotes the Rg Prāt., and that it is post-Pāñineyan. Another Śikṣā, viz. the Śamāna Śikṣā, is of minor importance, and has been noted above (p. 29).

3. As regards the White Yajur Veda, the Carana Vyāha¹ mentions five Śikṣās, though it does not name them. The Pārāśarī Ś. names eight Śikṣās,² which may be described as follows:

(a) The Yājñavalkya Ś., the most complete among the Śikṣās of the White Yajur Veda, has been connected with Yājñavalkya, presumably the founder of the Vājasaneyi school.³ His name has been mentioned three times in the main body of the work:⁴ "the wise Yājña

¹ (Ed. Weber) 24: mantra-bhrāntiharaṁ ca'va śikṣāpāṁ pañcakaṁ tathā.
² ŚŚ, p. 60:

Yājñavalkya tu vāsiṣṭha śikṣā kātyāyanī tathā
parāśarī gautamī tu māndavyāmogha-nandini, pāninyā
devā-vedeṣu sarva-lāstreṣu giyate, vājasaneyi-
sākhyāyaṁ tatra mādhyanandini emśtā.

³ Introduction to Pārāskara Ṛgvyātra Sūtra, p. 70.
⁴ ŚŚ, p. 3: varam jātī ca mātṛā ca gotraṁ chandad ca daivatam; also pp. 17, 35:
goḷī sarvān samākhyaṁ yājñavalkyena dūmatā.
valkya has propounded these rules of ‘caste and colour’ (of accent), quantity, metre, their authors and deities.’ From these three passages it appears that Yājñavalkya is not claimed here as the author of the text in its present form. On ŚŚ, p. 2, however, is mentioned “Soma-
sarman’s” opinion on quantity. Now Somaśarman is a comparatively recent name: it occurs, according to the St. Petersb. Lexicon, in the Viṣṇu Purāṇa and the Pañcatantra, and if he is the real author of this Śikṣā, the upper limit of his date should not be earlier than the fifth century A.D. Moreover, there are traces of modern Hindu views in this work: thus the plosives are said to pertain to the God Saturn (Śaṇaiscara).  

As regards its lower limit, Uvaṭa quotes this Śikṣā in his commentary on the Vāj. Prāt. Now Uvaṭa is said to have worked under the patronage of a king named Bhoja; this king Bhoja is probably the famous scholar of Mālwā, for Uvaṭa at the end of the Vāj. Prāt. calls himself a native of Ānandapura, and Ānandapura, according to Smith, was a principality under Mālwā. But the date of Bhoja was about 1018 A.D. Uvaṭa, therefore, lived about the eleventh century, and allowing about a century for the acceptance of the Śikṣā as an authority, the lower limit of its date may be assumed as the tenth century A.D. With these data the Yājñ. Ś. is about three centuries earlier than the Vyāsa Ś., which Düders assigns to the thirteenth century.

The Śikṣā quotes the Vāj. Prāt. on several occasions, and throws some light on the above-mentioned rule (see p. 27) of the Vāj. Prāt. regarding the aspiration of a plosive before a fricative. It says that the change in question does not occur before a fricative of the same class in the Mādhyandina school, though it occurs under similar con-

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1 nimeṣo māträkālaḥ syād vidyut-kāleti cāpare, akṣaraṭulya-yogatvān matiḥ syāt scma-karmaṇaḥ.  
2 ŚŚ, p. 32: paançaṁśati sparśāḥ kṛṣṇāḥ vyākhyātāḥ śanaiscara-daivatyāḥ.  
3 IV. 163: tathā coktaṁ yājñavalkyena:—yamānān vidyād ayas-piṅḍān sāntasthān dāru-piṅḍavat, antasthā-yamavarjan tu ārṇāpiṅḍam vinirīdet. The verse occurs in Yājñ. Ś., ŚŚ, p. 29.  
4 Aufrecht, Catalogus Catalogorum.  
5 ityānanda-pura-vāsīvalva-vajraṭa-sūnunovvataṇa kṛte, etc.  
7 Ibid., p. 410.  
8 Vyāsa Śik., p. 107.  
9 E.g. II. 20 (on pluta), ŚŚ, pp. 19-20; I. 65 (on ṛ), ŚŚ, p. 33.  
10 ŚŚ, p. 20: nātun mādhyandiniyāndān sasthānāvāt tayor āvayoḥ, sasthāne ’pi dvitiyam syād āpastambasya yan matam.
ditions in the Āpastamba school. This variation was apparently dialectic, as it may be noticed even in modern dialects. Thus while the Skr. group ps is generally represented by ch in modern Indian languages, the group ts has a divergent treatment. It remains unchanged (except for expiration in its second element) in a few dialects of the north-west: cf. Śiṁā bā́ṭsho or Gurezi bā́ṭshóu for Skr. vatsa-; but it has become1 ch in other languages—e.g., Panjabi-Lahndi vacchā, Hindi bōchā. The north-west group, in this respect, may represent the Mādhyandina school. The Śiksā further makes interesting2 observations on y and v in various positions as detailed in Chapter VI. This would possibly connect the Śiksā with areas in which Śauraseni was spoken.

(b) The Vāśiṣṭhi Ś, the second in the list of the Śiksās of the White Yajur Veda, is not a work on phonetics, and is therefore different from a Śiksā of the same name in the Taitt. school to be noted below. It is devoted to the distribution of verses (ṛc) and sacrificial formulas (yajus) in the Ṛg and the Yajur Veda. It is admittedly3 a selection from the Sarvāṇukramaṇī, and is therefore a comparatively recent work, designed as a handy manual for reference. The designation of this work as "Śiksā" is another example of the secondary sense in which the term was often employed in the later phases of Vedic literature.

(c) The next Śiksā mentioned is the Kātyāyani. In the form that we find it at present, it is of little importance, being a fragmentary work on accent containing only thirteen verses.4 Most of the rules prescribed are a metrical exposition of those laid down in Vāj. Prāt., IV. 131-141.

(d) The Pārāśarī Śiksā, to which we owe the list of the Śiksās belonging to the White Yajur Veda, speaks of itself as the foremost among the Śiksās "like Virāj among the gods, or like Puṣkara among the holy places."5 It claims to be a Śiksā of the Pārāśaras, which has been classed as a school of the White Yajur Veda along with Kāṇva, Mādhyandina, etc.6 But as it mentions nearly all the leading Śiksās of

1 I owe the above data to Professor R. L. Turner.  
2 ŚS, p. 23.  
3 ŚS, p. 36:  
   atha śiksāṁ praṇavaśāṁ vāśiṣṭhasya matāṁ yathā  
   sarvāṇukramam uddhārya ṛṣyajyos tu lakaśyam.  
4 ŚS, pp. 46-51.  
5 ŚS, p. 52: yathā deveṣu viśvāṁ yathā śirṣṭeṣu puṣkaraṁ, talāḥ pārāśarī  
   sarvāṣṭreṣu gīyate.  
6 Caranāvyūha, 19.
the White Yajur Veda, it should be posterior to them, so far as its present form is concerned, although its kernel may have been much older. Besides the reference to a modern holy place like Puśkara, the Śīkṣā offers the horrors of a hell, well known to modern Hinduism, named Kumbhīpāka, to those who mispronounce Vedic texts. The modernity of its present form is further confirmed by its observations on the pronunciation of v in various positions.

Some of its original contributions may be mentioned:

1. The half-long vowel kṣipra (cf. p. 178); (2) v the product of Sandhi is "light" (cf. p. 129); (3) the observation that the inter-vocalic double k in kukkuta must be pronounced double is contrary to the Vāj. Prāt.'s rule, and indicates dialectic divergence.

It is a fairly complete Śīkṣā, on the lines with the Yājñ. Ś., and gives a copious number of examples from the White Yajur Veda.

(c) The next Śīkṣā mentioned by the Pārā. is the Gautami. As available in the present form, it belongs to the Sāma Veda, and will be examined under that head (cf. p. 51).

(f) The Māṇḍavī Śīkṣā is attributed to Māṇḍavya, a name mentioned in the list of families in the Śatapatha Brāhmaṇa.

The Māṇḍavya families, according to Varāhamihira, lived in the middle, the north-west, and the north. The nature of the Śīkṣā, however, seems to indicate its connection more with the middle and east, than with the north, for it is exclusively devoted to the enumeration of words containing the labial plosive b (cf. p. 130). This was presumably done in order to prevent the confusion between v and b, which was probably more common in the above-mentioned areas than in the north. It is possible, however, that the Śīkṣā refers to a period when the pronunciation in question was still found in the north. For the confusion of v and b is still found in some of the north-western

2 Ibid., p. 58. Cf. p. 129.
4 These have been mostly identified by the editor of the Śīkṣā Samgraha.
5 ŚS, p. 72: athātāḥ sampravaktavāṃ śipyanāṃ hitakāmyaḥ, māṇḍavyena yathā pruktā oṣṭha-saṅkhyaḥ samāḥtra.
6 X. 6, 5, 9: atha vaṃṣaḥ—samānām āsāmyivi-puṭrāt . . . māṇḍavyān māṇḍavyaḥ kauteśāt kautṣaḥ . . .
dialects like Ḍogṛi and Bhadravāhi in western Pahārī, and Śinā in Dardic.

(g) The Amoghānandinī Śiksā is composed on the same lines as the Yājñi. and the Pārā., but to some extent its object seems to have been similar to that of the Māṇḍavī Ś., for it gives a list of words with an initial labio-dental v, and another with the labial plosive b. It was, therefore, presumably composed in the same area as the Māṇḍavī Śiksā.

Like the Yājñi. Śik., it follows the Vāj. Prāt.: cf. the list of plutas on ŚŚ, p. 98; but it mentions more terms for nasal sounds—viz., (Raṅga), Mahāranāga, and Atirāṅga, the significance of which, however, is obscure.¹

(h) The Mādhyanandinī Śiksā attributed to a “Maharśi Mādhyan- dina,”² and its abridged form, the Laghu Mādhyanandinī Śiksā, are apparently modern. The former gives a list of words with a velar kh as ākhūḥ, mayākhaṁḥ, in order to distinguish the sound from the cerebral .Script. The latter work gives a rule that the cerebral ś was to be pronounced as kh, except before a cerebral plosive.⁴ But unfortunately there are absolutely no references to time or place in these Śiksās. Nevertheless, it is interesting to note that these Śiksās refer to an actual confusion between ś and kh, as may be corroborated by the pronunciation of Skr. tatsamas in modern Indian languages. Thus, while some of the eastern dialects, e.g. Behari, pronounce Skr. ṛṣi- as ṛkhi, Panjabi and western Hindi have generally riśi, while Lahndi has commonly rikhī. Before cerebrals, however, ś of tatsama words, as noticed by the Śiksās, is not pronounced as kh, but ś—e.g., no modern dialect pronounces tatsama duṣṭa—as dukṣṭa.

Besides the above Śiksās of the White Yajur Veda mentioned by the Pārā. Ś., the following two Śiksās may be mentioned:

(a) The Varna-ratna-dīpikā Śiksā is a fairly complete Śiksā, on the same lines as the Yājñi. Ś. It is evidently modern, for it admittedly follows⁵ the Prāṭisākhya. The author gives his name as Amareśa, and says he belongs to the family of Bhāradvāja.

¹ ŚŚ, p. 97. ² Ibid., p. 109.
³ Ibid., p. 110: atra kavargiya-khakārā nirāśyante, etc.
⁴ Ibid., p. 114: atha śiksāṁ pravakṣyāmi mādhyanandinā-mataṁ yathā, sākārasya khakārāḥ syāt juva-yoge tu no bhavet.
⁵ Ibid., p. 117:

amareśa iti khyāto bhāradvāja-kulodvahah, so 'haṁ śiksāṁ pravakṣyāmi prāṭisākhyānusārīṁ.
INTRODUCTION

In the pronunciation of $r$ and $r$ it follows the Yājñ. Ś., for it speaks of $r$ as velar and $r$ as alveolar.

(b) The Keśavi Ś. is a concise and lucid exposition of some of the comparatively recent phonetic changes which it attributes to the Mādhyandina school—e.g., $s$ to be pronounced as $kh$, $y$, and $v$ in various positions (cf. Chapter VI.), the pronunciation of Svarabhakti as $e$, the slight lengthening of a short vowel unless followed by ā (cf. p. 179), etc. The author is said to be the astrologer Keśava, and he admittedly follows the Pratijñā Śūtra.

The Pratijñā Śūtra forms a supplement to the Benares edition of the Vājasaneyi Prāt., and its authorship is attributed to Kātyāyana. The work embodies in a Śūtra form the recent phonetic changes expounded by the Keśavi Ś. It is hardly likely, however, that so ancient an author as Kātyāyana was actually the author of this work, which prescribes pronunciations characteristic of modern Indian vernaculars. Moreover, the Caraṇavyūha does mention a Pratijñā Śūtra which was said to be the third Pariśiṣṭa of the White Yajur Veda, but its subject-matter being ceremonial, it is quite different from the work before us. It is possible, however, as Weber thinks, that the work is a production of another man born in the family of Kātyāyana. He may have summarized into Śūtra form some of the similar rules from the Yājñ. Ś., though the rule regarding the pronunciation of $s$ as $kh$ does not occur even there.

The above is a short conspectus of the Śikṣās of the White Yajur Veda. The Śikṣās that may be regarded as fairly complete are only four—viz., the Yājñ., the Pārā., the Amoghānandini, and the Varnaratnadipikā Śikṣās. Of these four, the oldest, as will appear from the above discussion, is the Yājñ. Śikṣā, the lower limit of its date being the tenth century A.D. As all these Śikṣās prescribe the

1 Ibid., p. 119:

\[ \text{fvarṇo 'tha kavagās ca jihvā-mūlīyā eva ca jihvāmūle bhavanti \ldots repaś ca danta-mūlūtaḥ.} \]

2 ŚŚ, pp. 128-148.

3 Ibid., p. 149:

\[ \text{iti śrī-daivajña-kesava-kṛtā pratijñā-sūtrānu-sārīṇi keśavi śikṣā samākā.} \]


6 Weber, Ibid., p. 436.
peculiar \(y\) and \(v\) pronunciation, they presumably belong to the Śaurasenī area, as some of them speak of these phonetic phenomena as being peculiar to the Mādhyandiniya\(^1\) school, which was confined to the Madhya Deśa.\(^2\)

The Śikṣāś of the Black Yajur Veda may be described under two heads: (1) The Śikṣā of the Cārāyaṇīya school; (2) the Śikṣās of the Taitt. school.

1. The Cārāyaṇīya Śikṣā is a MS. work, of which I have examined two MSS.: (a) No. 21 of 1875-76, Bhandarkar Oriental Research Institute, Poona; (b) Sanskrit 25 of the University Library, Göttingen. The treatise speaks of itself as a “Mahāśikṣā, spoken by the Creator himself,”\(^3\) and the fruit of understanding it is said to be a place in Brahma-loka. It is a complete Śikṣā, even more complete than the Yājñī. Ś., for it gives a full chapter (Chapter III.) on Sandhi rules, another on abhinidhāna (Chapter VIII.), which it calls bhukta or bhakṣya (cf. p. 142), and another on metre. It belongs to the Cārāyaṇīya school, which, according to the Carana-vyūha,\(^4\) was one of the twelve subdivisions of the Caraka school of the Black Yajur Veda. The school was presumably known to Patañjali, who speaks of a pupil of Cārāyaṇa—“fond of a blanket.”\(^5\) The Śikṣā quotes a passage\(^6\) which is possibly taken from the extinct text of the Cārāyaṇīya school, as only a part of the passage can be traced in the Kauśitaki Samhitā. The treatise bears the stamp of the classical period. The fifth chapter is devoted to classical metre: metres like Indravajrā, Praharṣa, etc.,

\(^3\) Göttingen, Folio 1: Oṃ prāt prapadye vibhum bhaktā sarva-loka-pitāmaham, śikṣām sākṣāt pravakyāmi tenaivā lapitām āham, cārāyanīṃ mahāśikṣāṃ pravakyāmy anupūrvaśaḥ, nibodhata budhair juśām nityāṃ vāṃmala-sāntaye.

Fol. 11, colophon: Ya idam pañhate nityāṃ yaś cādhyāpayaed dvijam, asyāṁtham budhyate yo vai brahma-lokam sa gacchati.

\(^4\) (Benares):

10: yajurvedasya saḍaśīrī bhedā bhavanti.
11: tatra carakā nāma dvādaśavidhā bhavanti carakā hvarakā . . . cārāyaṇīyāḥ.


\(^6\) Fol. 6: “agne samrād ajāśikpād āha(va)nīya” amāvasyāyāṃ vā yajate. The portion of the line within inverted commas can be traced in the Kauśitaki Samhitā, VII. 13, but not the succeeding portion.
have been described. Moreover, the Śikṣā does not seem to have been the prototype of the Prātiṣākhyas, for (a) like the Pāṇ. Ś., it speaks of ā and ē as cerebrals; (b) it quotes the Vāj. Prāt. on two occasions. The Śikṣā seems to be posterior to the Pāṇ. Ś., for while it prescribes the cerebral pronunciation of ā and ē, it enumerates ten places of articulation, mentioning two—viz., corner of the mouth (srkva) and the roots of the teeth (danta-mūla)—in addition to the eight mentioned by the Pāṇ. Ś., and is thus a further development on that Śikṣā. The Śikṣā gives no geographical data. It prohibits the pronunciation of Svarabhakti as i or u, from which we may assume that i and u vocalization of Svarabhakti was actually current in the area where the Śikṣā was composed. In that case only a negative conjecture could be made—viz., that the Śikṣā belonged to an area in which Ardhamāgadhī and Apabhramśa were not predominant, as, according to Pischel, the Svarabhakti vowel a was more frequent in these dialects.

2. The Śikṣās of the Taitt. school are by far the most important contribution to Indian phonetics. As their MSS. are available only in South India, they were presumably composed in that part of the country. That South India became par excellence the home of Vedic studies during the medieval period has been noted by Indian tradition. Thus Rāmakṛṣṇa quotes a passage from Vyāsa and another from a

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1 Fol. 7: ekādāsopendra-vajrāṃ dvādaśāṃ tu jalodāham, trayodāśākṣara-padaṃ praharsaṃ vyṭamaṃ ucyate.


5 Fol. 1: dasa sthānāni varṇāṇāṃ kāraṇyati maniṣaḥ, yataḥ pravṛttir varṇāṇāṃ tāni me gadaḥāḥ ēṣu, ugra kanyāḥ śiras tālu dantā oṣṭhau tu nāsaikā, jhāmālaṃ tu srkvaḥ ca dantamūlas tathāca va [sic]. Both the MSS. (Poona as well as Göttingen) read dantamūlas tathāca ca.

6 ŚS, p. 379: aṣṭau sthānāni varṇāṇām.

7 Fol. 9: svarabhaktiḥ prauṣṭijanas trin doṣān varjayed budhāḥ, ikāraṃ cāpyukāraṃ ca grāsta-doṣān vivarjāntat.

8 In his introduction to Pāraskara Gṛhya Sūtra, p. 58:

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7 Page 103.
“Dharma Śāstra” to the effect that “during the Kali age, the Brahmanas north of the Vindhya will be devoid of Yajñas and averse from astrology. The Vedas and the Yajñas will be current in the region south of the Vindhya where the Godāvari flows.” These Vedic studies stimulated the growth of the Taittī. Śikṣās, in which the study of phonetics was extended to a very advanced stage, as the chapters on quantity and accent (cf. Chapters XI. and X.) will show.

There is a large number of Śikṣās connected with the Taittī. school, of which I have examined sixteen. But it is difficult to determine definitely which of these works was really original, and we have to depend a great deal upon tradition in the solution of this difficulty. A MS. work,1 the Veda-lakṣaṇānukrāmanikanā, mentions nine primary Śikṣās and three secondary Śikṣās. The former were said to be the “Bhāradvāja, Vyāsa, Śambhu, Pāṇini, Kauhaliya, Bodhāyana, Vālmīki, and the Hārita (“Harita”) Śikṣās,” while the latter were “the Sarvasammata, the Āranyā, and the Siddhānta Śikṣās.” The former list also occurs in the commentary on the Siddhānta Śikṣā.2

The Taittī. Śikṣās may now be briefly examined:

(a) The Bhāradvāja Śikṣā3 is a monograph on certain words of the Taittī. Saṃhitā which were either liable to be mispronounced or confused with others of a slightly different form. Thus verse 1.5.1 prescribes that the final consonant in the tāraṣat of Taittī. S., I. 5, 11, 4 is t, but it is not t in the tāraṣat of Taittī. S., III. 3, 11, 4. The treatment of this Śikṣā, then, is empirical, and it contains very few observations of general interest to linguistics. Of these, the one on the syllabic nature of l between two consonants will be noted on p. 57. This Śikṣā seems to be comparatively old, perhaps a contemporary of the

1 No. 967 (Madras, of 1905).
(a) Nine primary Śikṣās:
    bhāradvāja-vyāsa-śambhu-pāṇini-kauhaliyakanam, bodhāyana vasiśṭha ca vālmikir
    haritaṁ nava. 5.
(b) Three secondary Śikṣās:
    sarva-sammata aranyam tathā siddhāntam eva ca, upaśikṣā ime prakṛti
    lakṣaṇā-jñāna-kovidaṁ. 6.
2 On verse 2:
    bhāradvāja-vyāsa-pāṇini-śambhu-kohala-vasiśṭha-vālmiki-harita-bodhāyanokta-
    śikṣādikam parāmṛṣya... .
3 Edited E. Sieg.
Vyāsa Śikṣā, for the author of the Siddhānta Śikṣā, as noted above, mentions in his commentary the name of the Bhār. Ś. as the first among the list of the Śikṣās.

(b) The Vyāsa Śikṣā has been exhaustively examined by Lüders, who puts the lower limit of its date as the middle of the thirteenth century. Its views on doubling and quantity will be discussed on pp. 119, 177, 186. Its theory of articulation is somewhat different from that of the Pān. Śik. Instead of the ‘head’ “śiras” and the uvula “jīhvāmūla” of the Pān. Śik., it mentions the three parts of the mouth passage—viz., the beginning, the middle, and the end—while it does not speak of r as cerebral, but as alveolar. These data seem to indicate that the Pān. Śik. was not held as a Vedaṅgā even by such a careful work as the Vyāsa Śik.

(c) The existence of the Śambhu Śik. provided matter for conjecture to Kielhorn and Lüders, the former supposing it to be Pān. Śik. in another garb. I have, however, actually found this Śik. among the Madras MSS. (No. 988 of 1905). It is a work considerably different from the Pān. Śik. It lays down much more advanced theories of quantity and accent, and has been occasionally quoted by the Tribhāsyaratna and the Vaidikābharaṇa. It seems to be a comparatively old

1 Vyāsa Śik., p. 107.
2 XXIV. 6: kaṇṭha vakrādi-madhyāntaṁ danta-mūlānta-nāśikam tāṇvāṣṭham uraḥ-sthānāṁi varṇāṇāṁ karṇāṇy adhaḥ.
But cf. Pān. Śik., SS, p. 379:
āṣṭau sthānāṁi varṇāṇāṁ uraḥ kaṇṭhaḥ śiras tathā jīhvāmūlaṁ ca dantaṁ ca nāśikōṣṭhau ca tālō ca.
3 Cf. p. 8.
4 Indian Antiquary, V. 199.
5 Vyāsa Śik., p. 111.
6 Cf. Tribhāsyaratna on Taitt. Prāt., I. 1:
vidher madhyastha-nāśikyo na virodho dvarat smṛtaḥ
tasmāt karoti kāryaṁi varṇāṇāṁ dharma eva tu.
This verse, quoted by the Tribh. in its discussion of the anusvāra as a dharma or a dharma, is the forty-fifth verse in the Śambhu Śik.
On Taitt. Prāt., XXI. 15: indriyāvīṣṭayo yo, etc. (cf. p. 176), is the forty-sixth verse in the Śambhu Śik.
7 The Vaidikābharaṇa on Taitt. Prāt., I. 40, quotes the following:
anudātto īḍi jīye mūrdhny udātta udāhṛtaṁ
svaritaḥ karaṇa-māliyaṁ sarvāye prācayoṁ smṛtaḥ.
It is the thirty-sixth verse in this Śik.
work, perhaps a contemporary of the Vyāsa Śik. The first verse betrays the stamp of modern Hinduism, as the author offers his greetings to Kālikā, Lakṣmī, and Sarasvatī. It is a concise but fairly complete Śik., dealing with accent, quantity, hiatus, doubling, Svarabhakti, etc. 

(d) The next work mentioned is the Pāñ. Śik. Possibly a Taitt. recension of this Śik. also existed, though I have not yet found any MS. of the work in this school.

(e) The Kauhaliya Śik. (No. 893) is a short manual of seventy-nine verses, the first forty-one of which are devoted to accent. The Śik. professes “to follow the teaching of Kauhali.” It is difficult to say whether this name is essentially related to Kauhaliputra, a phonetician mentioned in Taitt. Prāt., XVII. 2, who held that the degree of nasality in anusvāra and the nasal consonant was moderate. But the opinion is not mentioned in this Śik.

In a verse which has been quoted by the Vaidikābharaṇa on Taitt. Prāt., V. 14, it states that “only he can expound the Jaṭā Pāṭha who knows the Śāstras like the Prātiśākhyas and who is an expert in all the Śikṣās.” This reference, and the fact that it contains little that is not common to other Śikṣās, indicate it to be a comparatively recent compilation. Regarding the movements of the hand in accentuation, it prescribes the use of “the right, and not the left, hand.”

(f) Bodhāyana. This Śikṣā, mentioned by our authorities, has not yet been discovered, so far as I am aware.

(g) The Vasiṣṭha Śik., according to Lüders, seems to be older than the Vyāsa Śik., as “it used an older text.” The Vaidikābharaṇa also quotes it, stating that it mentioned “26 vowels, but excluded the long i.” My copy of the text, however, is a fragmentary work, containing only thirteen verses, devoted almost entirely to doubling.

(4) The Vālmiki Śik. has not yet been discovered. The Taitt.

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1 aṣṭa śiṣṭāṁ pravakṣyāmi kauhaliya-yam svarādi-nirṇayaṁ tatra kriyate tan nibhadha. 1.
2 prātiśākhyādhi-kāstrojñāḥ sarva-śikṣā-viśārādaḥ buddhi-sakhi-sameto yaḥ sa jaṭāṁ vaktum arhati. 55.
3 svarān hastena vinyayet vipāścit daksinena tu śreyo vipulum anvīcchana na savyena kadācana. 35.

4 Vyāsa Śik., p. 106.
5 Taitt. Prāt., p. 8: tad ucyate vasiṣṭha-śikṣāyām, āvāraṇa-dīrghaṁ parikāpya sarvāḥ pādyānyaḥ prakāta ityādinā, etc.
6 No. 957 (of 1905, Madras).
INTRODUCTION

Prāt. quotes Vālmiki's opinion in two passages; in the first of these passages the accent of the syllable “Om” was said to be high,1 while in the second, Vālmiki's disapproval of the change of Visarga into jihvāmūliya and Upadhmānīya has been mentioned.2 It is not unlikely, therefore, that Vālmiki, whoever he may have been, as a phonetician was actually the author of a Śikṣā attributed to his name.

(i) The Hārita Śikṣā similarly remains to be discovered. As it has been quoted by the Pārśīkṣātīkā,3 its actual existence in a comparatively recent period may not have been impossible. Moreover, the Taitt. Prāt. also4 quotes the opinion of a phonetician Hārita on the non-duplication of a breathed fricative.

Besides the above primary Śikṣās, the following secondary Śikṣās have been mentioned:

(a) The Sarvasammata Śikṣā, MS. No. 998 (of 1905, Madras), is a far different work from the one edited by Otto Franke in 1886. The latter is a short manual of forty-nine verses, with no mention of the author's or the commentator's name, and with a very meagre treatment of the most difficult points in phonetics—viz., accent and quantity. The work examined by me, however, is more than three times the size of Franke's treatise. It has 170 verses, and has four chapters with an exhaustive commentary. The name of the author5 is Keśavārya, while that of the commentator6 is Mañci Bhaṭṭa. Franke's commentator seems to be a different person, for not only does his commentary vary in point of treatment, the introductory verse7 of each is also different. Mañci Bhaṭṭa's commentary explains “Sarva-sammata” as that which “expounds subjects common and acceptable to

1 XVIII. 6: udātto vāl̤mikeṇa.
2 IX. 4: kavarga-paraś caṣṇiveṣyā-vāl̤mikayoḥ.
3 On verse 27: tatra hārita-śikṣā:
   manaḥ kāyōgrnīm āhanti sa prarayati mārunam
   mārutas tūraṣi caran mandraṃ janayati svaram.
4 XIV. 18: uṣmāghopam hāritaṣṭya.
6 Cf. the colophon at the end of the commentary: iti śrimaṇciḥbhaṭṭa-viracitaṁ sarva-sammata-śikṣā-vivaranaṁ sūryaṁ.
all the phonetic works, the Prātiṣākhya, etc., belonging to the Taitt.
school."1 There is no such explanation given by Franke’s com-
mentator. Again, Franke’s edition (p. 31) has only two verses on
accent, describing the "castes" of the three accents; but the Madras
MS. has thirty-three verses, and a fairly copious treatment of accent.
The two verses of his edition do not occur among these thirty-three
verses, but are found about the end of the Madras MS., being verses
IV. 104, 105. Again, regarding this Śīkṣā, Lüders2 remarks that cer-
tain portions of this work are "evidently nothing but elaboration of the
Corresponding portions of the Vyāsa Śīk." This may be true of Franke’s
edition, but not so much of the Madras MS., which contains some
material hardly to be met with in any other extant Śīkṣā. For
instance, it states the fact that the quantity of a consonant without a
vowel is a quarter-mora,3 and that the quantity of a "pause" between
a labial vowel and the first member of a consonant-group is a half-
mora, provided that the consonant-group intervenes between two
labial vowels—e.g., in utpūtā, the "pause" between u and t was said
to be a half-mora.4 Whatever may be said of these opinions, it is not
unlikely that they are original theories of the Śīkṣā itself. Moreover,
although the work is admittedly of a secondary character, its date
does not seem to be very recent, for it has been quoted both by the Tribhā-
ṛaratna and the Vaidikābharana.5

(b) The Āraṇya Śīkṣā (MS. No. 866) is a monograph on accent in the
Taitt. Āraṇyaka. It enumerates words with accent in different posi-
tions—those with an initial accent,6 those with two final udātta, etc.
(see p. 166). On verse 27 the commentary has an interesting discus-
sion on the relation of accent and quantity (see p. 166). This Śīkṣā

1 sarva-sammatam sarvesām tattvira-sākhopayogināṃ prātiṣākhya-prabhṛtināṃ
sammatam samānārthaṃ lakṣyante prakāśyante 'neneti-lakṣaṇam.
2 Vyāsa Śīk., p. 106.
3 IV. 95 (see p. 184).
4 IV. 80: oṣṭhayaḥ svarayor madhye samyogādir yadi sthitaḥ visargāt kṣyaparād
ūrdhvam ubhayastrārdha-mātrikāḥ.
Com.: yathā ubpūtā, atrokrāra-lakārayor madhye virāmo 'rdha-mātrakālaḥ.
5 Cf. the verses on the various kinds of Svarabhakti quoted by the Tribhāṛaratna on Taitt. Prāt., XXI. 5; Franke’s edition, p. 22.
Again, cf. II. 3: kutracit svarayor madhye dvitīṃ lakṣyānusūrakaḥ, pūrvāgamas
tathā tatra jiṇeyo varna-vicākṣaṇaiḥ, quoted both by the Tribhāṛaratna and the
6 adhyātātmi vákyānī caika-deś-tryādi-saṃkhayā, vividhānī
tu vṛndānī vispaṭāny atra kṛṣṇaśāḥ. 2.
INTRODUCTION

is admittedly a more recent work, for it speaks of itself as "nectar extracted from the ocean of the nine Śīkṣās."

(c) The third and last secondary Śīkṣā mentioned is the Siddhānta Śīkṣā, MS. No. 1012. The designation is a misnomer, for the treatise does not deal with the general principles of phonetics. Its treatment is entirely empirical; it is prepared on the same lines as the Bhāradvāja Śīkṣā, giving lists of words containing different sounds in alphabetical order—e.g., in kāmiṣṭyaṇte, lokam, etc. The only point of some interest is the view (see p. 153) that "tvam" is optionally pronounced tvam in the Vedas.

Nevertheless, the place of this Śīkṣā in the chronology of Indian phonetic literature is of some importance. The author, who is said to have compiled both the Śīkṣā and the commentary, not only enumerates the nine primary Śīkṣās described above, but also mentions the commentaries Tribhāṣya ratna and the Vaidikābharana, as well as the authors Bhaṭṭa Bhāskara Miṣra and Gaṅgeśa. Now Bhaṭṭa Bhāskara Miṣra, according to Burnell, lived about 950-1000 A.D., while the date of Gaṅgeśa, according to Keith, is 1150-1200 A.D. Moreover, considering the fact that it quotes all the primary Śīkṣās, including the Vyāsa Śikṣa, it must be a more recent work than the above authors. But in view of the fact that it still esteems Bhaṭṭa Bhāskara's commentary on the Taitt. Saṃhitā as the bhāṣya, it was composed perhaps not much after Saṃyāna's commentary came into prominence.

1 Introductory verse, last two lines:

\[ \text{ks̄iti-sura-gaṇa-hetor etadārtya-śiṅkṣā-}
\text{mṛtam iva nava-śiṅkṣā-vāriḍher uddhārāmi.} \]

2 kakārādiṁ kāmiṣṭyaṇte syād amuṁ lokam uttaraṁ
\[ \text{kaṭa-dhātoḥ kaḍ ṛty āhur āsvibhyāṁ pariṭaḥ kṛtam. 45.} \]

3 Cf. colophon: śrīnivāśādhvarindrenā catuṣkula-sudhāḥ-svānā slokāḥ siddhānta-
\[ \text{śiṅkṣāyāṁ catuḥ saptaiv iritaṁ śrīnivāśādhrindra-viracita śiddhānta-śiṅkṣā-vyākhyā}
\text{samāptā.} \]

4 Verse 2: pūrva-sabdāṁ parāmśrya pratiśākhyāṁ ca sarvasaḥ siddhānta-
\[ \text{śiṅkṣām vakyāmi veda-bhāṣya yuṣmān.} \]

Com.: ... tribhāṣyaratnaivar vaidikābharanādi-vyākhyānaprahaṣaraṇayā kṛtam
\[ \text{pratiśākhyāṁ ca parāmśrya vedabhāṣya yuṣmānānām.} \]

3 Index to Skr. MSS. at Tanjore, p. 7.

5 "Indian Logic," p. 33. Gaṅgeśa is mentioned under verse 7: ānvikṣikīṁ
\[ \text{parama-kārūṇiko prāṇīnāyati Gaṅgeśaḥ.} \]
The lower limit of its date was therefore the fifteenth century A.D., about a century later than Sāyaṇa. The commentaries Tribhāṣya- ratna and the Vaidikābharaṇa should therefore have been presumably composed before the fifteenth century A.D.

But Śiksās much more valuable than some of the above have now been discovered. Three of these, all Madras MSS., may be described:

1. The Āpiśali Śiksā, MS. No. 864, is mostly devoted to articulation. The name of Āpiśali as a grammarian anterior to Pāṇini has been pointed out by Burnell, while the Vaidikābharaṇa quotes the Śiksā by name, and the passage quoted has been identified by me in the Śiksā, with a slight variation of reading. The Āpiśali Śik., then, should be earlier than the Siddhānta Śik., which, as shown above, mentions the Vaidikābharaṇa. Moreover, as suggested above (see p. 10), this Śiksā possibly suggested to Kaiyyaṭa the eleven kinds of “external effort,” as in no other Śiksā have these phases of “external effort” been described. If this was a fact, the lower limit of its date may be earlier than the eleventh century A.D., being the probable date of Kaiyyaṭa.

But it is possible to push back its date even further. For Rāja Śekhara (circa 937-1077) in his Kāvyamimāṃsā actually names this Śiksā, as Bhagvad Datta has pointed out. The probable lower limit of its date may therefore be assumed as the ninth century A.D.

The upper limit of its date, however, cannot be pushed back very far, as in an introductory verse it describes its object to be “the fixation of data relating to Vedic texts as prescribed by Śiksā and Grammar, without conflicting with the Prātiśākhyas.” The work, though in substance the authorship of “the sage Āpiśali,” possibly underwent further changes in course of time.

1 Burnell: Vamśābrāhmaṇa, pp. vi ff.
2 “Andra School of Grammarians,” pp. 1, 36.
3 On Taitt. Prāt., II. 47: seṣāḥ sāhā-saṇa-karaṇā ity āpiśala-sīkṣā vacanāt. The actual reading in my transcript of the MS. is: (jihvägreṇa dantyaṇamaḥ) seṣāḥ sva- sāhā-saṇa-karaṇyoh. 24. As this Sūtra occurs also in Candra’s Grammar (18), the possibility of a borrowing on the part of either of these works is a matter for further investigation.
5 Māṇḍūki Śik., p. 6.
6 taemāt tat-tat-samāmnaye prātiśākhya-virodhaḥ, kāryam sarvam vyavasthāpyaṃ śiksā-vyākaraṇodidam. 5.
7 atha śiksāṃ pravakṣyāmi matam āpiśaler muneḥ 1a.
2. A much more interesting Śikṣā is the Kālanirnaya (on Quantity), which had come to the notice of Whitney and Lüders, but they could not trace it out. It has now been discovered in Madras, and copies of two MSS. (Nos. 891, 892) have been sent to me. Its observations on quantity will be discussed in Chapter XI. As regards its date, Burnell suggested the fourteenth century, and thought it was probably a work of Śāyana. But as the Vyāsa Śik. has borrowed a portion from this Śik., it should be earlier than the thirteenth century, the date of the Vyāsa Śik. As regards the upper limit of its date, no particular data are available; but the work is evidently posterior to the Prātiṣākhyas, for in the introductory verse the author says, “After studying, according to my lights, the Śāstras like the Prātiṣākhyas, etc., I proceed to describe quantity, for the comprehension of Vedic truth.”

Several verses quoted by the Tribhāsyaratna and the Vaidikābharaṇa can be traced out in the Śikṣā. Thus the one quoted by the former on Taïtt. Prāt., XVIII. 1, is the nineteenth verse of this sikṣā; another cited on the same Śūtra is its sixteenth verse; while the one quoted by the Vaidikābharaṇa on Taïtt. Prāt., I. 37, regarding the quantity of a final ī is its eleventh verse.

Its commentary is named the Kāla-nirnaya Dīpikā, the commentator’s name being Muktīvarācārya. He combats Patañjali’s view—or, rather, what seemed to him to be his view—that there was a “pause” between two individual sounds (see p. 186).

3. But even more interesting than the above is the Pārīśikṣā, MS. No. 924. It is a complete Śikṣā, with a lucid commentary. The striking observations of this Śikṣā on doubling, quantity, and accent will be noticed in Chapters V., XI., and X. The commentary gives us the definition of the syllable (see p. 55). But in the case of this work, both the name and the date are a riddle. As regards the title of the book, what was meant by Pārī?

Aufrecht, in his Catalogus Catalo-

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1 Taïtt. Prāt., p. 355.  
2 Vyāsa Śik., pp. 110, 111.  
3 “Aindra School of Grammarians,” p. 49.  
4 Lüders, Ibid., op cit.  
5 prātiṣākhyādī-sāstrāṇī mayā vikṣya yathāmati, vedatatvavabodhārtham iva kālo nirūpyate.  
6 svādhyāyārambhāseṣasya prāṇavasya svarasya ca adhyāyasyaśvāmāvatāyante syād ardhā-trīyātā.  
7 sanāhyakṣparāṇām vedam ca prāṇavam cāntarā tathā.  
8 avasāne lakārasasya triṇādaśvatām sadā bhavet.
gorum, suggests that Pārīśikṣā might be Pārāśari Śikṣā. But the difficulty of accepting this suggestion is that the text of this Śikṣā has very little similarity with that of the Pārāśari Śikṣā. And then there is the phonetic difficulty of the change of a whole word Pārāśari into Pāri, with a short final. The commentator on this Śikṣā, however, suggests that Pāri was the name of a sage. He thus describes the purpose of this Śikṣā: “The author follows the works on phonetics, etc., composed by the sages Bhāradvāja, Vyāsa, Pāri, Śambhu, Kauhala, Hārita, Bodhāyana, Vāsiśtha, Vālmiki, etc., incomprehensible to people of modern times.”  

It will be noticed that eight out of the nine names quoted in this list are exactly those enumerated above by the Vedalakṣaṇa-nukramanikā among the nine authors of the primary Śikṣās. The ninth author given by our commentator is Pāri, while the one mentioned by the Anukramanikā is Pāṇini. It may be supposed, then, that “Pāri” was a clerical error for “Pāṇini.” But this supposition vanishes when we note that the commentator even in verse calls the work the “Pārīśikṣā.” Nor is the name Pāri to be met with elsewhere in Sanskrit. It cannot be the name of the author, for he definitely gives his name as “Cakra.” Perhaps the author first thought of “Pārīśikṣā,” “a ‘Rundschau’” on Śikṣā (though even this would be an unsatisfactory term), and then coined an attributive designation for a work relating to a survey of Śikṣā as a subject.

As regards Cakra, his style and metre indicate that he is a comparatively recent poet. He does not mention any locality, but presumably belongs to the south. A poet of this name is said to be the author of “Citra-ratnākarakāvyā” and “Citra-praśnottara-ratnā-

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1 Introductory lines to verse 3:

sāmypratika-jana-duravabodha-bhāradvāja-vyāsa-pāri-
sambhu-kauhala-hārita bodhāyana-vāsiśtha-vālmiki prabhṛti-
munigaṇa-vinirmiśa-śikṣādi-granthānusārena . . . pratijāṇite.

2 satāṁ mudaṁ samprati pārīśikṣā—
vākhyāna-bhūtaḥ hṛdayaṁgamayum
vilakṣāṇā yājusabhūpanākhyā
kṛtir madiyā vítanato kāmam. 4.

3 tanayo vinayojjvalaya tasya
prabhūtā vasādaka-sūkham-sinhah,
krpayā mahatām sa cakra-nāmā
hy api varṇa-krama-lakṣaṇam karoti. 3.
vali,"1 but it is difficult to tell whether the author of the Śiksā and of these works was one and the same person.

As regards its date, the Pārīṣikṣā was earlier than the Siddhānta Śiksā, for it is quoted both by the Tribhāṣyaratna2 and the Vaidikābharaṇa,3 both of which have been mentioned by the Siddhānta Śiksā. The lower limit for the date of its composition may be assigned to the fifteenth century, the probable date of the Siddhānta Śiksā.

The above is an attempt to construct a crude relative chronology of the Taitt. Śiksās from the meagre data available. But it is necessary to mention in this connection a work which has not been sufficiently brought to the notice of modern scholars—viz., the Vaidikābharaṇa.4 It is an illuminating work on the Śiksās in general and the Taitt. Prāt. in particular. It not only quotes many of the extant Śiksās of the Taitt. school, as shown above; it also cites possibly several more Śiksās which still remain to be discovered. On advanced subjects like quantity, accent, etc., peculiar to the Śiksās, its data are particularly valuable, and will be examined in due course.

But its chronology is obscure, as usual. The only data given by the author about himself are his own name,5 Gārgya Gopāla Yajvan, the name of his work, the Vaidikābharaṇa, and another work—viz., Svarasampad.6 Burnell7 mentions another treatise by the same author—viz., the Pitṛmedha-bhāsyā—in the beginning of which he merely mentions his name. There is said to be another8 work by the same author—viz., the jñānadiṇa, a commentary on the Vṛttaratnākara—in which he quotes Śrīnātha, who, according to Raṅgācārya, must have lived after the eleventh century, as he quotes the author of

1 Aufrechte, Catalogus Catalogorum.

2 On Taitt. Prāt., XXI. 1:

\[ \text{yaḥ svayam rājate taṁ tu svayam āha Pataṇjaliḥ} \]

\[ \text{upari sthāyinā tena vyaṅgyaṁ vyaṅjanam ucyele.} \]

It is verse 12 in the Pārīṣikṣā.

3 On Taitt. Prāt. I. 2:

\[ \text{anvarthaṁ mahāsaṁjñā vyaṅjayanty arthāntarāṇi ca} \]

\[ \text{pūrvadāryaṁ asat tāṁ tu sūtrakāraṇa cāśrītāḥ.} \]

It is verse 9 in the Pārīṣikṣā.

4 Published in the Mysore Government Oriental Library Series, 1907 (Taitt. Prāt.).


7 Index to Skr. MSS. at Tanjore, p. 16.

the Vaijayanti (circa the eleventh century). But we need not look
for an upper limit as early as the eleventh or the twelfth century, for
it has been shown above that the author quotes the Pārāśikā, although
he is cited by the Siddhānta Śīkṣā. His probable date is therefore
circa fourteenth to fifteenth century A.D.

As regards the Śāma Veda, three Śīkṣās may be mentioned:

1. The Nārada Śīkṣā is one of the oldest and the most profound
Śīkṣās. It states its object to be “the treatment of accents in the
Śāma Veda.” This is corroborated by the nature of the text, which,
from pp. 394 to 428 describes accent and its relation to musical notes;
there occurs a break of three pages in which other subjects of
phonetics, as doubling, syllabication, etc., are dealt with (428-31);
accent is resumed on pp. 431-32. Again, there is a break of nine pages
on extraneous subjects; and accent is again resumed from p. 440.
These two breaks in the treatise seem to be interpolations which were
inserted later in order to make it a complete Śīkṣā.

As regards its chronology, the treatise is silent about itself, except
that its authorship has been attributed to Nārada. We have, there-
fore, to depend upon external evidence for its date. A quotation from
it, in which a vowel is compared to a supreme monarch, occurs in the
Triśaśyaratna. But works considerably earlier seem to refer to it.
Thus in the Saṃgīta Ratnakara (circa thirteenth century), Nārada
has been mentioned as the author of the Gāndhāra-grāma, the third
musical gamut, and it states in this connection that there are only two
grāmas (musical gamuts) on earth—viz., the Śadja-grāma and the
Madhyamagrāma; the third—viz., the Gāndhāra-grāma, which it
attributes to Nārada—“is current only in paradise, and not on earth.”

1 ŚS, p. 398:

śāmavede tu vakṣyāmi svarāṇāṁ caritam yathā,
alpa-granṭham prabhūtārtham śravyaṁ vedāngam uttānam.

2 The text referred to occurs in ŚS.

3 ŚS, p. 398: śīkṣām āhūr dvijātām ṛg-ṛṣyaḥ-sāma-lakṣāṇam, nārāḍīyaṁ
śeṣena niruktam anvapūrṇaṁ.

4 On Taśt. Prāt., XXI. 1 (see p. 56).

5 Clements, “Introduction to the Study of Indian Music,” p. 46; B. Simon,

6 I. 4:
grāmaḥ svara-sūrūkaḥ syāṁ mārcchanādeḥ samāśrayaḥ
tau dvau dhārātale tatra yat ṣadja-grāma uḍīmaḥ.

gāndhāra-grāmaṁ ācāste tadā tāṁ nārado muniḥ,
pravartate svarga-loke grāmo’ sau na mahīśe.
Now precisely these three grāmas, including the Gândhāra-grāma, have been taught in the Nārada Śikṣā,¹ and there it also explicitly states as the opinion of Nārada that “the Gândhāra-grāma does not exist anywhere else except in paradise.” Again, the Saṅgīta Ratnakara, in another verse,² states concerning modulations (mūroccanā) that “Nārada has given other names for them—viz., uttara-mandrā, udgata, asvakrāntā, sauveri, hṛṣyakā, and uttarayatā”—terms which precisely occur in the Nārada Śikṣā.³ It is probable, therefore, that the author here actually refers to the Nārada Śik. But if this is a fact, the lower limit of its date may be pushed back several centuries before the Saṅgīta Ratnakara, for these terms for modulations attributed to Nārada also occur in Bharata’s Nātya Śāstra,⁴ and if this tradition regarding Nārada’s authorship of these verses was correct, the lower limit for the date of the kernel of this Śikṣā was possibly the fifth century A.D., being the probable date of Bharata’s Nātya Śāstra.⁵

But while our treatise seems to be one of the oldest of the Śikṣās, its chronology cannot be pushed back so early as to precede even the Pratiśākyas, for it quotes authorities,⁶ as Tumburu and Viśvāvasu, who have been mentioned in later or contemporary works, as the Mahābhārata.⁷ It seems to be posterior both to the Vāmśa Brāhmaṇa

¹ ŚS, p. 399: saḍja-madhyama-gāṇḍhārās trayo grāmāḥ prakṛitītāḥ, bhūr-lokāj jāyate saḍjo bhuvār-lokāc ca madhyamaḥ svargaṇā nānyatra gāṇḍhāro nāradaśya mataḥ yathā.

² I. 4, 22, 23:

   tāsām anyāni nāmāni nārado munir abravit,
   mūroccanottara-mandrdāya saḍja-grāme bhūrudpata,
   asvakrāntā ca sauveri hṛṣyakā cattāryatāt,
   rajaniti samākhyaḥ puṇyam sapta mūroccanāḥ.

³ ŚS, p. 400: saḍje tūttaramandrā syād ṣaḥbe cābhūrudpata, asva-kṛāntα ca gāṇḍhāre ṣaṭiyα mūroccanā smṛtya, madhyame khalu sauveriḥ hṛṣyakā ṣa[c]a.ca.ne svare, dhairate cāpi viśyeyā mūroccanā tūttarayatā.

⁴ XXVIII. 30-31:

   ādaṇ uttaramandrā syād rajani cattāryatāt,
   cáturthi śuddha-saḍja ca paṉcamī matvarī kṛta,
   asvakrāntā tathā saṭṭhi saprami cābhūrudpata,
   saḍja-grāmālāritat hy etā viśyeyā sapta mūroccanāḥ.


⁶ ŚS, p. 442: tumbru-ṇārada-vastiṣṭha-viśvāvasvādayāc ca gandharvāḥ.

⁷ St. Peters. Lexicon. Viśvāvasu occurs as an author of a hymn in the Rgveda (X. 139), but as a Gandharva (in which position it occurs in the Nārada Śik.) it occurs more frequently in the Mahābhārata.
and the Śāmavidhāna Brāhmaṇa. It refers to an authority Audabraji mentioned in the former work, while it follows the latter in its description of the various kinds of music prevalent among the different scales of creation.  

2. The Lomaśi Śikā makes general but concise observations on doubling. It also refers to Tumburu, quoting his opinion on the regulation of exhalation and inhalation during Śāma chants. But as regards its chronology, even its authorship is puzzling. The title of the Śikṣā suggests that its author was a person named Lomaśa. But in its first verse it is stated that the Śikā was ‘thought out by Gargācārya.’ How can the title ‘Lomaśi’ be connected with Gargācārya? Now a MS. work, the Jātakapaddhati, enumerates a list of authorities on Astronomy among whom Garga and Romāsa (along with Vyāsa, Vasiṣṭha, etc.) have been mentioned. If the Śikṣā was planned by Garga, may it be supposed that it was executed by another man in the same line—viz., Romāsa or Lomaśa? Or is the Śikṣā, being a work on phonetics, called Lomaśī or Romāśī after Romāsa, the goddess of speech, mentioned as a daughter of Bṛhaspati in the Bṛhad Devatā? The connection of Garga with the Śāmaveda, however, may be suggested by ‘Gārgya,’ said to be one of the thirteen teachers of the Śāma Veda, possibly the traditional author of the Pada Pātha of the Śāma Veda. But the question of the Śikṣā’s authorship and its chronology is still shrouded in mystery.

The Śikṣā recommends the pronunciation of Svarabhakti as a, which represents a geographical area to which Ardhamāgadhī and Apabhramśa belonged (cf. p. 136).

1 ŚS, p. 443: varṇāṃ ca kurute samyak prācīṇaudbrajīr yathā.
2 ŚŚ, p. 410: kṛṣṇena deva jñanta prathamena tu mānusāḥ pāsavas tu dvītyENA gandharvāpsarasas tu anu.
Cf. Sām. Brāhm., I. 8: tadyo 'sau kruṣṭatama iva sāmnaḥ svaras taṁ deva uṣpaṣṭavanti yo varasāṁ prathamān tam manusyaḥ, etc.
3 ŚŚ, p. 461: daksinā niḥkṛtaḥ prāṇo (a) pānas te anyathā bhavat savyam pītav-pānasya tumburasya matam yathā.
4 ŚŚ, p. 456: lomakanyāṁ pravakṣyāmi gargačāryena cintitām.
5 Madras MSS. Catalogue, 1913.
No. 374, colophon: romasaḥ pulaśā caiva cyavano cyavano bhṛguḥ, saunako śādasaḥ hy ete jyotiḥ-sāstra-pravarttakāḥ.
6 III. 156: prādāt sutām romasāṁ nāma nāmā, bṛhaspatir bḥavayavyaya rājne.
7 Commentary on the Āraṇavyūha (Benares), p. 47: āśaṁ sākhānāṁ adhyāpākacāryās taryodasa-saṁkhyaṅkāḥ . . . dārālo gārgyaḥ sāvarṇiḥ . . . , etc.
INTRODUCTION

3. The Gautami Śikā is ascribed to Gautama, probably in honour of the authority who, according to the Ārṣeya Brāhmaṇa, was the seer of the first Sāma. It manifests a close study of doubling and consonant-groups, and says, "Gautama has declared that there exists no consonant-group with more than seven consonants."  

It refers to a "Prātiśākhyā" in which a consonant-group (yu)nukṣaṇv is said to occur, but no such group can be traced in any of the extent Prātiśākhyas. This may suggest that it was posterior to some extinct Prātiśākhyas, but the question of its chronology remains absolutely unsolved.

The Śikā belonging to the Atharva Veda is the Māṇḍūki, but, although connected with the Atharva Veda, owing to the copious number of quotations from that Veda occurring therein, it is particularly interested in accent common to all the Vedas, especially the Sāma Veda, and seems to have further developed the teachings of the Nārada Śikā on accent. Thus it speaks of the seven musical notes in the Sāma chants, of the necessity of moving the hand in the Rg, the Yajus and the Sāma recitations, and of the opinion, attributed to Māṇḍūka, that the first two and the last two notes of the musical scale are sung in the Vedas. The Nārada Śikā, on this point gives nothing that may be common to all the Vedas; it has only specified the kinds of musical notes confined to each particular Veda. Again, verses 8-12, describing the nature of notes in the musical scale, seem to be the same as those given in the Nārada Śikā, slightly modified.

1 Cf. the opening line of this Brāhmaṇa:

\[ \text{gautamasya parkav.} \]

According to Caranavyūha (Benares, p. 45), Gautamī was one of the nine sub-divisions of the Rāṇāyanīya school.

2 Cf. p. 111.

3 It is possible, as Professor R. Simon in a private communication suggests to me, that this unwieldy consonant-group was the transcription of a musical phenomenon in the Sāma Veda gānas, though there are no indications of such consonant-groups in the gānas; yuṅkṣau, e.g., is written in the gānas as \( \text{yuṅkaṃ} \).

4 Traced by Bhagvad Datta, in the index to his edition of the Māṇḍūki Śikā, 1921.

5 Verse 7, ŚS: saṃta svarās tu gyante sāmabhīṣṇā sāmagnīr bhudhaiḥ.

6 32b, Ibid.: yuñ-yajuk-sāmagādini hasta-hināni yaḥ paṭhet.

7 Verse 17: prathamāv antimau caiva varīnte chandasi svarāḥ, trayo madhyā nivartante māṇḍūkaśyā mātarm yathā.

8 Cf. ŚS, pp. 307-308.

9 Cf. ŚS, pp. 407-408.
As regards its date, then, its upper limit may be assumed as the fifth century A.D., the probable date of the kernel of the Nārada Śik., but it seems to be much later than that date. For it contains a good deal of material common to some of the Śikṣās of the White Yajur Veda—e.g., pronunciation of y and v in different positions (verse 87), the reference to the woman of Surāśṭra pronouncing the nasal sound raṅga (verse 112), etc.—and so is either contemporary with, or posterior to, the Yājñ. Śik., circa the tenth century A.D.

The above chronology of the Śikṣās has been determined from the standpoint of the form in which we possess them at present, and it has been shown that the latest of the Śikṣās belong to a period as late as the twelfth to the fifteenth century A.D. But this does not necessarily indicate that the matter of these Śikṣās is also an equally recent production. If some of them were composed during the medieval period, a considerable portion of their material was most probably a traditional record of phonetic observations of much earlier ages. For it is hardly likely that many of the opinions—as on abhinidhāna in the Cār. Śik., and on the divergent pronunciations of y and v in several Śikṣās (see pp. 128 ff.)—record contemporary pronunciation of spoken Sanskrit. The pronunciation in question belonged to a much earlier, transitional stage, which is confirmed by the development of the middle and the modern Indian languages. The motive for the injunction of the older pronunciation was in several cases—e.g., when the Cār. Śik. said that consonants in Sandhi were always to be doubled—conservative, to guard the traditional pronunciation against provincialism. Moreover, the fact that nearly all the Śikṣās have been composed in a metrical style suggests the possibility of earlier works in the Sūtra or prose style, of which the Śikṣās were popular compendiums for ready reference. Nevertheless, there is nothing against the supposition that even in the medieval period some portion of the Śikṣā literature was an original contribution. When, for instance, the Śikṣās offered various details on Śvarabhakti after the Svarita accent (see pp. 84 ff.), the authors presumably refer to their own pronunciation of these sounds.

Geographical Data.

While the chronological material of Indian phonetic literature is poor, its geographical data are hopelessly meagre. In the whole domain of this literature of fifty-five books examined by me, only five geo-
graphical names have been mentioned: (1) Surāṣṭra, a stock-example of many Śikṣās, so that we cannot specify the original source with which the place may be connected; (2) Puṣkara (cf. p. 33), a holy place of pilgrimage mentioned by the Pārāśārī Śik; (3-5) the Yamunā (Kālindī), the Ganges, and Sarasvatī mentioned by the Yājū. Śik.1 These four places of pilgrimage, so commonly connected with all parts of India, could be mentioned by anybody, however distant he may actually have been from those places.

Variations of pronunciations mentioned in the following pages, however, may help us to construct a number of hypothetical geographical data of primitive and middle Indian as observed in Śikṣā literature—a subject for further investigation. The following lines for the construction of these hypothetical isoglosses of the future may be provisionally suggested:

1. Pronunciation of r and r' mentioned as dental or alveolar by the Prātisākhyaśas, but cerebral by the Pān. and the Āpiśāli Śikṣās, may suggest the former's connection with the western, and the latter's with the eastern, dialects.2

2. The Taitt. Prāt.'s view of the Yamas as belonging to the succeeding syllable (nasalization being weaker in this case) and that of the Vāj. Prāt. as belonging to the preceding syllable may connect the former with the Ardhamāgadhī-speaking areas, and the latter with the other areas.3

3. The Taitt. Prāt.'s rule4 regarding the insertion of a plosive between a fricative and a nasal consonant may connect the pronunciation with the Aśokan Central (or Magadhan) dialect.

4. The prescription of the Lomaś Śik. regarding the pronunciation of Svarabhakti5 as a may connect it with areas to which Mahārāṣṭrī and Ardhamāgadhī belonged, and the Yājū. and the Māndūkī, which prescribed it as i, with the other areas.

5. The Vāj. Prāt.'s prescription6 of pronouncing intervocalic j as y (so that ajā- was to be pronounced ayā-) may connect it with the western dialects.

6. The rules7 of the Śikṣās of the White Yajur Veda regarding the

1 ŚS, pp. 4-5: kālindī samhitā jiñeyā padayuktā sarasvatī, kramenāvarlayed gangā samāhōr bāṇi tu nānyāthā.
2 Cf. p. 9.  
3 Cf. p. 79.  
4 Cf. p. 125.  
5 Cf. p. 136.  
6 IV. 164: svarāt svaśe pare samānapade ja yaṇi na tu ṣkāre.
7 Cf. Chapter VI.
pronunciation of $y$ and $v$ in certain positions may connect them with Madhyadeśa—the Śauraseni-speaking area.

7. Similarly, the Vāj. Prāt.'s prescription\textsuperscript{1} that the cerebral $l$ and $lh$, the Jihvāmūliya and the Upadhmāniya did not exist among the Mādhyandinás may suggest that the above-mentioned area was meant.

\textsuperscript{1} VIII. 29: tasmān $lh$-jihvāmūliya-nāsīkā na sānti mādhyandinām.
CHAPTER I

THE SYLLABLE

The most usual term used in Sanskrit works for the syllable is aksara, which the Pārisiṣṭīkā Yaśuṣabhūṣana¹ explains as that which does not move as an adjunct to another: in other words, which stands alone.

The essential element of the syllable was said to be the vowel. For a consonant, according to the statement of the Tribhāṣyaaratna,² cannot stand by itself; it is dependent, while the vowel is independent. There is no doubt, says the same authority, that a consonant has an existence of its own. For, firstly, meanings of words change with consonants—e.g., in the words kūpa- and yūpa- the vowels are the same, but the consonants are different, and so the meanings of these words differ. And, secondly, the articulation of a consonant takes some time,³ which, according to Indian grammarians, was equal to half the time taken by a short vowel—i.e., half a mora. It was only in quick speech that the duration of a consonant was merged in that of a vowel. In intermediate and slow speech, however, says the Vaidikābharana, a consonant does distinctly preserve its quantity, though in quick speech its quantity is not distinctly perceived, just as in a mixture of milk and water it is only the milk that is distinctly perceived.

A consonant, then, according to the Indian grammarian, is not absolutely dependent upon the vowel. And yet, as the Nārada Śikṣā⁴ points out, consonants are like pearls in a necklace, but the thread which supports them is the vowels. Consonants, according to Patañ-
jali, share, in a sense, in the accent of vowels. For, says Patañjali, although accent is not a quality of the consonant, it is the quality of the vowel; yet by proximity to the vowel, the consonant also acquires this quality of the vowel, just as a piece of white cloth between two red pieces of cloth acquires their colour, or just as a pot acquires luminous power by the light of the lamp. The accentuation of a vowel can be perceived without the presence of a consonant, but, says Patañjali, without a vowel a consonant cannot even be pronounced. The Sanskrit word for the vowel, *svāra*, has been derived by Patañjali as *sva-ra*, which literally means ‘self-ruling’ (*svayam rājate*), while the Nārada Śīkṣā compares the vowel to a powerful monarch and the consonant to a weak king, the latter submitting to the force of the former.

The vocalic basis of the syllable, maintained by Indian grammarians, was on the whole sound. There is no doubt that even a consonant, if pronounced with sufficient prominence, may become an independent syllable. For the basis of a syllable is prominence, not mere sonority. This prominence has three elements—viz., length, breath-force, and sonority. A consonant has, indeed, less sonority than a vowel has, but if one or both of the other two elements—viz., length and breath-force—are particularly strong in its articulation, the consonant may be prominent enough to form an independent syllable. Thus in Japanese *S* in arimasa (‘is’ or ‘are’), *s* in *ška* (‘deer’), *k* in *kra* (‘grass’), and *m* in *ma* (‘horse’) are independent syllables, as they are pronounced with unusually great prominence of breath-force and length. Similarly in English *l* in *funnel*, *n* in *mutton* are independent syllables. And in colloquial rapid speech in German *n* in *wir könn(en)* and *m* in *wir komm(en)* are independent syllables. A consonant may, then, occasionally become an independent syllable. Nevertheless, a vowel is a more important basis of syllabication than a consonant is. For in actual speech the element of sonority is more predominant than those of length and breath-force in constituting the

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2 svayam rājante svarāḥ anvag bhavati vyāñjanaṁ iti. Ibid., p. 206.

3 durbalasya yathā rāgaṁ harate balavān nṛpayḥ, durbalasam vyāñjanaṁ tadvad harate balavān svaraḥ. ŚS, p. 436.

4 I owe the above examples to Miss Armstrong, of University College, London.
prominence of a sound, and the vowel being more sonorous than a consonant, tends therefore to possess greater prominence than a consonant. Hence the more sonorous sounds—viz., vowels—rightly appeared to Indian grammarians as convenient bases of syllabic division.¹

But if our grammarians implied that a vowel was absolutely the essence of a syllable, they were evidently wrong, for it is now an established fact that a consonant or a group of consonants can form an independent syllable (cf. the examples given above). The language of Indian grammarians in this connection implies that they did not dogmatically maintain the vocalic basis of the syllable in the absolute sense, for they speak of the vowel as a more powerful monarch and of the consonant as a weaker king. But it is evident that they were inclined on the absolute side. Moreover, it did not definitely occur to them as a general principle that a consonant or a group of consonants could form an independent syllable. There is no doubt that the syllabic nature of r and l did strike the Indian phoneticians, but even here it was in the form of vowels that l and r appeared to them as constituting independent syllables. Thus according to the Bhāradvāja Śiksā l was never a vowel in the beginning or at the end of a word, but it was vocalic in the medial position, as in the word klpta.² Again, the Svaravyāñjana Śiksā is exclusively devoted to the question when r is a consonant and when it is a vowel; for details see Appendix A.

In the light of the above facts, however, it seems to me probable that the Indian terms Svāra and Vyāñjana did not exactly correspond to the "vowel" and the "consonant" of modern phonetics. The Indian terms may have denoted "a syllabic sound" and a "non-syllabic sound" respectively. For the essential difference between Svāra and Vyāñjana lay in their relative dependence. The Svāra was said to be "self-dependent," while the Vyāñjana (literal meaning: 'manifested by another,' "accessory") was dependent upon the Svāra. So when the consonants l and r, and sometimes even m (according to the Sarvasaṃmata Śiksā, as a

¹ Cf. Meillet, "Langues indo-européennes" (3rd Edition, p. 106): "The vowel belongs entirely to the syllable of which it is the centre."
² udāhṛtaḥ kṣiptaśabdāḥ na padādyantayoh svaraḥ. 34 (Sieg’s Edition).
³ Cf. the explanation of the Vaidikābharaṇa on Taitt. Prāt., I. 6: "pārena svarena vyajyata iti vyāñjanaṃ." This sense of the suffix ana is here possible; cf. Böhtlingk on Pāṇini, III. 3, 113.
subsequent discussion will show: cf. p. 82), were noticed as being independent sounds and were designated as Svāra, the general principle that a consonant could also form an independent syllable may have been recognized by Indian grammarians if they actually meant by Svāra "a syllabic sound," and not necessarily "a voiced sound accompanied by a free passage of air through the mouth, and not producing audible friction,"1 which the modern term "vowel" signifies.

APPENDIX A.

The Svaravyaṇjana Śīkṣā on "r" as a Consonant and "r" as a Vowel.

The Svaravyaṇjana Śīkṣā is a short treatise of about three pages. It is MS. No. 21 of 1875-76, belonging to the Bhandarkar Oriental Research Institute, Poona. The MS. is unfortunately corrupt and mutilated, and I have not been able to secure another copy of it anywhere else.

The object of the work is to show when r is a consonant and when it is a vowel. The work follows the Rg Prāt., for it not only quotes in full two verses from it (IV. 8-9), but also uses throughout the terminology of this Prātiśākhya, such as various terms of Sandhi, nīyata, bhūgna, kṣaipra (Rg Prāt., II. 8), anuloma sandhi (Rg Prāt., II. 3), etc. The work is post-Pāṇineyan, for it quotes Pāṇini, VII. 4, 28 and VI. 1, 168.

The treatise is divided into six sections or vargas.

I. The first section points out cases in which r of ri is a consonant. In the various phases of Rīphita Sandhi—i.e., in which Visarga may be either traced to "r" or can be changed to "r" (Rg Prāt., IV. 9)—the "r" is a consonant. Thus in the combination prāṭārindram (prāṭār ĩndram), the "r" of the syllable "ri" will be a consonant. It will be also a consonant in Paripanna Sandhi, which, as the Rg Prāt. (IV. 5) explains it, is that in which m is changed into an Anusvāra before r or a spirant. Thus in hōtāram ratnādhdhamam, the r following the Anusvāra will be a consonant. On the other hand, as the author points out in Section IV., r as a vowel cannot allow an Anusvāra before it—e.g., in sdmṛtubhiḥ.2

2 nāpy anumāraḥ samṛtubhiḥ.
According to the author, \( r \) is a consonant, before \( y \). This seems to be a striking observation. For it is a fact that in Sanskrit we do not find any group \( r+y \); \( r \) always changes into \( ri \) before \( y \), and the treatise in the third section quotes Pāṇini, VII. 4, 28, according to which the final \( r \) of a verb is changed into \( ri \) before \( y \). Cf. Wackernagel, p. 199: "\( r \) appears to have phonetically become \( ri \) before \( y \)." 

\( r \) in various forms of the numeral \( tri \) is a consonant, except in \( triya- \) and \( tisr- \). The Śiṅśā then enumerates a list of words in which \( r \) is a consonant and in which it is likely to be confused with \( r \), as \( ripu-, krivi-, krini-, risdas, etc. \)

II. The second section specifies cases in which \( r \) is clearly a vowel—viz., after an initial group of consonants or before a consonant-group, of which the last is the penultimate sound of the stem. This is an interesting observation, for an initial consonant+consonant+\( r \) as a consonant does not very commonly occur in Sanskrit, but the author's observation is not universally borne out by the facts of the language, for side by side with \( sparkṣyāmi \) there do exist in Sanskrit optional forms like \( sprakṣyāmi \), where \( r \) is a consonant, although preceded by a consonant-group. Nevertheless, if the author here refers to the language of the Vedas in general and of the Rgveda in particular, his observation is probably sound, for forms like \( sprakṣyāmi \) do not occur in the Vedas (Samhitās). Again, the observation that \( r \) is a vowel when followed by a consonant-group, provided that the penultimate is a consonant, is also interesting, and this is borne out by forms like \( tripta- \), where \( r \) is a vowel. But what about forms like \( tarpta \), which Pāṇini (VI. 1, 59) allows? Does the

1 (a) yakāre ca riṣoktāu ca; (b) pravobhrīyanta ity ādau riṃśayagliṅkṣu iti smṛteḥ.

2 The following is the text of the first section: \( Om \) namo brahmaṃe, rephān ālope nīyate praśritākāmayōḥ krame, ralōmopahītor ḍrasavo śānavarjaṃ pari-pannage. abhyāse trīti saṃkhya-ās īṃśayatiśvarjītaḥ. riṃcchrito riṃpuḥ krimiḥ kriṅik v śie riśādase. trīśatātriśuśjātasya (?) tripadgas tridāḥ tītāḥ. ārī sri-(-ca ?) prapokar (?) yas triṃsāt krimiḥ ādiṣu sopadā. riṃtoha riṃtato riśyaśārītaḥ saptakavajītaḥ, yakāre ca riśoktāu ca ādau cānugadā riṃpuḥ. riṃgajelaṃ-riṃkrīṭprāśo rihaṭe the riśādase. ity uktanāṃ vyaṇjananāṃ sarvam idānīm ucyate evarah. sṛgaḥ. 1.

3 viṃkraṃo nāpy anuvārāḥ īkāraḥ ca ephuṭaḥ evarah, saṃgogac ca paraḥ pūrvaḥ saṃgogae vyaṇjianopadakaḥ. Section II.

4 They occur in the Brāhmaṇas; cf. Wackernagel, p. 213.
The author's observation indicate that r in tarptā was vocalic, although orthographically written as a consonant? Sanskrit would hardly allow two such vowels a and r to stand together within a word without undergoing Sandhi. The Śikṣā mentions a couple of negative conditions which are necessary for r being a vowel: (1) r should not be preceded by a Visarga that cannot be changed into a hissing fricative—probably, I think, because the Visarga in this case will be dropped. (2) It should not be preceded by an Anusvāra, as already mentioned above. But it states that a hiatus or a semi-vowel may precede it. It seems to me, however, that these were rules of Sandhi in the light of which the author has tried to determine the position of r.

Section III. enumerates some further details of cases in which r is a consonant. Thus the r in mārtya-, mardā-, reṣanā-, and riṣē is a consonant, and so is the r in bhriyanta-, and the author quotes Panini, VIII. 4, 28, in this connection.¹

In conclusion, the Śikṣā makes an interesting observation that r both in ṛ and r, when not preceded by any consonant and when followed by a consonant, is a 'concentrated r' (sāmcito rephaḥ). Thus r in ṛsak (ï) tritā and riśddas-, ṛjū-, and ṛṇjāse is a 'doubtful consonant' (sandigdhavyaṇjana), and the author calls it 'concentrated r.' According to the author's theory, then, r in the word saṃskṛta-, preceded as it is by a consonant-group, is a clear vowel r, but r in ṛjū- and ṛṇjāse was a 'concentrated r.'² According to the author's theory, then, r in the word saṃskṛta-, preceded as it was by a consonant-group, was a clear vowel r, but in ṛjū- and ṛṇjāse wavered between a vowel and a consonant, and he calls it 'concentrated r'—probably, I think, because, like an abstraction, it did not leave a distinct impression on the hearer as to whether the sound in initial r and ri was vocalic or consonantal. When, however, r was preceded by a consonant-group and followed by another consonant as in the word saṃskṛta-, it had a greater chance of being syllabic, as a consonant+r+consonant+r+consonant was a too unwieldy combination in Sanskrit.

¹ Section III.: devo mardariśādasah, martyam riṣo riṣato nariyped (ï) gauri abhiśīrītaḥ. prabhobhriyanta ityādau riṃśayagālintev iti smṛteḥ budhyo (ï) riṣa. . .

² Section III.: ṛjurinjaseriti căha ity abhyāsasandhigdham [sic] . . . ṛṇāni ririg iti sāmcito rephaḥ ṛsak (ï) trita iti sāmcito rephaḥ riṣyaḥ riśādasa iti sāmcito rephaḥ.
CHAPTER II

RULES OF SYLLABIC DIVISION

In the above pages I have shown that, in the opinion of Indian grammarians, the basic principle of syllabic division was vocalic. I now proceed to examine the detailed rules of syllabic division as prescribed by our grammarians.

Syllabication of Consonant+Vowel.

According to the Rg and the Taitt. Prātiṣākhya,¹ a consonant followed by a vowel, whether that consonant is initial or intervocalic, will go with the succeeding vowel. Thus the consonants ḍ and m in dāna- and imān respectively will go with the succeeding vowel ā, and the syllabic division will be dā/na-, i/mān. Now as regards the initial consonant, its syllabication as prescribed is quite acceptable and does not require any discussion, for it is evident that the off-glide of the initial consonant in dāna- must go with the succeeding vowel ā. But the case of an intervocalic consonant is not so simple. To which should it belong—to the preceding or the succeeding syllable? Indian phoneticians, like Greek grammarians,² connected it with a succeeding vowel. Was it conventional convenience, or was it based on actual observation of phonetic phenomena? It is hardly likely that apa should have been in all ancient Indian dialects pronounced as a-pa, and in no case ap-a, and it is at the same time scarcely likely that this variation of pronunciation should have escaped the observations of such subtle phoneticians as Indian grammarians were. The syllabic division a-pa, then, may have been maintained for the sake of conventional uniformity or elegance. Even in the light of modern research a hard and fast syllabic division a-pa or ap-a would be purely conventional,

¹ Rg Prāt., I. 15; Taitt. Prāt., XXI. 2.
² According to the Greek grammarians also, as Professor H. Stuart Jones (Classical Review, Vol. XV.) points out, every consonant standing between two vowels belonged to the succeeding vowel.

61
for an intervocalic consonant is divided\textsuperscript{1} between two vowels, its on-
glide belonging to the preceding and its off-glide to the succeeding vowel. If the preceding vowel is unstressed, and the succeeding one is stressed, then the consonant will incline more to the succeeding vowel and vice versa. That this variation due to accent was noticed by Indian phoneticians will be evident presently in detail. Thus Uvāṭa\textsuperscript{2} illustrated the fact that in pronouncing \textit{aggnim}, the second \textit{g} will optionally partake of the accent of \textit{i} or the non-accentuation of \textit{a} —i.e., the syllabic division will be optionally \textit{ag-gnim} or \textit{agg-nim}. This variation, however, has been mentioned only in connection with double consonants.

\textit{Syllabication of Final Consonants.}

Our grammarians lay down that the final consonant will follow the preceding vowel.\textsuperscript{3} This observation was on the whole sound. For it is now an established fact that the final consonants of Sanskrit were implosive,\textsuperscript{4} so that they eventually disappeared in Pāli and Prākrit. With so much laxity in their articulation they were not likely to be independent syllables. But, as will be shown in Chapter V. (on Doubling),\textsuperscript{5} the evidence of the Atharv. Prāt. and of the Cārāyaṇiya Śikṣā, and the testimony of Prākrit words like \textit{jugucchā-}, \textit{ucchava-}, indicate that dialects existed in which the final consonants were pronounced double, as they are in some of the Panjabi and Lahndi dialects at the present day: (cf. \textit{sadd}, ‘call’; \textit{chaḍḍ}, ‘leave’; \textit{ghatt}, ‘throw’). It is not unlikely, therefore, that isolated dialects existed, even in the times of our grammarians, in which the final consonant may have been pronounced sufficiently long to constitute an independent syllable.

\textit{Syllabication of Consonant-Groups.}

As regards consonant-groups, the most general rule is that the first member of the consonant-group will belong to the preceding vowel: thus \textit{pitre} will be divided as \textit{pit/re} and not \textit{pi/tre}, \textit{mukta-} will be divided \textit{muk/ta-} and not \textit{mu/kta-}.\textsuperscript{6}

\textsuperscript{2} On \textit{Rg. Prāt.}, I. 15.
\textsuperscript{3} Cf. p. 141.
\textsuperscript{4} Taitt. Prāt., XXI. 3; \textit{Rg Prāt.}, I. 15.
\textsuperscript{5} Cf. pp. 106, 109.
\textsuperscript{6} \textit{Rg Prāt.}, I. 15; Taitt. Prāt., XXI. 4. According to the former work, this division was optional: i.e., it could be \textit{pit/re} or \textit{pi/tre}. 
That Sanskrit had a predominant tendency to this syllabic division prescribed by our grammarians\(^1\) is corroborated by the doubling which the initials of Sanskrit consonant-groups undergo. The most fundamental rule of doubling prescribed by the Prātiśākhyaś is that the first member of a consonant-group, if preceded by a vowel, is doubled. In fact, consonants are not doubled in Sanskrit except when members of a consonant-group, cases of doubling of intervocalic consonants being rare: for details see Chapter V. (On Doubling). The basis of this peculiar doubling was the tendency to close the first syllable of every word. The need felt for this doubling indicated that the genius of the language did not allow a syllabic division \(pu-\)tram, for it required another consonant to close the syllable \(pu\), so that the actual syllabic division was either \(put\)/tram or \(put\)-ram. This is corroborated by several Vedic MSS., which generally double the first member of every consonant-group. Thus Manuscript 5350 (British Museum) of the White Yajur Veda consistently doubles the initial plosive consonant of every consonant-group, not only when preceded by a syllable belonging to the same word—e.g., rakṣāḥ (I. 7), cakṣuḥ (II. 16), aśvinorrvaśubhyām (I. 21)—but also when preceded by a separate word—e.g., upadāhāmi bbhrāṭvyāya (I. 17), vyanaspattyo ggrāvag-grāvāsi (I. 14).

Further examples:

- **vvinakktu** (I. 16).
- **cittpatih** (IV. 4).
- **punātu vvākkpatis** (IV. 4).
- **punaścocaakṣuḥ** (IV. 15).
- **samadakṣiṇayoh** (IV. 23).
- **yuktiḥ** (VIII. 33).
- **yutkāmah** (IV. 4).
- **dakṣāyāḥ** (X. 3).

Similarly Manuscript 2391 (India Office) of the same Veda—cf.:

- **varuṇau tīvā** (II. 16).
- **viddyānca** (XL. 14).
- **addya** (V. 3).
- **puttrena** (XL. 17).
- **yukktena** (XI. 2).
- **tena ttyaktena** (XL. 1).
- **svarcbllyate** (XL. 2).
- **svarcbllyats** (XL. 2).
- **sāśvatībbhyāḥ samābbhyāḥ** (XL. 8).
- **sāsvatībbhyāḥ samābbhyāḥ** (XXXIX. 1).
- **linggyate** (XL. 2).
- **svāhā pprrānbbhyāḥ** (XXXIX. 1).
- **svāhā pprrānbbhyāḥ** (XXXIX. 2).
- **pravrkttah** (XXXIX. 5).
- **sappta-** (XXXIX. 6).
- **loablrbhyāḥ** (XXXIX. 10).
- **amdbhitya** (XXXIX. 12).

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\(^1\) This syllabic division corresponds to Homeric Greek, which divided \(παρπίδα\) as \(πατ/σίδα\). Post-Homeric Greek divided it as \(πα/τρίδα\) (J. P. Postgate, "A Short Guide to Greek Accentuation," p. 24).
abhīmātiṣṭghhne (XXXVIII. 8): The third g here is evidently a clerical mistake, the corresponding reading in the British Museum Manuscript being abhīmātiṣṭghhne.

jyokkte (XXXVI. 19). akktubhiḥ (XXXV. 1).

Similar doublings occur in the Gupta inscriptions\(^1\) also, although the doubling in these inscriptions most frequently occurs in the groups plosive + r or aspirated consonant + semi-vowel, as the following examples will show:

**Plosive + r.**

parākkrama- (Ins. No. 1.).
kāvyakkriyābhīḥ (Ins. No. 1).
vikkrma- (II.).
putrasya (X.).
putrasya (XII.).
vidyādhariḥ ppriyatamā (XVII.).

**Aspirated Consonant + semi-vowel.**

addhyeyah (No. 1).
saddhvasādhuḥ (No. 1).
pathyam (XVIII.).
maddhyamena (XXII.).
ayuddhyata (XXII.).

Another very frequent occurrence of doubling in these inscriptions is that of the plosive in the group r + plosive, as the following examples will show:

āṛtham (XIV.).
āṛtti- (XIV.).
darppaḥ (XIV.).
mārggam (XVII.).
svarggam (XVII.).

dīrggha- (XVIII.).
āṛtta-vargga- (XVIII.).
āvarjjana- (XXIII.).
durrggame (XXXV.).

There is no doubt that in the above examples the first member of the group—viz., r—has not been doubled, and it may prima facie appear as if it was an exception to the rule of syllabication given above; but a closer reflection will show that even here the same tendency has worked—viz., that of keeping the first syllable close, so that svarggam was divided as svarga/gam. The first syllable here could not be closed with r, because there exists no word in Sanskrit that ends in r at the end of a sentence.

This tendency is further corroborated by the peculiar assimilation in the living dialects. Thus in the case of several consonant-groups, Prākrit has, unlike French, kept up the initial plosive of consonant-groups, although it has lost the plosive in the final position. Assimila-

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\(^1\) Fleet, "Gupta Inscriptions."
tions like putto, pitte for putraḥ, pitre indicate that Prākrit maintained the tradition of keeping in pronunciation the first syllables of these words close. Even in Aśokan inscriptions, in which double consonants are generally neglected, may be found such instances as kamme (Edict VI.), ammanti (IV.), sauvatra (VII.), dhaṃma- (I., etc.).\(^1\) The traditional syllabic division of putram which served as the original background must have been therefore put/(t)ram. That the doubling in Prākrit faithfully represented the original division may be corroborated by a negative instance from Italic languages. Havet\(^2\) has pointed out that original Latin always divided patrem as pa-trem (contrary to Sanskrit division) and never pat-rem. It was the syllabic division pa-trem which could ultimately pass off into père.

But in the case of the group plosive + plosive, it may prima facie appear as if the corresponding forms in Prākrit do not confirm the rule of syllabication prescribed by our grammarians. For corresponding to the group plosive + plosive in Sanskrit, the Prākrit form is—the second plosive doubled: cf. Skr. bhatta—Prākrit bhatta-, Skr. mukta—Prākrit mutta-, Skr. mudga—Prākrit mugga-, Sanskrit satka—Prākrit chakka-. These examples may suggest to the superficial observer that the first member of the consonant-group belonged to the succeeding syllable, because it was assimilated to the succeeding consonant. But a little reflection will show that even here the same tendency has worked—viz., that of keeping the first syllable close, for the succeeding syllable could not begin with a double consonant: the division of bhatta- as bha/ṭṭa was quite unlikely. Hence even here the living dialects reveal the validity of our grammarians' rule that the first member of a consonant-group belonged to the preceding syllable, so that bhatta- and its corresponding Sanskrit form bhakta- were divided bhat/ṭa- and bhak/(k)ṭa- respectively. Again, the superficial observer may be misled by the non-occurrence of doubling in several consonant-groups in the Gupta inscriptions. I have shown above that the most frequent groups in which doubling has occurred in these inscriptions are:

1. Plosive + r;
2. aspirated consonant + semi-vowel;
3. r + plosive.

In the case of other consonant-groups, however, non-doubling in

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\(^1\) Cf. Cunningham, p. 69; Hultzsch, p. 99.

\(^2\) MSLP, IV. 24.
these inscriptions is the general rule, as the following examples will show:

<table>
<thead>
<tr>
<th>Vṛddhi</th>
<th>Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>vidyate</strong> (Inscription No. 27).</td>
<td><strong>yukta-</strong> (Inscription No. 36).</td>
</tr>
<tr>
<td><strong>amātya-</strong> (Inscription No. 27).</td>
<td><strong>vidyotate</strong> (Inscription No. 37).</td>
</tr>
<tr>
<td><strong>utpadyamāna</strong> (Inscription No. 29).</td>
<td><strong>utkṣipta-</strong> (Inscription No. 33).</td>
</tr>
<tr>
<td><strong>visyandita-</strong> (Inscription No. 35).</td>
<td><strong>śabda-</strong> (Inscription No. 34).</td>
</tr>
<tr>
<td><strong>samprāpte</strong> (Inscription No. 36).</td>
<td><strong>samutpatti-</strong> (Inscription No. 34).</td>
</tr>
<tr>
<td><strong>prāptena</strong> (Inscription No. 32).</td>
<td><strong>bhaktasya</strong> (Inscription No. 36).</td>
</tr>
<tr>
<td><strong>sapta-</strong> (Inscription No. 32).</td>
<td><strong>labdha-</strong> (Inscription No. 38).</td>
</tr>
<tr>
<td><strong>anyattra</strong> (Inscription No. 32).</td>
<td></td>
</tr>
</tbody>
</table>

A similar impression may be created by several Vedic manuscripts. In striking contrast with the Vedic manuscripts mentioned above, several other Vedic MSS. have gone even further than the Gupta inscriptions in relaxing the orthographical duplication of consonants which are members of consonant-groups. Thus in several MSS. of the Rgveda and the Sāma Veda, doubling is confined only to the group $r +$ plosive or $r +$ semi-vowel, while there is no doubling in the group aspirated consonant $+ $ semi-vowel, though the Gupta inscriptions have kept up this doubling. There are several cases in these manuscripts in which there is no doubling even in the group $r +$ plosive. The following examples will show this laxity of doubling in several Vedic manuscripts:

MSS. India Office 132, 1690, 1691 (Rgveda) and 1283, 2130 (Sāma Veda):

<table>
<thead>
<tr>
<th>Cases of Doubling</th>
<th>Cases of Non-Doubling</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>samarddhayantu</strong></td>
<td><strong>agnim</strong></td>
</tr>
<tr>
<td><strong>zarppi-</strong></td>
<td><strong>ratnam</strong></td>
</tr>
<tr>
<td><strong>ūrjjam</strong></td>
<td><strong>pavitram</strong></td>
</tr>
<tr>
<td><strong>varddhata</strong></td>
<td><strong>atra</strong></td>
</tr>
<tr>
<td><strong>iyartti</strong></td>
<td><strong>adribhiḥ</strong></td>
</tr>
<tr>
<td><strong>varttani-</strong></td>
<td><strong>satyam</strong></td>
</tr>
<tr>
<td><strong>avarddhayam</strong></td>
<td><strong>adayan</strong></td>
</tr>
<tr>
<td><strong>marddaya</strong></td>
<td><strong>adhvara-</strong></td>
</tr>
<tr>
<td><strong>sūryyam</strong></td>
<td><strong>madhyamāsu</strong></td>
</tr>
<tr>
<td><strong>āryyasya</strong></td>
<td><strong>martya-</strong></td>
</tr>
<tr>
<td><strong>śarddha-</strong></td>
<td><strong>arkasya</strong></td>
</tr>
<tr>
<td></td>
<td><strong>arcīrbhiḥ</strong></td>
</tr>
<tr>
<td></td>
<td><strong>gorbha-</strong></td>
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</tbody>
</table>
These examples may lead the superficial observer to think that a divergent tendency for non-doubling phonetically existed in the spoken languages. But the evidence of the living dialects is more conclusive on this point, for these dialects most frequently give duplication corresponding to any consonant-group (except where there is Svarabhakti). There are only a few forms, e.g., Prakrit rā for rātri- (side by side with ratti-) and Uṛiva puā for putra-, in which doubling has not taken place.¹

The non-occurrence of doubling, then, in perhaps the majority of manuscripts and inscriptions may be explained on the ground that doubling was so common in actual pronunciation that several authors and scribes knew it to be evident to the reader, and did not think it necessary to transcribe it. Manuscripts of the 'orthodox' type, however, faithfully kept it up. The living dialects and the orthodox MSS., then, indicate that whenever a consonant-group occurred in actual pronunciation, the preceding syllable was kept close, and that the observation of Indian grammarians regarding this point was sound.

Syllabication of Doubled Consonants.

As a general rule, consonants in Sanskrit could be doubled only when members of a consonant-group: for details see Chapter V. (on Doubling). So the rule regarding the syllabication of doubled consonants presupposes that the doubled consonant in question is followed by a consonant or a semi-vowel. Now there was a divergence of views regarding the syllabication of this doubled group. According to the Rg Prāt.,² the second member of the doubled group can optionally belong to the preceding or the succeeding syllable, and Uvāṭa in this connection points out that the second consonant will optionally share the accent of the preceding or the succeeding syllable. Thus in dhūvā, the first t belongs to the preceding syllable and thus shares the high accent of ā, but the second t can optionally belong to the preceding or the succeeding syllable, and so can share the high accent of the preceding ā or the low accent of the succeeding ā, the syllabic division being optionally dhvā or dtvā. Again, in agnīṃ, the first g of agnīṃ will belong to the preceding syllable, and so will share the low tone of a, but the second g can optionally belong to the preceding or the succeeding syllable, and so share the low tone

¹ For further examples cf. Pischel, p. 76.
² L. 15.
of a or the high tone of i, the syllabic division of _aggnim_ being optionally _agg-nim_ or _ag-gnim_. According to the Vāj. Prāt.,¹ however, the syllabication of doubled consonants varied according as they were followed by a consonant (except a fricative) or a semi-vowel. If the doubled group was followed by a consonant, then both the members of the doubled group belonged to the preceding syllable—e.g., _aggnim_, _pāṛṣṣnyā_ were respectively to be divided as _agg-nim_, _pāṛṣṣ-nyā_. If, however, the doubled group was followed by a semi-vowel, then only the first member belonged to the preceding syllable—e.g., _varṣṣyāya_ and _pāṛēśvam_ were respectively to be divided as _varṣ-ṣyāya_ and _pāṛē-śvam_.

Let me now examine the validity of these observations.

1. Strictly speaking, division of a doubled consonant is possible only when the first consonant explodes before the second—e.g., if in the articulation of the word _aggnim_ the first _g_ exploded before the second _g_, the syllabic division could have been _ag/-gnim_. But I do not know of any language in which during the articulation of a doubled consonant the first consonant explodes before the second. This explosion, as Professor Daniel Jones tells me, does not occur even in Italian, in which distinctly double consonants are pronounced, as in _ditto_. Moreover, as will be explained in detail in Chapter VIII. (on Abhinidhāna), Indian grammarians also did not maintain the explosion of a consonant within a doubled group. Thus even Vyāḍi,² who was opposed to the theory of Abhinidhāna, held that incomplete plosion was possible only in the case of a doubled consonant. And the validity of their view is corroborated by the fact that doubled aspirated consonants in Sanskrit, as perhaps in all languages, were pronounced only with a single explosion.

If, therefore, the Rg-Prāt. implied that the optional division of _aggnim_ was _ag/-gnim_ in the above sense, the division prescribed was not probable.

2. Another possible division of _aggnim_ was _ag/gnim_. This division implied that although the consonant pronounced was only a single long consonant, the hearer heard a fall of prominence at the on-glise of _g_. This fall of prominence was continued in the form of a long silence during the contact or ‘stop’ stage, and there was a rise of prominence again at the plosion of _g_. The hearer then seemed to

¹ I. 104: ‘_karmajas ca_’; I. 105: _taśmāc collāram sparśe_.
² Rg Prāt., I. 12.
hearth two g's, the first belonging to the syllable \( ag \), the second forming part of the syllable \( gnim \).

In this restricted sense the division \( ag/gnim \) prescribed by the \( Rg \) Prāt. may have been possible; but the Vāj. Prāt. does not accept even this division. It states that if the doubled consonant in question is followed by a consonant (except a fricative), the division will not be \( ag/gnim \), but \( agg/nim \); in other words, the group \( gg \) in \( aggnim \) was pronounced merely long, and the hearer did not hear two \( g \)'s each distinct from the other. But in a word like \( pārśva- \), the syllabic division according to this Prātiśākhya could be \( pārś/śva- \). And this differentiation by the Vāj. Prāt. can be explained on phonetic grounds. For 'distinctive' doubling (i.e., doubling in which the first consonant is heard distinct from the second) is less probable when another plosive or a nasal consonant follows, for it is not so easy to sustain the breath-force for the articulation of two distinct \( g \)'s and a succeeding plosive. When, however, a vowel, a semi-vowel, or a fricative follows, the distinctive doubling is easier, as the breath-force for the off-glide of \( g \) does not meet much obstruction in this case. Thus in several Panjabi and Lahndi dialects, distinctive doubling is prominently heard when a vowel follows—e.g., in \( vaddā, gattā \); but it is not heard when a consonant follows—e.g., in \( vaḍkā, gatkā \). Nevertheless, it would be rash to suppose that the syllabic division \( ag/gnim \) was not possible in any Indian dialect.

**Syllabication of “r” + Doubled Plosive.**

The Atharv. Prāt. (I. 58) notices a case of doubling which has persisted in the language of the Gupta inscriptions and in classical Sanskrit—viz., the doubling of a plosive after \( r \); cf. the following examples from the Gupta inscriptions:

- mārggam, varrgam (Inscription No. XVII.); dirygga-, varrgga-, āṛtta- (XVIII.); āvarjjana- (XXXIII.).

In the opinion of this Prātiśākhya the additional stop arising from doubling will belong to the preceding syllable; thus \( arkkah \) will be divided as \( ark-kah \).

I think that four (possible) divisions of the word written \( arkkah \) are conceivable:

1. \( ark-/kah \), \( k \) exploding fully before the succeeding \( k \). Strictly

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speaking, this division would be the only valid one if really double consonants, as distinguished from merely long consonants, were meant. But as I have pointed out above, in a double consonant the first was incompletely articulated before the second. Hence, if the division *ark/-kah* was taken to be strictly in the sense that the first *k* fully exploded before the second *k*, the division proposed was inconsistent and invalid.

2. *ark/kah*. This division implied, as already explained, that although the consonant pronounced was only a single long consonant, the hearer seemed to hear two *k*’s, owing to the discontinuity of intensity caused by the long silence intervening between the on-glide and off-glide of *k*, the first belonging to the syllable *ark*, the second forming part of the syllable *kah*.

In my opinion, in this restricted sense the division *ark/kah* prescribed by the Atharv. Prāt. was valid.

3. *arkkk-aḥ*. This division was conceivable when the first syllable had a strong stress-accent. But it was hardly consistent with the general tendency of the language, for the living dialects did not generally allow a syllable to end in a double consonant, especially when a vowel followed

4. *ar-kah*. The so-called double *k* in this division might have been actually pronounced as single, though orthographically written double.

But the occurrence of the syllabic division *ar-kah* in Indian pronunciation does not seem to have been very probable. For, in the first place, as will be shown in Chapter V. (on Doubling), Sanskrit had a tendency to double the plosive after *r*; so Sanskrit pronounced *arkah* as *arkkah*, *svargaḥ* as *svarggaḥ*, and hence the more probable division was *ark/kah*, etc., as explained above. Secondly, Sanskrit had an aversion to closing a syllable with *r*, for there does not exist a Sanskrit word ending in *r*. (cf. p. 64). Thirdly, corresponding to Sanskrit *r+* plosive there exists only double plosive in Pāli and Prākrit: cf. Sanskrit *varga*=Pāli and Prākrit *vagga*, *darpaha*= *dappa- na-*, *durbala*= *dubbala-*. There is no doubt that this doubling in the living dialects may also be explained on the grounds of assimilation, so that *var-ga* may have become *vag-ga* by the direct change of *r* to *g*. But on account of the above two reasons—viz., the tendency to double the plosive and aversion to closing a syllable with *r*—I think that
varg/ga was the more probable division, though, of course, var/ga was not an impossible division.

At any rate, the Atharv. Prāt.’s above observation that in the case of the doubling of the plosive after r, the first ‘plosive’ belongs to the preceding syllable, will be beyond dispute, if by ‘plosive’ the author meant the ‘stop’ stage of that consonant.

According to the Rg Prāt. (I. 15), however, both the members of a doubled consonant after r or a fricative can optionally belong to the preceding or the succeeding syllable, so that the syllabic division of āṛttī will be optionally āṛtt/nī or āṛ/īttī, of pāṛśṣnya- optionally pāṛś/sṣnya or pāṛ/sṣnya. It will be apparent from the above discussion that the optional division āṛ/īttī, pāṛ/sṣnya was not probable in Indian dialects: firstly, because Sanskrit had an aversion to closing a syllable with r; and, secondly, because a syllable beginning with a double consonant, as tttī, ssnya, was hardly likely to have occurred in Indian dialects.

Syllabication of Plosive+Fricative.

According to the Taitt. Prāt., the plosive in the group plosive+fricative belongs to the succeeding syllable, but in a group plosive+fricative+consonant, the plosive belongs to the preceding syllable. Thus in the combination tātsavītuḥ, the division of tātsa- will be ta/ṣa, of jujupsā=ju/gu/psā.

It seems that in the pronunciation of academic Sanskrit, the plosive, in combinations like yāvat hi (=yāvadda hi), utsavah, was not held so apart from the succeeding fricative as to give rise to the division yā/vat/hi, ut/savah. This is indicated by the doubling tendency and by the internal evidence of Sanskrit Sandhi. Thus Sanskrit labh+sye became lap/(p)sye, indicating that the bh in this group was carried over to the succeeding s, the assimilating force of which devocalized the bh. Similarly, when yāvat hi became yāvaddhi, the plosive t was probably carried over to the succeeding syllable. There is, however, a flaw in the prescribed syllabication. The author has not pointed out that the plosive was not simply carried over to the succeeding syllable, but it was also doubled at the same time. Thus in academic Sanskrit forms yāvaddhi, taccatrūḥ for yāvat hi, tat+satrūḥ respectively, and in Prākrit forms macchara-, jugucchā for Sanskrit matsara.-

1 Taitt. Prāt., XXI. 9: sparśas cospamara uṃnā cet parasya.
jugupsā, the plosive was not simply carried over to the succeeding syllable, it was also doubled at the same time; so that in actual pronunciation the syllabic division seems to have been jugup/psā rather than ju/gu/psā. The general tendency of keeping the preceding syllable close before a consonant-group was also maintained in this division.

Moreover, there are indications of a divergent tendency in several Sanskrit forms, showing that the Prātiṣākhya’s rule regarding the syllabication of the group plosive+fricative was not universally applicable. Thus the grammarians¹ state that in a group final cerebral +s, an intermediate consonant, viz. dental t, occasionally intervenes, Pāṇini stating it to be optional. For instance, sac+santah became optionally saṭtsantah; sat+sahasrah>sattahasrah; madhulit+sāye> madhulititsāye. It seems that in these sporadic cases, the final cerebral was not carried to the succeeding syllable. A similar treatment of velar plosive+h may be observed. For the grammarians² state that the h in this combination became optionally an aspiration of the preceding consonant—e.g., arvāk hy enam either became arvāγγhy enam or remained unchanged. In the majority of cases a plosive+h in academic Sanskrit gives a double consonant aspirated, so that tat+ harih>taddharih, vāk= harih>vāγγharih, yet the occasional option in the case of velar+h indicates that the plosive was not necessarily carried over to the succeeding syllable.

With the above reservations, the Prātiṣākhya’s observation, that the plosive was carried to the succeeding syllable to which the fricative belonged, was probably sound. And the probable validity of this observation is indicated by the living dialects. Thus in Prākrit, Sanskrit ts and ps are represented as och by passing through the stage tsh: e.g., Sanskrit vatsa= Prākrit vaccha-, matsara= machhara-, Jugupsā= jugucchā; while Sanskrit ks- has become Prākrit kh or ch: e.g., ksamā=khamā or chamā. This effect of the succeeding fricative has been so strong that in compound words the final t of a prefix has actually become a fricative before another fricative in Prākrit. Thus in Ardhamāgadhī Sanskrit utsarga- has become ussagga-, Sanskrit utsedha- has become ussedha-.

This close affinity of the plosive for the succeeding fricative, and

¹ Atharv. Prāt., II. 8: takārāt sakāre takārena; Pāṇ., VIII. 3, 29: ćaḥ si dhut.
² Taitle Prāt., V. 38: prathamapūrvo hakāraḥ caturtham tasya sasthānam plāksi-kaupinajyagyautamapauṣkarasādīnām.
the consequent assimilation, were closely observed by Indian grammarians. Thus according to the Yājñavalkya Śikṣā¹ a non-aspirated k at the end of a pada when followed by s was to be pronounced like kh; e.g., bhīṣak-śīsena was to be pronounced bhīṣakh-śīsena. A non-aspirated p at the end of a word when followed by s was to be pronounced like ph; e.g., aṭpav agne was to be pronounced aḥpaṃ v agne; and similarly for other non-aspirated plosives.

The Nārāda Śikṣā² similarly prescribes that these non-aspirated plosives should be pronounced like aspirated consonants, but adds that they do not deserve the designation of aspirated consonants. It seems that this Śikṣā had observed the transitional stage through which the plosives in question passed before they eventually became aspirated consonants proper in Pāli and Prākrit. This phenomenon, however, has been mentioned even in the Rg Prāt. (XIII. 16), where it is laid down that according to some authorities a non-aspirated plosive when followed by a fricative should be pronounced as an aspirated consonant.

This tendency of bringing together the plosive and the fricative in syllabication is further indicated by the interesting prohibition in Chapter XIV. of the Rg Prāt.,³ which points out defects of pronunciation. According to this prohibition, as Uvaṭa illustrates it, abhutsmaḥi, uṣtsanāya, and viṣvapnyasya should not be respectively pronounced abhutsmaḥi, uṣṭnāya, and viṣvapnayasya. The insertion of an additional intrusive sound t in these examples was condemned as a defect in pronunciation, and yet this intrusive sound t was a natural reconciliation between two conflicting tendencies in the Sanskrit speaker. On the one hand, there was the inclination to carry t over to s, and, consequently, to divide abhutsmaḥi as a/bhuts/mahi. On the other hand, as will be pointed out in Chapter V. (on Doubling: see p. 75), Sanskrit had an aversion to closing a syllable with s, so that, instead of a/bhuts/mahi, the actual division became a/bhust/mahi, by closing the syllable with t. These examples, then, seem to indicate that in actual pronunciation the plosive and the

¹ ŚS, p. 20: kakārānte pade pūrve sakāre parataḥ sthite khasavarnam viṣānyād bhīṣakāsena dārānam. pakārānte pade pūrve sakāre parataḥ sthite, phasavarnam viṣānyādappsv agneti nīdarānam.

Also Svarabhaktilakṣana-parīśiṣṭa Śikṣā, 10-11.

² ŚS, p. 437: prakānām uṣmasanuyuktān dvīṭyān īva darśayet na cānān pratiṣāṇyād yathā māteyāḥ kṣuro 'psarāh.

³ XIV. 5: adeśe vā vacanam vyāṉjanasya.
fricative were not held so much apart from each other as to give rise to the syllabic division abhut/smahi. For, if the syllabic division in actual pronunciation had been abhut/smahi, the additional intrusive sound t after the fricative would have been unnecessary. It is improbable that this glide sound t belonged to the second syllable, for the syllable *tsmahi was not likely to have occurred in Sanskrit, there being no example of a word in Sanskrit beginning with a group of three consonants consisting of plosive+fricative+sonant. So much, then, about the division of the group plosive+fricative, in which the plosive was to be carried over to the succeeding syllable. But as regards the group plosive+fricative+consonant, the same Prātiśākhya⁴ lays down that the plosive will go with the preceding syllable. Thus in the combination jagat/sthāh, the t of the group tsth will go with the preceding syllable, so that the syllabic division will stand as jagat/sthāh. It will appear from the reasons that I have given above, that jagat/sthāh, as prescribed by the author, was the most probable division of the group, for it is hardly likely that the other two possible divisions—viz., jagats/thāḥ and jaga/tsthāh—occurred. For, as regards the former, the Sanskrit speaker had an aversion to closing a syllable with s; while as regards the latter, it is a well-known fact that Sanskrit did not have the general tendency to allow s to stand between two plosives: cf. the Aorist third person singular forms arutta (= *arudhsta), aksipta (= akipsta); though the examples like abhustmahi indicate that in actual pronunciation in some dialects tsth could close a syllable.

To avoid the contingency of this unwieldy group of consonants, some of the living dialects in such groups of three consonants, in the middle of which there is a fricative, have added a Svarabhakti vowel, so that the corresponding group in Pāli and Prākrit has only two instead of three consonants, the fricative amalgamating with the plosive and making it an aspirated consonant: cf. Sanskrit śkṣna—Pāli tikkhīna—; paksman—Pāli pakhuma—; sūksman—Pali sukhuma—.

Fricative+Plosive.

Indian grammarians have not handled the division of the group fricative+plosive, and it may be of interest to consider what was the most probable division of this group in the actual pronunciation of

¹ Taitt. Prāt., 21, 9.
Sanskrit. The Sanskrit speaker in this case had to decide between two conflicting tendencies. On the one hand, he had the tendency to carry to the preceding syllable the first member of consonant-groups; on the other hand, he had an aversion to closing a syllable with a fricative consonant, for Sanskrit did not generally allow a word to end in a fricative consonant. The doubling of the plosive after the fricative reconciled these conflicting tendencies, so that presumably the pronunciation of *hasta-* was *hasṭa-* and the syllables were divided thus: *hast/ta*. Similarly, *puṣṭa-* and *avaskanda-* were probably divided as *puṣṭ/ta* and *avask/kanda* respectively. This is indicated by the corresponding Prākrit words, in which the plosive in question, under the influence of the preceding fricative in the same syllable, has become an aspirated consonant—e.g., *haṭha-*; *puṭṭha-*; *avakkhanda-*.

Moreover, by the doubling of the plosive in the Prākrit forms (though phonetically also present in the corresponding Sanskrit forms) the predominant tendency to close the first syllable was also satisfied. There are several Prākrit forms, however, in which the plosive in question has not been aspirated, but has been only doubled—e.g., *dupparisa-*; *sakkada-*; *tirakkarinī*; *bahappadi* (side by side with *bihapphadi*) for Sanskrit words *duḥsparśa-*; *samskrta-*; *tiraskarinī*; *brhaspati*.

These examples do not positively indicate to which syllable the s belonged, but even they seem to indicate that the first syllable did not close with s, for they show no trace of it.

*Syllabication of Consonant+Semi-Vowel and of Semi-Vowel+Semi-Vowel.*

According to the Taitt. Prāt., in a group consonant+semi-vowel, the consonant went with the succeeding syllable, but in a group semi-vowel+semi-vowel, the first semi-vowel followed the preceding syllable.

As regards the group consonant+semi-vowel, the examples cited are *adhyavasa/yā*; *isetvā*. The *dh* in *adhyā* and the *t* in *tvā* were carried over to the succeeding syllable. Thus the syllabic division of *adhyā*, in the opinion of the author, was *a/dhyā*. The phonetic explanation given by the commentary Tribhāṣyaratna is that as a consonant is unable to stand by itself, it must go with the succeeding vocalic syllable. The explanation, however, seems to be inadequate,

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1 Except a Visarga, which had a very small consonantal element.
2 XXI. 7: *nāntuṣṭhāparam asavarṇam.*
for there is no reason why the consonant, unable to stand by itself, should not go with the preceding syllables in the examples before us, for the preceding syllables here are also vowels. According to the commentary, the semi-vowel in the group consonant+semi-vowel behaves like a vowel, and the consonant, like all intervocalic consonants according to the rule of the Prātiṣākhyaś, was consequently carried over to the succeeding syllable. That the semi-vowel in such cases could behave like a vowel is corroborated by the well-known rule of the Rg Prāt. (XVII. 14) that when it is necessary to make up the requisite number of syllables in a metre, the semi-vowel in a group consonant+semi-vowel may be taken as a vowel or syllabic iy and uv.

But as I have already pointed out in the above pages, the rule which requires all intervocalic consonants to be carried over to the succeeding vowel is purely conventional and arbitrary, and if it is maintained to be universal even within a single dialect it would be phonetically unsound. There seems to be no reason, then, why, on the grounds advanced by the commentator, the syllabic division should not be adh/ya, iṣṭ/va. What more probably happened in the syllabication of consonant+semi-vowel was the doubling of the consonant and the carrying over of the second consonant to the succeeding syllable. Thus it does not seem to be likely that adya was pronounced ad/ya, and in this negative sense the Taitt. Prāt.’s prescription that the consonant did not belong to the preceding syllable, but was carried over to the succeeding syllable, was probably sound. But if the author implied thereby that the syllabic division of adya was a/dya, his opinion was disputable, as the testimony of manuscripts and the living dialects indicates that the consonant in forms like adya-, pada-, uvāla-, pakva- was doubled. The second consonant was then carried over to the succeeding syllable, and, in the living dialects, underwent assimilation to the semi-vowel. Thus the above forms were more probably divided as ad/dya, pad/dya, uvāla, pak/kva. That the consonants were actually doubled in these cases has been already shown in the above pages, but at the same time the syllabic division, in spite of the doubling, was not add/ya, padd/ya, ujj/vala, and in this negative sense I agree with the author of the Taitt. Prāt. For the living dialects indicate that in syllabic division the consonant was not kept distinctly apart from the succeeding semi-vowel, as in Pāli and Prākrit the consonant has been assimilated to the semi-vowel, e.g. adya-a>jja-, etc.
This doubling of the plosive, and, as in Russian\(^1\) and occasionally in French, the palatalization of the dental with the disappearance of the semi-vowel as a separate sound, seem to indicate that the consonant was not held apart from the succeeding semi-vowel in syllabic division, but underwent a phonetic change by assimilation to the semi-vowel, either by mere doubling of the plosive and disappearance of the semi-vowel, or palatalization, as shown above. So far, then, as the Taitt. Prāt. observed this inseparable affinity of the consonant for the succeeding semi-vowel, its observation was sound. The only omission in the author’s prescribed syllabication was that of the doubling of the consonant.

When, therefore, Sanskrit adīya became Prākrit aṣṭa, satya-$\rightarrow$ sacca-, the syllabic division probably passed through the stages ad/$\ddot{\text{d}}\text{y}a$ = ad/$\ddot{j}\text{y}a$ = aṣṭa: sat/$\ddot{\text{t}}\text{y}a$ = sat/$\ddot{c}\text{y}a$ = sacca-

**Syllabication of Semi-Vowel+Semi-Vowel.**

As regards the group semi-vowel+semi-vowel, the Taitt. Prāt.\(^2\) states that the first semi-vowel in this group will belong to the preceding syllable. Thus the $\nu$ in nāvya- will belong to the preceding syllable; similarly, $\gamma$ in paricāgyam will belong to the preceding syllable. The first semi-vowel in this group, then, will behave like the first member of a consonant-group, and will thus follow the general rule of syllabication to which consonant-groups were subject—viz., the first member of the group will belong to the preceding syllable. The $\nu$ in the group $\nu\gamma$ will then behave like the $t$ in putra-, or the $k$ in mukta-, the probable syllabication of which has been shown to be put/tra, muk/(k)ta-. We saw that the first member of these groups was actually doubled in pronunciation, and in pursuance of the same scheme of syllabication the syllabic division of nāvya-, in accordance with the prescription of the Taitt. Prāt., was likely to have been nav/veya-. The syllabication of groups like $\nu\gamma$, however, in actual pronunciation was much more complicated than the division prescribed

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\(^1\) Thus in Russian, $y$ first palatalizes the preceding consonant, then becoming a mere glide makes a palatal consonant of it, e.g. dīya$\rightarrow$ dica; and similarly in some of the French dialects, cf. pañe for panier, nu prōN5 for nous prenions (Passy, “Changements phonétiques,” p. 174). Cf. how English piktju$\z$ has become pikt’s (Professor Jones, “English Phonetics,” 2nd Edition, p. 103).

\(^2\) XXI. 7: nānasthāgaram asavarnam.
by the Taitt. Prāt. There is no doubt that the living dialects, in a large number of cases, indicate doubling of the first member of vy, so that in Prākrit and Pāli, Sanskrit vy = vya or bb: (cf. nabba = Sanskrit navya-, kādava = kartavya-, dādavā = dātavyā, anvīthībhāvan = anvīthātavā. This doubling of the first member of vy is also commonly met with in several Vedic MSS.: cf. daivvyā, madhuvyam, prthivyām (India Office, 2391), bhrātrvyasya, prthivyasi (British Museum, 5350). These examples, then, seem to confirm the syllabication prescribed by the Taitt. Prāt., as the doubling of the first member indicates that the general tendency of keeping the first syllable close was maintained in this case.

I have come across divergent cases, however, which seem to indicate that the syllabic division nav/vyya- which the Taitt. Prāt. seems to prescribe did not universally occur in Indian dialects. For in the Rgveda navya- sometimes appears as navya-, as in Rgveda, I. 105-15 (cf. Arnold's "Vedic Metre," p. 293), VIII. 11, 10, while in Asokan inscriptions also vy has sometimes become vya: cf. chamitaviya-, vijayamtvavya- (Woolner's "Glossary," p. xxxvi). These examples indicate that the tendency to close the preceding syllable with v, whenever the group vy occurred, was not universal. For side by side with the division nav/vyya-, there also possibly existed na/vi/ya-.¹

Moreover, that this tendency to close the syllable with v was not universal is indicated by the treatment of vy in Pāli metre, as the group vy in Pāli metre often does not make position.²

I have taken the above prescription of the Taitt. Prāt. to imply that the first syllable in navya- was kept close by the doubling of v, as in nav/veyās, put/tra. If, however, the author meant to imply that v, without being doubled, was to be carried to the first syllable, the division being nav/ya-, then v, being at the end of a syllable, became very nearly a vowel, as will be shown in Chapter VI. In that case the pronunciation would have resulted in *no-yeś, as in the case of Lithuanian na'yas from Indo-European *noyenos. But the fact that no such form has been found in India is an additional argument against the division nav/ya-.

¹ This iyās in some forms may have been due to the analogy of words containing the suffix iya, representing Indo-European iyo-, after an originally long syllable. Cf. I.E. *uṛiyo.
² Der Śloka im Pāli, ZDMG, Vol. XLIV., p. 95.
Syllabication of the Yamas.

There was an interesting divergence of views among Indian grammarians regarding the syllabication of the Yamas. The Yamas were said to be particular nasal sounds occurring in the group plosive-+nasal consonant, being due to partial nasal plosion of the plosive. Yama literally means "twin," as there were said to be two stages in the articulation of the plosive, as in rukṣma-, pāḍma-, svapṇa-. The first stage was the implosive stage of the plosive. In the second stage air began to pass through the nasal cavity while the contact for the articulation of the following nasal consonant was being formed. The passage of air through the nasal cavity was said to nasalize the plosive. But what really happened in rukṣma- was not the nasalization of the plosive, but a devoiced ṇ appearing at the explosive stage of k, and what really happened in pāḍma- was the appearance of a ṇ at the explosive stage of d, so that an intrusive sound was inserted—viz., the nasal consonant corresponding to the plosive at its explosive stage. The Yamas, then, were nasal sounds intervening between the plosive and the nasal consonant, and the question arose whether they belonged to the preceding or the succeeding syllable. According to the Taitt. Prāt. the Yamas belonged to the succeeding syllable, so that the syllabic division of the above words in accordance with the opinion of this authority was pad/iḍma-, ruk/kna, svap/ṇa. According to the Vāj. Prāt., however, they belonged to the preceding syllable. Both views were phonetically possible, for, by the force of regressive assimilation which was so prominent in Sanskrit, the opening of the nasal cavity for the articulation of the succeeding nasal consonant may have taken place not only while the preceding plosive was being exploded, but, in some dialects, even before its articulation had started. That there are indications of both these tendencies in those times, and that these observations actually refer to particular dialects, is indicated by parallel phenomena in Pāli and Prākrit. Thus while in Ardhamāgadhī (Pischel, pp. 190-191) we have ruppinī for Sanskrit rukminī, in Pāli we have rummavati for rukmavati. In the former case, nasality has been entirely driven out of the consonant-group, so that there could be no question of the nasal sound Yama as belonging to the preceding syllable. In the latter case, however, the nasal consonant has entirely driven out the plosive,

1 XXI. 8.
2 I. 103.
representing cases in which the opening of the nasal cavity, by the force of assimilation of the succeeding nasal consonant, had the tendency to start earlier, and so in this case the Yama may be said to have belonged to the preceding syllable. Similarly, additional examples from Pāli, as pañña- for prañña-, rañña- for rājña-, ṣaññ for ṣājñā (Geiger, p. 64), indicate how nasality had attacked the preceding plosive. And yet some of the Pāli dialects also indicate opposite tendencies; thus while we have pañña- for prañña-, we have at the same time soppa- for svapnaḥ, aggi- for agni-, āṭtaja- for āṭmaja-.

As regards the group fricative+nasal consonant, there was some divergence of opinion. While the Atharv. Prāt. (I. 100) permits a partial nasalization of h in jihma-, brahma, etc., the Śikṣās expressly prohibit the nasalization of fricatives. Thus the Cārāyaṇyā Śikṣāḥ lays down that in the group h+m air should not be exploded through the nostrils; while the Yājñavalkya Śikṣāḥ prohibits the nasalization of hissing fricatives, and states that when nasal consonants follow fricatives or semi-vowels, the Yamas leave them, just as the relations of a dead man retire after leaving his corpse in the burial ground, or just as an elephant retreats at the sight of a lion. This prohibition was evidently based on observation of contemporary phenomena among the dialects. First, as regards Yamas in general. That there was actually a strong tendency for the insertion of Yamas among certain Sanskrit-speaking areas even in ancient times, has been pointed out by the Rg Prāt. in the chapter on mistakes in Sanskrit pronunciation. This authority states that some people erroneously pronounce two Yamas in the group labial plosive+nasal consonant; thus trṇuṭa was said to be pronounced as trppṛṇuṭa, āpnānam as āppṛṇānam, aubhnāt as aubbhbhānāt. What the author had really observed in the so-called ‘two’ Yamas was probably a particularly strong nasality during the release of the plosive. Secondly, as regards the articulation of the prohibited Yama in the group fricative+nasal consonant, the same authority states that some people erroneously pronounce a Yama

1 For several other consonant-groups, cf. Pischel, p. 191.
2 na vāyam haṃhasaṃyogē nāśikāḥbhāṃ samutṣjet. Fol. 4.
3 ŚS, p. 33: pañcamāḥ sasasair yuktā antasthair vāpi saṃyutāḥ, yamās tatra nivartante śmadānād itva bāndhavāḥ (or another reading) śīṃamy apṣṭvā yathā gajaḥ.
4 XIV. 22: pañčavravarpaḥśita ca raktaḍ anyataḥ yamam.
5 XIV.10: paraṃ yamāṃ raktaṣparād aghoṣād śīṃamaḥ vāghoṣaḥ tas tprayatnam.
after a fricative when a nasal consonant follows—e.g., in *priśṇiḥ, viṣṇuḥ, sānātva.* And a reference to Pāli will prove how nasalization had affected even fricatives. Thus Pāli has *uṇha- for usṇa-, amhanā for aśmanā, paṇhā for praṇa-, naḥyati for snāyati.* These examples indicate which way the tide was turning and the circumstances which led the Vāj. Prāt. to bow to the facts and to lay down that the Yama belonged to the preceding syllable, although it had led the Śikṣās to prohibit the nasalization of fricatives, which they presumably condemned as provincialism. And yet, it seems that this prohibition was phonetically harder in the case of fricatives than it would have been in the case of plosives, for once the tendency to nasalize consonants has started, it is easier to open the nasal cavity in the articulation of fricatives—which require less closure of articulating organs—than of plosives. Thus the greater convenience of opening the nasal cavity during the articulation of fricatives can be best illustrated by the change which Sanskrit nasal consonants have undergone before the hissing fricatives: cf. *upayam+syate = upayamsyate, masyate = mamsyate*; the nasal consonants here have become Anuvāra, and have wholly or partially lost their occlusion, the nasal cavity being more open in the case of the Anuvāra. A similar change has occurred in Lithuanian: cf. *kandu, ‘I bite’, fut. kasiu, infin. kasti; minti, ‘to step’, fut. misiu, siuncū, ‘I send’, fut. siusiū, inf. siūsti.* The nasal consonant in these examples has been changed into a nasalized vowel.

*Syllabication of the Anuvāra.*

The Anuvāra, according to the R̄gveda Prāt., belongs to the preceding syllable. Thus the Anuvāra in *amsūnā* will belong to the preceding vowel ə, and the syllabic division will thus be *am-ṣūnā.*

The syllabic position of the Anuvāra seems prima facie to be quite simple, for if Anuvāra was a nasalization of the vowel, it must form part of the syllable containing that vowel. But the case is not so simple as it appears to be. For grammatical authorities in India were far from unanimous regarding the nature of the Anuvāra. If Anuvāra was a pure nasalized vowel, as in French *bon (bo), pain (pe), dans (da),* etc., then even the question of its syllabic position could not arise, for in that case it formed an independent syllable, complete by itself, strictly according to the definition of the syllable (aksara) as given by the Pārisikṣāṭīkā—viz., that which does not move, i.e. which stands
alone. But if the Anusvāra was not a pure nasalized vowel, but contained, in a more or less degree, a consonantal element, then it was quite open to the question whether it belonged to the preceding or the succeeding syllable. The consonantal element, if intervocalic, could be divided between the two vowels, or, if pronounced with sufficient prominence, and if followed by a syllable with a strong stress-accent, could go with the succeeding syllable, as in Prākrit tām anu, mām atha, or, if followed by a consonant and pronounced with sufficient prominence, could form even an independent syllable, like the Anusvāra in vāsāṃsi in the Kāṭhaka school, which, according to the statement of the Āranyā Śīkṣā, was an independent syllable. Again, if Anusvāra had a weak consonantal element, but was followed by a consonant, and nasalized the preceding vowel at the same time, it could serve as a glide sound between the preceding vowel and the succeeding consonant; its on-gliding would pertain to the preceding syllable, and its off-gliding to the succeeding syllable, as in the Panjabi words vāṅgū, bhāṅgī. Although, then, orthographically written as Anusvāra, it may have been phonetically divided between the preceding vowel and the succeeding consonant.

The question of the syllabication of the Anusvāra is therefore closely bound up with the question of its real nature, and it will be shown in Chapter IX. (on the Anusvāra: cf. p. 154) that both the pronunciations—viz., Anusvāra as a pure nasalized vowel and Anusvāra with a consonantal element—existed side by side; but in the more ancient dialects the Anusvāra had a predominant consonantal element, though in more recent dialects it tended to be a pure nasalized vowel. The syllabication of the Anusvāra, then, may be considered from the following three aspects of the actual pronunciation of the language:

1. Whenever Anusvāra was a pure nasalized vowel and represented the Raṅga (cf. p. 150) of the Śīkṣās, the question of its syllabication

\[ \text{vāsāṃsād} \text{ anuvāraḥ kāṭhake niśca iṣyate.} \quad 52. \]

Com.: vāsaḥ sābdāt prātyamāno 'nusvāraḥ kāṭhake pṛthag eva na pūrvāṃśam tiṣy arthaḥ. Similarly Sarvasammta Śīkṣā vividartha, II. 38 (MS. Madras, No. 998): kāṭhakākhye carane vāsah-sābdād uttaro 'nusvāraḥ pūrvasyāṅgam na bhave. If the Anusvāra in vāsāṃsi was an independent syllable, it might have been pronounced with considerable prominence, but it seems to be incredible that only a single word in a whole school was observed to possess the Anusvāra as an independent syllable. Either it was a loan-word from other dialects, or was a typical example representing several words of similar nature pronounced in the same school.
was simple, the nasalized vowel itself forming a complete syllable—
e.g., takrāṇaḥ, bahāvān (cf. p. 149) (Atharv. Prāt., IV. 121).

2. In those ‘erroneous’ but actual pronunciations of the Anusvāra
which contained a consonantal element—e.g., when tamaṅghnanti was
said to have been pronounced1 as tamaṅghnanti or tamaṅghnanti, the syllabi-
cation of the Anusvāra was not so simple. For although even here the
first syllable was more likely to have been tāṅ or tamaṅ, as the n was
not likely to belong to the succeeding syllable (for there exists no
word in Sanskrit with an initial nasal+plosive), yet the n, if pro-
nounced with sufficient prominence, could have formed an independent
syllable, as it was said to be in vādaṃsi, or it could possibly have been
divided between the preceding vowel and the succeeding consonant.
We have, of course, no means at present to measure the prominence
of this consonantal element as it was pronounced in ancient times,
and so are not in a position to specify in what particular words the
consonantal element of the Anusvāra could be an independent syllable.
At any rate, the mere orthographic position of the Anusvāra could
not serve as an absolute guide as to whether it belonged entirely to the
preceding or the succeeding syllable, or formed an independent syllable.

3. It will be shown in Chapter IX. (on the Anusvāra: cf. p. 153)
that in most of the living dialects the Anusvāra has lost its consonantal
element and has become a pure nasalized vowel: cf. Sanskrit vamśo
but Hindi bās, etc. In the case of most of the living dialects, then,
the rule of the Prātiśākhyaśas that the Anusvāra belonged to the pre-
ceding vowel can be safely accepted, but it cannot be safely accepted
without reservation so far as academic Sanskrit was concerned.2

Syllabication of Svarabhakti.

The Svarabhakti, according to Rg Prāt. (I. 17), will belong to the
preceding syllable. For instance, Uvaṭa quotes Rgveda, VI., 75, 4,
where we have a phrase ārtinē īṃē. Here the Svarabhakti vowel after
r is heard with a high accent, as it will be a part of the preceding
syllable which has high accent.

To the superficial observer it may seem to be an incorrect and at the
same time inconsistent observation, on the ground that the addition of
another vowel, namely the Svarabhakti, should give another syllable

1 Rg Prāt., XIV. 24.
2 As regards the syllabic quantity of the Anusvāra, cf. p. 98.
to the word, while it may seem to be inconsistent with the Prātiśākhya’s principle that a vowel is the essence of a syllable. But in this age we are not in a position to measure the intensity of Svarabhakti as it was pronounced two thousand years ago. If the Svarabhakti was a mere glide sound, and if its intensity did not exceed the intensity of r, it could have belonged to the same syllable.

But a striking point, mentioned by some of the Śikṣās, regarding the syllabication of the Svarabhakti is that Svarabhakti after the svarita accent will be an independent syllable. Why Svarabhakti after the svarita accent formed an independent syllable these authorities do not explain, but the point mentioned may have an important bearing on the origin of Svarabhakti.

In a general form this rule occurs in the Vaidikābharana1 on Taitt. Prāt., XXI. 16, according to which Svarabhakti after the svarita accent will form an independent syllable. Thus the Svarabhakti in yād dārśapūrnamāsī (TS, I. 6, 7), etām dāśarṣbhām dlabhanta (TS, II. 1, 4), and dhītibhir hitaḥ (TS, IV. 2, 7), will form an independent syllable, as it is preceded by the svarita accent; but not in ānnam iva khādu vai varṣām (TS, V. 4, 9), etād yajñāsa yādūkha śīrṣāṇa evā (TS, V. 1, 7), yajñāsaiva tad barsām nahiya (TS, II. 5, 7), sa-śīrṣānam evāgniṃ cinute (TS, V. 5, 4), in which Svarabhakti follows the low accent.

As counter-example, the Yājuśabhūṣaṇa quotes Taitt. Brāhmaṇa, I. 1, 6, “cāydrā dṛṣeyah prāśnanti,” where Svarabhakti is not an independent syllable, as it is preceded by the Udāṭta vowel d. This authority also lays down that a Svarabhakti which is at the end of a word does not form an independent syllable; thus in dōṣāvastor havijnataḥ, Svarabhakti will belong to the preceding syllable, where r is at the end of the word vāstor. I think this suggestion is interesting, as it implies that in the case of some speakers, whenever there was an infinitesimal pause between the final Svarabhakti and a succeeding word, the Svarabhakti was not intense enough to constitute an independent syllable. For the difficulty of pronouncing the sonant r+friative consonant, without an intervening vowel, was one of the factors that produced the Svarabhakti, and if there was an infinitesimal pause between r and the consonant, the difficulty of pronouncing r may have been slightly reduced, and only a lax type

1 svārāt para svarabhaktih svapradhānā prakārītā. etāsyā anurṣadam ceti svacattra bhaktir īpyate.
of Svarabhakti may have arisen—a fact that illustrates the laxity of all finals in Sanskrit. But fluent utterance presumably would not have made any difference as to whether \( r \) was final or medial.

Another interesting example given by the Yājuṣabhūṣāna is \( rtasyā dhūresaṃ \), where Svarabhakti will be an independent syllable. This phrase occurs in the Taitt. Brāhmaṇa, I. 2, 1-12, and some readings of this passage have actually \( dhūresaṃ \). The verse in which this word occurs is:

\[
ghṛṭaprātrakṣam ca rtasyā dhūresaṃ
agnīṃ mitrāṁ na samidhāṇā ṛṣajate.
\]

The metre in the verse is complete without requiring an additional syllable from Svarabhakti, but as some readings of the same passage have also \( dhūresaṃ \), the pāda may have become hypersyllabic, which is not a rare occurrence in Vedic metre. The following examples are said to illustrate the independence of Svarabhakti after a short vowel with Svarita accent:

\[
pūnār havir āṣid ityāha, yād dārśapūrṇamāsātu.²
\]

The commentary on the Āranya Śīkṣā³ (MS. No. 867, Madras) gives further details. It points out that after a short vowel with Svarita accent Svarabhakti is not different from a vowel: it does not belong to the preceding syllable, and therefore in some places becomes an independent syllable. Thus Svarabhakti will be an independent syllable in \( indri(?)yārṣibhyah, arnuḥ kāṇḍārṣyaḥ; etadviḍhāyāyur(?)sir avocat, agnir devatā brāhmetyārṣam, sahasrasārṣam devam, yād ṛḍyā ? pāpdm \)

² \( rtasya dhūreṣty rtasyā dhūresaṃ iti svaṇtanā svarabhaktvyudāvaraṇam syāt:\

"dirghāc ca hrasvāt svaritād anantyāt
prthag bhaved bhaktir asaṃhitā ca."


³ "hrasvāvṛtāt svarabhinnā" ity ādi laksanaprāptasvarabhaktinām pūrvān-gateṇaḥ niśādhyā kṛtracet prthaktvaṃ vidhate:

"yāgakāṇḍāvidhāyordvam ṛṣibhyo hy arṣayo hy arṣīḥ ityāsraeśaraṁkāpūrvam ṛṣam ceti svaṇtanatā." 118, 119.
akāṛśam. These examples quoted are apparently from prose passages, and so it would be difficult to test the independence of Svarabhakti therein. The examples śirṣam and akāṛśam do not seem to be consistent, for the preceding vowels here are long and not short, yet these instances seem to indicate that the rule regarding the quantity of the vowel was not accepted as strictly binding.

According to the Pārśīkṣā Tīkā Yājuṣabhūṣana, however (MS. 924, Madras), Svarabhakti both after a short and a long vowel with Śvarita accent gives an independent syllable, e.g. in sat śiṁam eva (T. Br., I. 1, 8) yacchirṣanāḥ (sa-): śirṣaśāktimān, kārhati sahasrām, yād bṛhaspatyāḥ tenārhati.

The Vaidikābharana (Taitt. Prāt., XXI. 15) quotes the following verse from the Taittirīya Saṁhitā (IV. 2-7), which also occurs in the Vājasaneyi Saṁhitā (XII. 108):

dṛjō napājjātavedāḥ susastibhīr māṇḍasra dhūtibhīr hitāḥ
tve iṣah sāmandhur bhūrvretasāṁ cīrādyāyo vāmadūtāḥ.

According to the Vaidikābharana, the Svarabhakti after r in dhūtibhīr hitāḥ follows the Śvarita accent and is an independent syllable. But the verse quoted by the author does not seem to be very satisfactory, for the metre is complete without the need of an additional syllable from Svarabhakti. The metre is Paṅkti, requiring 12×8 syllables, and this is exactly the number of syllables occurring in the line, there being no need of an additional syllable from Svarabhakti. The author, however, has been apparently guided by the traditional record of the metre of this verse in the Chhandonukramaṇī, for according to this work the metre of this verse is Bhurik-Paṅkti, i.e. hyper-syllabic Paṅkti, and this additional syllable may be due to Svarabhakti, there being no other vowel or semi-vowel likely to give an extra syllable.

The metre of the above two verses mentioned by our commentators does not therefore prove that Svarabhakti after Śvarita, as pronounced by the Vedic poets themselves, gave an independent syllable. It seems to be possible, however, that the commentators’ pronunciation of Svarabhakti had itself undergone the change referred to. The probability of the occurrence is somewhat further increased by the later development of the language, in which Svarabhakti has actually

1 See footnote 2 on p. 85.
emerged as a full vowel, and the Svarita may have been a more favourable condition for this phenomenon. For, as will be shown in the chapter on Accent, the tendency of the Svarita, according to some of the Indian grammarians, was to raise, in certain cases, the prominence of the succeeding sounds. For instance, after a Svarita the quantity of certain consonants was said to be increased, and even the low tone after it became slightly higher. The increased pitch of the Anudatta after Svarita is indicated, to some extent, by the peculiar marking (like Udatta) in the Sāṁhitā text. But that it was not mere orthographic marking is further indicated by the fact that the Anudatta after Svarita was given a special designation—viz., pracaya—the Nārada Śikṣā enumerating it among the five kinds of accents, while the later Śikṣās term it dhṛta, “kept up”—a term significantly indicating that the descending high tone was maintained in some of the succeeding syllables. Moreover, these Śikṣās give special directions on the movement of the hand in the articulation of the dhṛta accent. Thus according to the Vyāsa Śikṣā, in the pronunciation of the dhṛta accent the tip of the thumb was to be directed towards the middle line of the middle finger.

However conventional these directions may have been, they show that the Pracaya accent was a reality, and not a mere convention.

Though the scansion of Vedic metre, then, does not seem to confirm the views of the Śikṣās on this point, yet the above facts indicate that their observations were not fanciful, but had some basis presumably in the pronunciation of their own day.

1 See p. 168.
2 ŚŚ, p. 422: Udattas cānudattas ca svarita-pracite tathā vighātās ceti vijñeyah svaradhedas tu pañcadhā.
3 Cf. the Vaidikābharana on Taitt. Prāt., XVIII. 3, which speaks of dhṛta as a synonym for pracaya.
4 XVIII. 1:

\[\text{kaniphaṁnāṁitā-maṁyā-tarjanīśūtām kare, nica-svāradhṛtadhātān aṅgusthāgreṇa nirūṣiṣet.}\]

\[\text{Com.: nicādēsvarāṇā kramāṅ aṅgusthāgreṇa nirūṣiṣet madhyamāṅgulyā madhyare khāyaṃ pracayam.}\]
CHAPTER III

SYLLABIC QUANTITY

The treatment of syllabic quantity in Indian grammatical works is meagre, but it was probably justified. For syllabic quantity cannot be really considered apart from syllabic division, quantity being itself an element of that division. If, in actual speech, the grammarians had observed the division of the word commonly written putraḥ as put/traḥ, that division by itself implied that the quantity of ā was long enough to require a break in the middle of it. A separate treatment of syllabic quantity was therefore unnecessary, and permissible only for conventional convenience. Moreover, deviations from the general rules of syllabic quantity have been often met with in Sanskrit and Prākrit prosody. There is no doubt that the deviations had also a phonetic basis, and could not be exclusively attributed to metrical license; but as the psychological element also plays a conspicuous part in rhythm, the treatment of these deviations belonged more to metrics than to phonetics.

The general principle of syllabic quantity presumably depended upon duration, which was said to be the basis of quantity (see p. 170). This is indicated by the Ṛg Prāt.’s observation that “a long vowel is a long syllable, but the syllable becomes longer if it is followed by a consonant.”¹

According to this authority, then, it was not the vowel that constituted the lengthened syllable, but the group vowel+consonant. And this was a sound observation, free from the error of the Greek grammarians who supposed that a short vowel by nature became long by position before a consonant-group.² They ignored the fact that it was the syllable, not the vowel, that was lengthened. Of course, if the Ṛg Prāt. implied that a long vowel+consonant was necessarily

¹ Ṛg Prāt., XVIII. 20:

\[ \text{guru dīṛgham gariyans tu yadi suvyāṇjanaṁ bhavet.} \]

longer than the long vowel without consonant, the opinion cannot be accepted in all cases, for the succeeding consonant in some cases may slightly shorten the long vowel. Nevertheless, the spirit of the observation, that the syllable, and not the vowel, became longer, was apparently valid. The consonant made it a longer syllable, because, according to their theory, the syllable then required longer duration.

As regards the general duration of a syllable, the short syllable was said to have one mora, and the long syllable, two moras. This was, strictly speaking, an inaccurate measurement in several cases, for according to this standard the syllable spr in sprhā, which was counted as short, had only a single mora, and was thus inconsistent with even the Indian theory of quantity, according to which the group spr ought to have \( \frac{1}{2} \) (for s) + \( \frac{1}{2} \) (for p) + 1 (for r) = 2 moras. And the conventional nature of this standard was admitted by the author of the Vṛttamuktāvalitarala, a manuscript work in the India Office. He says, "By a conventional tradition the quantity of a long syllable is measured as two moras, which are attributed even to the pluta vowel (that has three moras). In the same way, although the quantity of a consonant is a half-mora, a syllable ending in a consonant is measured two moras. That a consonant should not increase the quantity of the syllable is due to convention." The author here evidently points out the limitations of this standard of quantitative measurement, but the difficulty mentioned by him does not affect the general theory of syllabic quantity advanced by the Rg Prāt. as mentioned above—viz., that a consonant did increase the length of the syllable. A uniform standard of 1:2 served only as a rough working basis for syllabic measurement, when more delicate instruments were not available, and with this rough standard, the half-mora of a consonant was, in practice, either neglected, as in sprhā, or, when necessary, measured as a full mora, as in at. Moreover, it is probable that the rule referred to the actual duration of audition, which often does not exactly correspond to Kymographic tracings (cf. p. 91). Again, that this conventional standard was not carried too far is indicated by another work, the

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1 Piṅgala, Chhandāḥ Śāstra, 8-19: sa gakāro devimātro deva laghūkṛtvā gaṇaniyaḥ.
2 No. 1718b.
3 Folio 1: gurur dvimātra eva gaṇaniya iti sampradāyāt viuto ‘ps gurur dvimātra eva ganyate ... evaṃ vyañjanayaṃ tv ardhāmātrakam ity uktiśate ’pi vyañjanān-tadārpaṇaḥ che tasmad ityādau na gaṇabhangaḥ, vyañjanāntasyāpi guror dvimātra-tvenaiva gaṇanat ... vyañjanena ca varṇādhikyam na dhvaśiti sampradāyāt.
Sarasvatīkapṭhābharaṇa. It points out an exception to the rule that a short vowel + consonant-group makes a long syllable. It states that in quick utterance a consonant-group may not make position, and in that case "there is no breach of metrical rhythm." Thus it illustrates the following Prākrit verses:

jahā hūṣum oincare abbhantuṁ uhlāśiaṁ aṁsu-addhantuṁ
taha a nhāsi tumaṁ sacche goḷāṇaitūhe.2

Here the consonant-groups nh and lh did not make position, and there was said to be no breach of metrical rules if the consonants were quickly pronounced. Metre Āryā.

The ultimate basis of syllabic quantity, then, was recognized to be phonetic duration, even by the rigid authorities on classical metre.

1 yadā tūraprayatnena saṁyogāder agauravam, na chhandōbhāṅgam ity ākus tudā doṣaya sārayaḥ. Kāvyamālā Ed., p. 103.
2 Sanskrit version:

yatāḥ snātum avatārṇe ārdribhūtam uḷāsītam aṁśukārdhāntam,
tathā ca snātā bhavasi tvam svace goḍānadīṭīrthe.
CHAPTER IV

RULES OF SYLLABIC QUANTITY

On the basis of the general principle of syllabic quantity examined above, Indian grammarians and metricians have given the following detailed rules of syllabic quantity:

Rule I.—(a) A short vowel is a short syllable, but a short vowel with a consonant is a longer syllable, though it still deserves the designation of a short syllable. According to this rule, then, both $a$ and $da$ were short syllables, though $da$ was a little longer.
(b) A long vowel is a long syllable, but a long vowel with a consonant is a longer syllable.¹

The conventional nature of these rules has been pointed out above. That a consonant+short vowel or consonant-group+short vowel should be always counted as a short syllable seems to be somewhat arbitrary. For the actual length of consonant+short vowel must have varied with different persons and dialects. Nevertheless, these rules indicate that they were ultimately based on a phonetically sound principle of syllabic quantity. For they seem to refer to the actual duration of audition (see p. 89), and show that long and short vowels did not mean orthographically long and short, but those pronounced long and short respectively.

The fact that these rules had a phonetic basis has an important bearing on the theory of Indian metrics. The so-called “metrical license” is based on the psychological mood of the composer or the poet, who, if not tied down by rigid rules, can intend any vowel to be pronounced short or long, although he has to write them short or long according to usage. Striking examples of this may be met with in Buddhist Sanskrit prosody, in which we sometimes find the metrical

¹ Rg Prāt., XVIII. 20: gurur dirghaṁ guriyas tu yadi savyaṁjanam bhavaṁ, laghu savyaṁjanam hrasvaṁ laghiyo vyajjanad rst.
(i.e. phonetic) quantity of vowels different from their orthographic quantity. The following instances may be quoted:

(a) Rāṣṭrapālaparipṛcchā, page 8, line 19:

prajñāśāgarakathāṃ viśudhyate.

Here the second syllable jña is written long, but pronounced short; the metre being Rathoddhata, in which the second syllable is always short.

(b) Ibid., page 15, line 3:

śuśrūṣakāḥ sada bhavanti gurusu nityam.

Eleventh syllable ru written short, pronounced long. Metre Dodhaka. The author here presumably follows the actual Prākrit pronunciation, in which the vowel before su was usually long.¹

(c) Ibid., page 2, line 20:

śrāvakabuddhasutān merutejāḥ.

Eighth syllable me written long, pronounced short. Metre Dodhaka.

(d) Ibid., page 4, line 8:

sūtyamayā rūpasāgarabuddhim.

Fifth syllable rū long for short. Metre Dodhaka.

(e) Ibid., page 6, line 7:

bodhisatvagāhāḥ śrāvakās tathā.

A remarkable example: sixth syllable īāḥ—long vowel with visarga—for short. Metre Rathoddhata.

The above examples, however, are not typical, because they are taken from artificial Buddhist poetry.

As regards e and o, Indian metricians² have observed that these vowels in Prākrit metre are sometimes short.

As regards Vedic metre, the Rg Prāt. gives us no explanation of the quantitative variations in the Rgveda. Its only general observation is that in metres of eight and twelve syllables the last syllable but one tends to be short—a fact confirmed by the investigations of Arnold.³

¹ I owe the suggestion to Professor H. Jacobi.
² Cf. Vānībhūṣaṇa, I. 6; Prākrit Piṅgala, I. 4, and the examples quoted there.
³ “Vedic Metre,” p. 109; Rg Prāt., XVII. 22.
Regarding the phonetic, as opposed to orthographic, basis of syllabic quantity, there occurs an interesting observation in Prākrit Piṅgala. It states that “if the tongue articulates even a long vowel as short, it is short, and even two or three syllables, when quickly uttered, should be taken as one.” And even in the rigid classical metre, Piṅgala’s rule is well known that a short vowel at the end of a pāda is taken as long when metrically necessary. In this connection some metricians have pointed out a divergence which the MS. work the Vṛttamuktāvalitarā explicitly attributes to phonetic reasons. It states that this syllabic lengthening of the short vowel (at the end of a pāda) occurs only in certain metres, as Indravajrā, Vasantatilakā, etc., but not in other metres, as Vamśastha, Indravamśa, etc. In metres of the latter type, says the author, the lengthening does not occur because “the rhythm (lit. ‘connection’) is broken (lit. ‘loosened’). . . . But the breach or non-breach of rhythm is a matter in which one’s own pronunciation is the judge.” In other words, the author here maintains the phonetic basis of rhythm. Again, in connection with this point, the psychological element of rhythm has been pointed out by Hemacandra in his Chhandonuśāsana, who quotes an authority to the effect that in certain metres the lengthening in question “is not so agreeable to the ear.” This line of demarcation, maintained by Hemacandra, Śvetapaṭa, and several other metricians is combated by Halāyudha, who states that the lengthening in question is not restricted only to certain metres, and that “it is only an exception to the general rule.” And even that rigid classical poem, the Śīṣupā lavadha, does not follow this restriction.

1 Verse 5:

\[
\text{jaī dihō via vanno lahu jihi pādhai so vi lahu,} \\
\text{vanno vi turia pādhio do tiṇṇi vi ekka jānehu.}
\]

Note the examples given there.

2 I. 22.

3 India Office, 1713b, Folio 2:

\[
pādānte laghus tū vamśasthendravaṃśaśūnābhinnesv indravaśṛddih eva gauravam labhate, na punar vamśasthādiṇa eva bandhaśātihīyāt . . . śaithīlyāśai-tihīye ca svacāṛaṇāsāsāke.
\]

4 Page 1 (commentary): vamśasthakādi-caraṇānta-niveśitaśya gatvam laghor na hi tathā śrutīśarmadāyī.

5 On Piṅgala, I. 10.

6 Ibid. I may refer to the fifth chapter of this epic, in which such lengthenings are very common: cf. V. 64. 65, etc.
The syllabic quantity of the vowel, then, under certain conditions, could be adapted to metrical requirements, both in primitive and middle Indian.

_Rule II._—A short vowel before a consonant-group makes a long syllable.¹

The validity of this rule will be evident from the copious examples given in the chapter on Syllabic Division. The doubling shown by MSS. and the living dialects indicates that a vowel—consonant-group gave a long syllable. Moreover, compensatory shortening of vowels in Pāli, as in _amacce_, further corroborates the rule.

Again, the evidence of metre, on the whole, confirms the same phenomenon, for a consonant-group, both in Sanskrit and Pāli, generally tends to make position after a short vowel. The metricians,² however, have pointed out several exceptions, as in the case of consonant-groups _pr_ and _hr_. But these exceptions are more frequent in Pāli and Prākrit—and in Buddhist Sanskrit poetry, which was practically Prākrit masquerading as Sanskrit—and therefore there is considerable truth in the remark of the MS. work the _Vṛttaratnakarādārśa_ that "these exceptions concern only dialects like Prākrit."³ Thus in the _Śisupālavadha_, the consonant-group _pr_ occurs 147 times after a short vowel, but it has not even once failed to make position.⁴ The consonant-group _hr_ occurs twice after a short vowel in the same work;⁵

¹ _Ṛg Prāt._, I. 14; _Taitt. Prāt._, XII. 14.
² Bollensen, ZDMG, Vol. XIV.; Meillet, MSLP, Vol. XVIII.
³ India Office, 1535b, Folio 6: _iṣya ca pariḥṣā prākṛtādibhāṣāyām eva . . . vastutas tu sūtradīgranthev anuktalavā sanskrita-bhinnva-viṣayaṃ eveti yuktam_.
⁴ I. 12, 13, 23, 44. II. 54, 56, 64, 4, 8, 15, 18, 19, 34, 36, 37, 38, 55, 63, 64, 66, 67, 89, 92, 110. III. 1, 5, 33, 36, 37, 41, 44; 52, 53, 54, 58, 64, 67, 70, 78, 81. IV. 3, 5, 11, 27, 35, 49, 55, 58. V. 4, 12, 22, 25, 27, 28, 36, 43, 54, 67, 69. VI. 7, 25, 62, 66, 76, 77. VII. 7, 10, 21, 23, 29, 42, 68, 71, 74. VIII. 4, 6, 16, 24, 25, 27, 32, 35, 37, 38, 40, 44, 45. IX. 1, 8, 18, 20, 26, 30, 37, 42, 43, 48, 50, 55, 63, 69, 71, 79, 84, 77. X. 3, 10, 14, 15, 20, 22, 37, 44, 60, 63, 65, 83. XI. 6, 9, 13, 22, 27, 39, 48, 54, 57, 59, 60, 67. XII. 5, 14, 29, 31, 50, 51, 72, 76. XIII. 3, 6, 12, 19, 30, 31, 37, 43, 44, 48, 57. XIV. 6, 7, 22, 25, 29, 30, 40, 49, 50, 73, 74, 79, 81, 85. XV. 11, 19, 27, 32, 35, 73, 86. XVI. 1, 15, 17, 21, 37, 56, 65, 75. XVII. 3, 9, 11, 20, 34, 38, 42, 44, 49, 50, 51, 52. XVIII. 3, 5, 15, 18, 28, 30, 34, 38, 44, 45, 46, 47, 49, 52, 54, 58, 62, 63, 67, 76, 78. XIX. 6, 7, 8, 37, 111, 116. XX. 4, 10, 18, 19, 35, 38, 41, 44, 48, 58, 71, 72, 76.
⁵ V. 29, X. 60.
it has not made position once, as the metricians have pointed out.\(^1\)
But even here, as the Vṛttaratanākarādārā\(^2\) states, the commentators
have corrected the line (in X. 60) by changing nābhihrada- into
nābhinnada-

**Consonant-Groups in Buddhist Skr. Prosody.**

While consonant-groups in classical Skr. prosody on the whole
rigidly make position, Buddhist Skr. prosody shows considerable
license in this direction. I undertook in this connection a special
study of consonant-groups which do not make position in Buddhist
Skr. prosody, and the following are the results of my investigation:

Besides several consonant-groups of this nature which Jacobi\(^3\) and
Hopkins\(^4\) have discovered in the Rāmāyaṇa and the Mahābhārata—
E.g., pr (being the most common\(^5\)), ks (next in order of frequency\(^6\)), śr,
tr, kr, dr, br, vy, bhr, and ddh—the following additional consonant-
groups not making position in Budd. Skr. prosody may be mentioned:

1. sr, Rāṣṭrap., page 46, line 16:

srjati ca sahasram vai raśmi-kośir anantān.

sr in sahasram\(^7\) does not make position: metre Mālīni.

2. sy, Rāṣṭrap., page 17, line 17:

pañcasu te gatiṣu bhramiṣyanti.\(^8\)

Ninth short; metre Dohaka.

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\(^1\) Bollensen, op. cit. ad loc.

\(^2\) Folio 6: prāpavanābhihrada ... iti māghopadye chandobhāngabhāngārtham
hrada-śaddam apaniya nadaśabdodayaḥ. Tārānātha’s Edition (p. 487) actually
reads nābhinnada-, and though Mallinātha reads it as hrada- he converts it into
nada-: “nābhir eva nado hradaḥ.”

As regards examples from Kālidāsa and Bhāravi, cf. Bollensen, op. cit.

\(^3\) Rāmāyaṇa, p. 25 ff.


\(^5\) E.g., in the Śīkṣā-samuccaya, page 108, line 11; 112, 2; 114, 7; 111, 14;
13, 17, 1; 4, 2; 44, 9. Rāṣṭrapāla-pariprāchā, 3, 12; 53, 7, etc.

\(^6\) E.g., Śksm., page 115, line 10; 218, 5; 115, 15; 115, 6; 112, 15; 1, 2; 5, 5.

\(^7\) Professor Jacobi suggests to me that sahas- is a common form in Apabhram-
śa, but it is possible that the pronunciation of sy in bhrami-syanti and sr above
was transitional, in some dialects, to its change into h through undoubled s, and the
syllabic division bhrami-syanti may have been an indication of this tendency
(cf. the remark of the Varṇa Śīk. on non-doulement of s; see p. 113).

\(^8\) Professor Jacobi here suggests that the poet had in his “mental ear” the
Prākrit form bhamihanti.
3. śth, Rāṣṭrp., page 53, line 4:
   pratiṣṭhāpayasya api jagad bhagavan.
Second short; metre Pramitākṣarā.

4. nn, Śkṣm., page 106, line 13:
   bhavaty asau tatpravaṇas tannimnāḥ.
Ninth short; metre Upendravajrā.

5. rū, Śkṣm., page 93, line 6:
   ye cāpi kecit tarhi śikṣamānāh.
Sixth short; metre Indravajrā.

6. sm, Śkṣm., page 103, line 2:
   maitri-sneha-smṛti-bhājanam dr̥dham.
Fourth short; metre Rathoddhatā.\(^1\)

7. spḥ, Śkṣm., page 298, line 7:
   śreṣṭhī-kulesu sphūtesu.
Fifth short; metre Anuṣṭubh.

8. sp, page 204, line 5:
   śubha-gandha-rasair vara-sparśa-sukhaiḥ.
Eighth short; metre Tōṭaka.\(^2\)

9. sn, Rāṣṭrp., page 50, line 11:
   mṛdu-cāru-smidha-subha-keśa-nakhā.
Fourth short; metre Pramitākṣarā.\(^3\)

10. sth, Śkṣm., page 153, line 4:
    jātyandhyā-daurbalyam athālpa-sthāmatām.
Ninth short; metre Indravajrā \(^4\)

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\(^1\) Further example in Rāṣṭrp., page 7, line 13.
\(^2\) Further example in Rāṣṭrp., page 9, line 5.
\(^3\) Further examples in Śkṣm., page 103, line 2; 259, 1; 204, 5.
\(^4\) Further examples in Śkṣm., page 205, line 15; 102, 3; 53, 12.
11. sk, page 258, line 4:

\[ \text{tatha imi (?) vidu-skaandha-prek} \text{sam} \text{a} \text{nah}. \]

Sixth short; metre Puṣpitāgrā.

12. sv, Rāṣṭrp., page 7, line 12:

\[ \text{dharm} \text{-svāmi prāṇamāmi nāyakam}. \]

Second short; metre Rathoddhatā.

13. dhy, Rāṣṭrp., page 5, line 15:

\[ \text{kṣānti-vārya api dhyāna-sikṣitaḥ}. \]

Sixth short; metre Rathoddhatā.

14. cy, Śkṣm., page 204, line 1:

\[ \text{nāṭa-raṅga-samā jagi-janma-cyutiḥ}. \]

Tenth short; metre Toṭaka.

15. tv, Śkṣm., page 259, line 8:

\[ \text{tatha tvaya (?) dṛśta maharṣi-sarva-dharmāḥ}. \]

Second short; metre Puṣpitāgrā.

16. gr, Śkṣm., page 47, line 7:

\[ \text{sad-dharma-prati-grāhakāḥ}. \]

Fifth short; metre Anuṣṭubh.

17. jñ, Śkṣm., page 3, line 11:

\[ \text{varddhani-jñāna-viśeṣa-sukhānām}. \]

Third short; metre Dodhaka.

There is no doubt that most of the above consonant-groups stand in the beginning of a word (separate or member of a compound), and we know that in Prākrit the initial consonant-groups of Skr. were generally simplified (Pischel, p. 185). When, therefore, gr in prati-grāhaka-, jñ in jñāna-, sm in smṛti-, etc., did not make position, they represent that stage of the language when they began to be pronounced like gāhaka-, nāma-, sṛti, etc. Moreover, the actual pronunciation of sy and sr in the suffixal position, as shown above, may have been h and s. Nevertheless, it is more probable that these laxities in syllabi-
cation represent a transitional stage to Prākrit pronunciation proper in the language of the more educated Buddhists. For several other consonant-groups are apparently cases which do not indicate the influence of Prākrit (cf. rḥ in tarhi, ṣṭḥ in pratiṣṭhā- ṅn in tannimnaḥ, in the above examples). They may indicate that the pronunciation of Buddhist literary Skr. tended to go the same way as Prākrit did, perhaps centuries before the date of these compositions.

Again, the group fricative-plosive not making position, as in skandha-, sparśa-, pratiṣṭhā-, etc., seems to confirm my theory (see p. 75) that in syllabic division the fricative of this group tended, in actual pronunciation, to belong to the succeeding syllable.

Rule III.—A short vowel-Anusvāra makes a long syllable.¹

This rule does not require a lengthy comment. From pages 82, 83 ff. it will be clear that all depended upon the nature of the anusvāra, the pronunciation of which varied with different dialects.

The rule is generally confirmed by Skr. metre, where anusvāra makes position. But, according to the author of Prākṛta Pīngala,² anusvāra of the less prominent type, called the bindu, sometimes did not make position.

¹ Rg Prāt., I. 14 ad loc. ² I. 4 Cf. the examples given there.
CHAPTER V

Doubling

As regards doubling, three different views current among Indian grammarians may be mentioned:

1. The first view, according to the statement of the Ṛg Prāt.¹ and Pāṇini,² was held by as ancient an authority as Śākalya, who asserted that doubling never took place. It is not decidedly clear from the phraseology of the Ṛg Prāt. and Pāṇini whether Śākalya was referring to phonetic or merely orthographic doubling. If Śākalya meant thereby that phonetic doubling never occurred in Sanskrit, he was wrong, as has been shown in the above pages from the evidence of the living dialects. The doubling in Pāli and Prākrit would not have taken place had not Sanskrit as a spoken language paved the way for it. Secondly, the assertion “never” was incredibly sweeping. The actual existence of spontaneous doubling in Sanskrit, Prākrit, and some of the modern vernaculars disprove Śākalya’s dogmatic statement. Thirdly, ancient inscriptions and manuscripts would not have transcribed double consonants if they had never been pronounced double. If, however, Śākalya found doubling so predominant in Sanskrit, that he thought it unnecessary to transcribe it orthographically, his view might be acceptable, though it could not serve as a guide to succeeding generations. Śākalya’s prohibition was presumably an admonition against excessive tendency to doubling actually existing in certain dialects of his time.

2. The second view, represented by all the Prātiśākhyaśas³ and some of the Śiksās, lay on the other extreme. It required the first member of every consonant-group to be doubled when it was preceded by a vowel (adya=addyā, mukta=mukkta-), with a few exceptions to be

¹ VIII. 3: samyuktam tu vyāñjanaṁ śākalena.
² VIII. 4, 51: sarvatra śākalyasya.
detailed below. And it has been amply demonstrated above that the
evidence of the living dialects corroborates the fact that this tendency
for doubling was predominant in spoken Sanskrit, but the divergent
tendencies, however secondary, illustrated in the above pages by the
Prākrit word rātī for rātri-, and Oriya puā for putra-, show that the
extremist view held by the Prātiśākhya was not applicable to all the
spheres of Sanskrit pronunciation.

3. The middle course was adopted by Pāṇini, in whose opinion
consonants, under the conditions similar to those laid down by the
Prātiśākhya, may be optionally doubled. This view indicates that
Pāṇini had noticed the existence of both the tendencies, though the
option mentioned by Pāṇini is indefinite, and does not show which of
the two tendencies was more predominant, and where each particular
tendency could be located.

Intervocalic Double Consonants.

As regards the pronunciation of intervocalic double consonants,
the Vāj. Prāt. states that they should be pronounced as single—e.g.,
kukkutah should be pronounced as kukūtah, dattah as datah.

The author attributes it to the repression or dhāraṇa of the first
consonant. And, as will be pointed out in the next chapter (cf. pp. 131,
132 ff.), the author’s view is consistent with the predominant tendency
for lax articulation of intervocalic consonants among Indian dialects.
But, as will be shown presently, the strong doubling of intervocalic
consonants in some of the modern dialects and the not infrequent
traces of original doubling in literary records indicate that the view
of the Vāj. Prāt. was not applicable to all the spheres of Sanskrit
pronunciation. That the pronunciation of intervocalic double con-
sonants was variable was correctly noticed by the Vāsiṣṭha Śīkṣā.
This Śīkṣā states that wherever there is a doubling between two vowels,
its actuality can be determined only from a particular pronunciation,
and cannot be brought under a definite rule. There is no doubt that
this remark of the Śīkṣā cannot be accepted without reservation, and
that by closer observation of phonetic phenomena the author may

1 VIII. 4, 45, 50.
2 IV. 142: devinām ekavarnavad dhāraṇāt svaramadhye samānapade.
3 Yat evacit svaragor mādhye devaiṁ pūrvagamopi vā uccāraṇādinā spājan
tad atra na vidhiyate. Quoted by Professor Lüders in Vāsē Śīkṣā, p. 18.
have discovered a number of definite divergent tendencies which could be brought under a set of definite laws, if not under a single rule. But, nevertheless, the Śīkṣā is right in pointing out the actual existence of these divergent tendencies. Some of these particular data of intervocalic doubling have been mentioned by the Sarvasaṃmata Śīkṣā, which states that sometimes an additional b is added to bhuj after the prefix pari, so that pari+bhuj becomes paribbhuj, and sometimes an additional k is added to khād after a prefix—e.g., ākḥhidate, prakḥhidate. Similarly, continues the Śīkṣā, sometimes intervocalic double-consonants are pronounced double as they are orthographically written, as in attā havīṃsī, annapate, addhi.

**Original Doubling of Intervocalic Consonants.**

The above point, then, leads us to the question whether there are any traces of original doubling of intervocalic consonants in Sanskrit. In the chapter on the Syllable I have pointed out that as a general rule consonants are doubled in Sanskrit only when members of a consonant-group, and I am of opinion that the original doubling of consonants in intervocalic position is a scarce phenomenon in Sanskrit. This original or spontaneous doubling should not be confused with two similar consonants in conjunction, as in dattam, āttam, in which the consonant t has not been doubled; here we have rather two t’s of different syllables coming in conjunction. An investigation into this matter has led to the following conclusions.

**Doubling of Intervocalic Consonants in the Vedas.**

There does not appear to be any conclusive evidence of original doubling in the Vedas. In the Ṛgveda there are three words, cicciṅdah (name of a bird) (X. 146, 2), ādjḥatiriva (sounds of the waters), and the oft-quoted akhkhalākṛtya (the sounds of frogs), which are onomatopoeic words, and so might well represent two consonants put into conjunction rather than original doubling. It may be suspected in the word pippalam, though grammarians derive it as an irregular intensive form of the verb plu or pṛ. But there are no indications of any general

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2 Benfey ("Vedica," pp. 137-8) traces it to hās, through jaghas (indg. *yāḥ). In either case it is not original doubling.
3 Cf. Devarāja Yajva’s remarks on the Nighaṇṭu, p. 102 (Satyabrata Sāmaśrama- mī’s Edition).
tendency to original doubling in the Rgveda. Similarly, in the Yajur Veda there seem to be only five words which prima facie indicate original doubling. These words are vṛkkāḥ (XXV. 8), tittirīn (XXIV. 18), kukkutāḥ (I. 16), kakkatāḥ (XXIV. 32), and pilippūl (XXIII. 12). And yet a moment’s reflection will show that these cases are not cases of doubling, but of two independent consonants happening to come side by side. The first is probably formed from the root vṛk—is the suffix k; the next three, being names of birds or animals, represent onomatopoeic sounds as in ‘cuckoo,’ while pilippūl is a doubling of the word pili with an intervening sound p. Other doublings in the Yajur Veda are either clear cases of assimilation or of two consonants coming side by side—e.g., in goldātikā (XXIV. 37), which is formed by the addition of the suffix tik to lat, after the analogy of kyrtikā, bhūtikā (vide Uṇādi Śūtras, III. 147). In the Sāma Veda a single word jyōkkaḥ, ‘long’ (II. 9-13, 3), may indicate such doubling, but the original form of the word being jyot (cf. Nīghanta, I. 16, where dyotate—jyotatate are put side by side), this may be the result of the assimilation of t to the succeeding suffix kas. Similar remarks may apply to four words in the Atharva Veda—viz., pippalam (IX. 14, 20), pippalt (VI. 109. 1), pippati (XX. 136, 7), and vṛkkau (VII. 101, 1).

The Brāhmaṇas.

There occur a few interesting forms in the Aitareya Brāhmaṇa which give indications of dialectic borrowings of words with original doubling. The first is sammā (XI. 1)—samā, ‘equal,’ on which the commentator remarks, “the second ‘m’ in sammā is Vedic (chāndasaḥ),” a stock explanation of commentators whenever they are unable to find grounds for a linguistic or grammatical irregularity. The commentator is evidently wrong, because, as the above facts will indicate, there are no indications of such doublings in the Vedaś. The doubling, then, is not Vedic, but either a dialectic borrowing or a suffixal extension of sam (+mā). Another word occurring in the same chapter of

1 Even if kk here is an assimilation of tk, as indicated by Avestan vortk, it is not original doubling. But cf. Turner, BSOS, Vol. IV., Part II., p. 369.
2 More probably, however, jyōkkaḥ is a suffixal extension of jyōk, which also occurs in the same Veda, II. 4, 4, 6.
3 So read the Ajmer Edition as well as the Nīrṇayasāgara Index, but Whitney reads pippati, which shows that pippati, if correct, indicates Prākritic assimilation.
4 “sammā” ity atra dvīyāmakāraḥ chhāndasaḥ (XI. 1).
the Aitareya Brāhmaṇa (XI. 10) is *avaprajjana*-, which means 'the hem of a garment.' The St. Petersburg Dictionary derives the word from *prj* or *parj*, a derivation which is not convincing, and which does not explain how *parj*, unlike *varj*, became *prajja*-., with a doubled *j*, unless it was a dialectic borrowing. Another word, *guggulu* (V. 2), is interesting, not because it manifests original doubling, but because it indicates how Prākritism had begun to affect even the Aitareya Brāhmaṇa. The corresponding word in the Śatapatha Brāhmaṇa¹ and the Atharva Veda² is *gulgulu*-, indicating in the *guggulu* of the Aitareya Brāhmaṇa the assimilation of *l* to the succeeding plosive. Forms like *sammā* and *guggulu* give us a glimpse of the dialectic tendencies in the period of the Aitareya Brāhmaṇa, some indicating original doubling, others showing Prākrit assimilation. Another case of original doubling may be noticed in the Pañcaviṁśa Brāhmaṇa (XIII. 4, 11, 10, 8), viz. in the word "Alamma," being the proper name of a man. These sporadic cases are not, of course, indications of a general tendency for original doubling in the Brāhmaṇa period, but they do betray it in some dialects of the period.

The Nighaṇṭu mentions two verbs, *hammati* (II. 14) and *drummati* (II. 14), but as side by side with *hammati* we have another reading *hamyati*, it is possible that the double consonants in both of these verbs indicate mere assimilation. The Nighaṇṭu, therefore, does not offer us any definite data of original doubling.

Some of the collections in Pāṇini's Dhatupātha throw interesting light on the subject. It is striking to note that the roots *att*, *oudā*, *adda*, and *kadā* are given in the Dhatupātha as *atta*, *cutta*, *adda*, and *kadā*, the final cerebral consonant being preceded by a dental, indicating that the cerebral doublings in *att*, etc., are really cases of assimilation. But there are several other verbs in the Dhatupātha which may contain double consonants. These are, for instance, *bukk*, 'to speak'; *nakk*, *dhakk*, 'to destroy'; *cakk*, *cukk*, *cikk*, 'to trouble'; *phakk*, 'to go down'; *kuṭṭ*, cf. *kuṭṭima*-, *koṭṭapāla*-, *malla*, 'to support'; *bhall*, 'to injure,' cf. *bhallūka*-, 'a bear'; *vell*, 'to move.' Cf. also *akkā*, *allā*, being the names for 'mother' mentioned by commentators on Pāṇ., VII. 3, 107. Possible cases of spontaneous doubling, then, begin to appear the more numerous the more distant we are from the Vedas. I say only 'appear,' because it is possible that even these doublings may have been originally due to assimilation.

¹ III. 5, 2, 16.  
² II. 36, 7; XIX. 38, 2.
In classical literature, especially in lexicographical works and in
the medical work Suāruta, names of several herbs occur, and these
possibly indicate original doublings, as they cannot be explained on
the grounds of assimilation. A few examples of these words may be
found in the St. Petersburg Dictionary: ījjala-, īkkaṭa-, kakkola,-
cuocū-, pakkaṭa-. Similarly, several words relating to forest and village
life may be mentioned: cf. pakkaṇa-, ‘hut of a savage’; palli-, ‘village’;
potiṭa-, ‘a budde’; Pukkasa-, Bukkasa-, names of particular low
castes; kikkīśa-, an injurious insect; kuṭṭaṇa-, name of a fish mentioned
in the Rājatarāṅgaṇī. These words indicating original doublings were
possibly dialectic borrowings, and then passed into classical Sanskrit.
But it would be rash to maintain definitely that there are cases of
original doubling, and not of assimilation.

Many proper names of persons and places occurring in inscriptions,
the Mahābhārata, the Kathāsārītāgāra, and particularly the Rājata-
raṅgaṇī, possibly offer interesting and copious data of original doublings,
as they cannot be explained on grounds of assimilation: cf. Rissaka-
Jaṅga-, names of two persons mentioned in a Sanskrit inscription, the
Mahābana Prāsasti.1 The following collections from the St. Petersburg
Dictionary may be of interest: Ilaka-, a proper name occurring in the
Kathāsārītāgāra. Aratta, Kaukuttaka-, and Jīlīka—names of countries
mentioned in the Mahābhārata. Several proper names of persons and
places mentioned in the Rājatarāṅgaṇī: cf. Chudda-, Jaggika-, Jajja-
Jaṅga-, Taṅka-, Tikka-, Dākka-, Thakkana-, Didda-, Dhammaṭa-
Dhammikā-, Nāṭaka-, Māḍa-, Mummuni-, Lokkaka-, Suṭṭaka-
Sulaka-, Sussala-, and Himmaka-.

Cases of original doubling in Prākrit have been noted by the Indian
grammarians Hemacandra and Vararuci (vide Pischel, pp. 141 ff.).
I have collected the following from Prāṛta Pingala: uppāri, corre-
sponding to Sanskrit upāri, upāpū = Skr. upōya-; ghutta=ghṛta-;
jamakka=jamakau; pāṭaka=nāyaka-; phutte=spḥutati; jitta=jita.-
The quantity of the vowel in the corresponding Hindi words āpar and
 jit proves that the parallel Prākrit forms for these two words contained
really double consonants. In a work in ancient Kashmiri dialect, the
Mahanaya Prakāśa2 of Śitikanṭha, there occur several cases of original
doubling—e.g., ruccī for ruci-, gatta for gata-, kitta for kṛta-, akka for

1 Vide "Epigraphia Indica," Vol. I.
2 Kindly suggested to me by Sir George Grierson.
eka-; though the doubling in the last example, as in Prākrit, may have been due to the reduction of the quantity of the initial vowel.

Isolated tendencies of original doubling, then, though rare, are not entirely absent from Indian dialects, and they appear to be the more frequent the more distant we are from the Vedas.

**Final Consonants.**

Indian grammarians do not prescribe doubling of final consonants. The only exception is the authority of the Atharv. Prāt. (III. 26), which explicitly lays down that the final consonants of words are doubled. We have no record of such doublings in Sanskrit except in liaison, while Prākrit, as is well known, has dropped the final consonants instead of doubling them. If the phenomenon ever occurred, it must have been confined only to certain isolated areas, which it is difficult in this age to locate.

All grammatical authorities, however, are agreed that the final ə or ə when preceded by a short vowel and followed by any vowel are doubled—e.g., pratyaṅ-atra=pratyaṅṅatra, san-atra=sannatra. Even in this case the Pārśikṣā andVyāsa Śikṣā state that the final nasals, although written double, should be pronounced only once. When a consonant follows, however, then, according to the Varṇaratnadīpikā Śikṣā, these nasals, like all "final" (i.e., not strictly final in the sense that they should not be followed by any word) consonants may be doubled—e.g., āpnuvan pūrvan, as in samyakk sravanti, tatt karoti. But although this Śikṣā calls them "final consonants," they cannot be strictly called final, as they are followed by other consonants, and their doubling is really a case of liaison rather than doubling proper. Similarly, doubling of final ə or ə before vowels is also really

2 hravat paro nāda iha dvirūpo varṇakrame tām sakṛd uccared jñāh; hravat paro nādo (a)vasēne paṅcamo varno dvirūpavargo bhavati tathāpi varṇakrame varṇakramoktikāle tām nādōṁ sakṛd ekavarāṁ uccared brūyat. Pārśikṣā, chapter on Doubling, 170.

Similarly, Vyāsa Śikṣā: hravatdvirūparam nādo yad etam sakṛd uccaret, varṇakramoktikāle tu nānyasanayo gam uccaret. XX. 10.

ŚŚ, p. 130: samyogādiḥ svarād deitāṃ prāpnoti vidur budhāḥ, tat padāntapadādyor vā padosadhye 'pi sarvataḥ, samvāk kṛavanti saritah sandhau tu padayor yathā.
a case of liaison. For the final \( n \) represents in many cases an original Indo-Germanic \( nt \), which by assimilation from the succeeding vowel became \( nd \), and was finally changed into \( nn \): Skr. \( sn = \) Indo-Germanic *sonts. Similarly, final \( n \) represents even in Sanskrit declension \( nks \), \( pratyahāra \) being really \( pratyāhāra \). The so-called additional consonant was conserved or reappeared in liaison.

Doubling in Sandhi.

On doubling in Sandhi there occurs an interesting observation in the Cārāyaṇīya Śikṣā:¹ "Sounds undergoing Sandhi are doubled. When there is no Sandhi, they should be taken as only short. Sounds undergoing Sandhi should be pressed like oil, sounds without Sandhi should be treated like leaves. When a final consonant precedes another initial consonant, the former is always doubled." In the first place, the author's use of the term "short" for a non-double sound is interesting, as it indicates that the opposite sound—viz., the double one—was, in the author's view, only long in quantity, and that the author did not mean thereby two distinct individual sounds. But as regards the author's observation that sounds in Sandhi are doubled, as in \( samyakksravanti \), \( tatprāpnot \), the author's view is not consistent with the general theory of syllabication discussed above, if by 'sounds' he means the twenty-one consonants to be specified below. For the general tendency of the language and the rule of syllabication that all final consonants went with the preceding syllable could not allow the doubling of final \( t \) in Sandhi. According to the general theory of the language, the final \( t \) in this case was implosive, and was entirely lost in Prākrit, and so it was hardly likely that it was phonetically doubled. The doubling of final consonants before other consonants in Sandhi, which is only rarely met with in a few MSS., had therefore more of a conventional than phonetic basis, and consequently it is improbable that in actual colloquial Sanskrit final consonants were pressed like oil, as the author would have it: they behaved more like leaves, in the sense that in actual speech the final consonant was not

¹ sandhīprāptās tu ye varṇās teṣāṁ dvīrāhāvā iṣyate, abhāve sandhinā caiva laghutvaṁ caiva nirdēṣet. taśvat puṣṭayed varṇān sandhīprāptāṁ tu sarvadā, sandhinā raktīṁ caiva pārasva ca samācet. vyājanantam padam pūrṇam tadvarṇam cāparaṁ bhavet, dvīrāhāvaṁ tāṁ vijāniyāt sandhīkāle tu nityaśaṁ. Fol. 29, 3a.
so compactly connected with the succeeding initial consonant even
when, in orthographic transcription, the connection of the consonants
was represented by Sandhi. Thus in connected speech yāvat hi in
orthographic Sanskrit became yāvaddhi, and I have no doubt that in
formal recitations and academic Sanskrit it was pronounced yāvaddhi,
but considering the fact that the corresponding Prakrit form is jāva hi,
and that the most ancient grammarians’ rules of syllabication require
the final consonant to go with the preceding syllable, it seems likely
that in actual colloquial speech it was more often pronounced yāvat hi
than yāvaddhi, although orthographically written yāvaddhi.

Indian grammarians had also noticed the difference between merely
orthographic Sandhi and phonetic Sandhi of finals. Thus, commenting
on Taitt. Prāt., V. 1, the Vaidikābharana¹ points out that “Finals
are of two kinds: those given in the texts (i.e. orthographic) and those
due to the incapacity of the speaker (to continue the speech). Textual
finals occur in regular positions at the end as well as in the interior of
chapters, and at the end of words and kramas. The other kind (i.e.
phonetic) has no fixed place. Samhitā or connected speech is similarly
of two kinds: textual and phonetic. In the latter case a unit of sound-
group or Samhitā is that which is within the compass of a single
breath.” In this author’s opinion, then, Sandhi or connected speech
was actually determined by breath. The author here speaks of a
living phenomenon in the language, though his observation was not
adequate enough. For although the various phases of connected
speech varied with the breath-force of the individual, the author, by
assigning no fixed place to those phases, failed to notice or emphasize
certain fixed tendencies in the Sanskrit speaker to treat all final
consonants in a particular way—viz., to pronounce them as implosive.

Interesting directions have been given regarding the different
treatment of orthographic and phonetic Sandhi, by Kaccāyana² in
his Pāli Grammar and by the author of the Kātantra.³ They give

¹ iha dvividho virānaḥ, samāmānāyasiddaḥ, asaktyādhetukās.ca. tatra samāmā-
yasiddho 'nuvākanteśu tanmāhyānyāramāṇeṣu padakramanteṣu ca dhari.
itaras te aniyatadakāḥ. tatra samhitāyām iti pūrvasyābhāva ucyate, ekaprāna-
bhāva ity aparasya ca.

² I. 10: pubbam adhoḥhiṇam assaram sarena viyajaye.
I. 11: naye param yute.
³ Ed. Liebieh, p. 16. I. 1, 21: yuṣṭiṣvavam asaram param varṇam nayet.
I. 1, 22: anatikramayan viḍeṣayet.
two rules side by side: firstly, according to that which relates to orthographic Sandhi, a final consonant is to be carried to the succeeding sound. Kaccayāna gives the example “tatrābhiratim iccheya,” the final consonant \( m \) being carried to the succeeding sound \( i \). This rule was presumably more orthographic than phonetic, for otherwise we know that the final \( m \) of Sanskrit was reduced to a mere Anusvāra in Prākrit, and that therefore the tendency of the colloquial Sanskrit speaker was not to carry this final \( m \) to the succeeding sound. Side by side with this injunction to carry the final consonant to the succeeding vowel, the same authors prescribe that the final consonant of a word should be separated from the initial vowel of the next word, as in tatrāyam ādi. I have no doubt that this rule would have been contradictory to the other, if its scope had not been different. The scope of this rule was phonetic, the final consonant being kept apart from the succeeding word in actual pronunciation. Similarly, Patañjali, while commenting on Pāṇini, I. 4, 109-110, indulges in a good deal of philosophical speculation on the nature of Saṃhitā and the finals, but subsequently bows to usage. It is difficult, he says, to define these terms. “Some people define Saṃhitā as the closest proximity of sounds, but this definition would be inapplicable when the same sounds are uttered slowly. Some authorities restrict Saṃhitā to that connection between one word and another, when there is no interval between the two, but, strictly speaking, with this definition the term would apply to any two consecutive individual sounds, for there is always an infinitesimal interval between them. Again, it is equally unsatisfactory to define a final, for in a sense every individual sound may be called final. The nature of Saṃhitā and the final should therefore be known only from usage. Thus when a man is reading, another may say to him, ‘Read śānno devīḥ by Saṃhitā, i.e. closely connected.’ And the reader then brings the sounds in extremely close proximity. And another person may ask him, ‘What is the final sound of your reading?’ And he may reply, ‘The final is \( a \) or \( i \) or \( u \).’ Both of these terms, Saṃhitā and the final, are known to the world, and their nature is to be known from usage in the world.” In other words, Patañjali here admits that Sandhi and the final were subject to the usage of the living dialects, and were not bound to orthographical texts or grammatical rules. That even the gram-

1 samhitācasānayor loke viditateśaṃ siddham.
marians had to bow to this usage is further corroborated by the well-known maxim of Sandhi that it was necessary only within a word, but was optional between one word and another:

When, therefore, the Cārāṇiya Śīkṣā states that final consonants in Sandhi are to be doubled, the author is right if he is referring to formal recitation of Vedic texts or pronunciation of academic Sanskrit, but his rule does not hold so good of final consonants as actually pronounced in living colloquial speech, as the above testimony of the grammarians, the tendency of the language, and the general theory of Sanskrit syllabication will amply testify.

In the above paragraphs I have criticized, in the light of the general tendency of the language, the observation of the Cārāṇiya Śīkṣā regarding the doubling of finals. But considering the fact that several other observations of this Śīkṣā so correctly represent the facts, and that the Atharva Veda Prātiśākhya (III. 26) goes even further by stating that all final consonants are doubled, we have reason to suppose that these authors refer to an actual phonetic phenomenon which may have been confined to certain isolated circles among the spheres of Sanskrit pronunciation. I have referred above to academic Sanskrit in which doublings of finals were commonly observed; but one can hardly suppose that academic Sanskrit was not a living phenomenon in any grade of Sanskrit-speaking communities. It would be unreasonable to suppose, for instance, that English as spoken by educated London is not a living phenomenon because it does not typically represent the dialects of England. It was therefore not unlikely that the finals of consonants in Sandhi, as in tatt-karoti, were actually pronounced double among certain educated circles in Sanskrit-speaking India. Moreover, although we do not find strictly final consonants doubled in Prākrit, certain dialects of Prākrit show distinct traces of doubling of prefixal finals and of the finals of prefixes. For instance, corresponding to Sanskrit cikitā we have cikicchā side by side with cikissā; for Sanskrit utsava- we have uccava- in Māgapādhi and Śauraseni side by side with usava- in Ardhamāgapādhi.

This divergent treatment in Prākrit of the final t before s may be further illustrated by the following examples:

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<td>kuccha-</td>
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<td>ussagga-</td>
<td>uṣṭariga-</td>
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<td>bhāchach-</td>
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<td>macchara-</td>
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<td>vacchala-</td>
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<td>tassāṃkin-</td>
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Examples like cikicchā indicate that certain dialects had a tendency, not only to maintain the final or semi-final t in Sandhi, but also to double it, for the t in these examples has not been dropped; it has been doubled and palatalized. In the other set of examples, however, as in ussagga-, the general tendency was followed by dropping out the t, though even here the t left its trace behind by the doubling of s.

**Limits of Doubling.**

As regards the limits of doubling, Pāṇini quotes the opinion of Śakaṭāyana, who holds that doubling cannot occur in a group of three or more consonants—e.g., doubling cannot occur in paksmaṇ-, vaktṛa-, kāṛṣṇya-. If the author meant thereby that the group in question was to be within the same syllable, Śakaṭāyana’s view was sound, for it is hardly likely that the average Sanskrit speaker had the breath-force enough to pronounce, in addition to a group of three or four consonants, another consonant to effect the duplication, with a vowel to complete the syllable—e.g., it is hardly likely that in körśtasya the average speaker could double the n, which the phonetic rules of Sanskrit required, as will be explained below. But if the author meant the group to be within a single word, irrespective of syllabic division, then his view was phonetically unsound. For there was no reason why doubling should not have occurred in vaktṛa- so that the syllabic division was vakkaṭra, the doubled k belonging to the first syllable. At any rate, this ancient authority’s rule was a reasonable warning against the monstrous conventionalities of unnatural doubling so often met with in Sanskrit MSS. and inscriptions. Thus the Gautamī Śīksā gives instances of groups of six and seven consonants in dhakkaṁkṣayau and yuvāṇkṣṣva, which the average human being could

1 VIII. 4, 50; triprabhṛtiḥ Śakaṭāyanasya.
hardly pronounce, though it is a relief to note that even the author of the Gāutamī Śikṣā puts a limit to the total number of consonants forming a single group, and states in this connection that there does not exist a consonant-group consisting of more than seven members. Moreover, that Śākaṭāyana’s restriction referred to a living phonetic phenomenon in some of the dialects is corroborated by Prākrit saunha- for Sanskrit śākṣa-, pamha- = Sanskrit pāṃśmaṇ-, tinha- = Skr. tāksaṇa- (though tikkha- has also been met with). These examples show that at least some spheres of Sanskrit pronunciation were averse to doubling when the consonant-group consisted of three or more consonants.

Besides the above “three-consonant” restriction on doubling attributed to Śākaṭāyana, the Vāj. Prāt.¹ states that no doubling can occur before the vowels r and l, and before the Yamas. Thus there will be no doubling of the consonants in vismrta-, anisṛta-, rddhikṛpta-, and rukkm-a-. As regards the non-doubling of the consonant before r and l, I do not know what phonetic grounds led the author to prescribe the restriction: perhaps the consonantal element of these vowels brought about a condition similar to the three-consonant restriction above, and thus made the consonant-group too unwieldy for doubling. The manuscripts examined by me seem to confirm our author’s view; for they do not double the consonant before these vowels, but the evidence of the living dialects in this matter is not definite. For although we have no parallel of doubling in the dialects for Sanskrit vismrta-, Lahndi has visria, dropping out the m altogether, while Pāli has visarati or visumarati. But as we have at the same time Pāli viṭṭhata- for Skr. vṛṣṭta-, it is not safe to accept without reservation the Vāj. Prāt.’s prohibition of doubling before r and l.

¹ There were presumably phonetic grounds for the author’s prohibition of doubling before the Yamas. The Yamas, according to the theory of Indian grammarians, were “twins,” and thus represented partial doubling. Thus the commentary on the same work remarks that “in rukkm-a-, k is first doubled according to the general rule of doubling, and then the second k undergoes the stage called Yama.”² For Yama literally means ‘twin,’ and the very term

¹ IV. 111-113: tvarne, ṭvarne, yame.
² IV. 161: rukkma ity utra svarat samyogādir ity ādina kākārasaḥ dvirbhāve kṛte ‘nena isūtṛena dvitiyaśaḥ kākārasaḥ yama ity ayaṁ kāryakramaḥ kriyate.
implies a double aspect—e.g., in ruk̄ma-, k, the first aspect, is non-nasal, and the other aspect k, according to the Indian theory, was slightly nasalized. It is improbable, therefore, that the author, who knew this double aspect of the Yama, could so contradict himself as to say that no doubling occurred before a Yama. He seems to have prescribed, not against doubling, but against the further doubling of the plosive before the Yama. There were said to be, as Rosapelly1 has shown, three stages in the articulation of the Yama: (1) implosion of k, (2) its partial release by the explosion of air through the mouth, (3) its slight nasalization by the passage of air through the nasal cavity. With these three moments of articulation the quantity of the consonant was long enough not to require further doubling. And this prohibition of further doubling is quite consistent with another rule which the author gives among the same set of rules—viz., that consonants already doubled or homogenous consonants are not doubled again.2

In the above paragraph I have explained how, in the light of the Indian theory of Yamas, doubling of the plosive before the Yamas was not likely to have occurred. The Indian theory maintained that the basis of the Yamas was a slight nasalization of the plosive before a nasal consonant. But, as already explained in the section on the syllabication of the Yamas, what really seems to have happened in rukma-, was not the nasalization of the plosive (because a plosive and nasalization are contradictory terms), but the insertion of an unvoiced η after the plosive k, so that rukma- seems rather to have been pronounced rukŋma-.

But even with this explanation of the nature of the Yamas the non-occurrence of doubling before the Yamas was phonetically probable, because kəm was already a group of three consonants, and it was therefore not likely that doubling occurred in this group. At any rate, whatever the nature of the Yamas may have been, whether they were nasalized plosives or independent nasal consonants, the non-occurrence of doubling before them, as observed by the Vāj. Prāt., was a probable phonetic phenomenon.

2 IV. 110.
Enumeration of Consonants that can be Doubled.

According to the Lomaśī Śikṣā, there are twenty-one consonants that can be doubled—viz., the five breathed unaspirated plosives, the five voiced unaspirated plosives, the five nasal consonants, the three semi-vowels—viz., y, l, and v—and the three fricatives—viz., ś, ś, and s. And consequently, as the Gautamī Śikṣā specifies them, there are twelve consonants that cannot be doubled—viz., the five breathed aspirated plosives, the five voiced aspirated plosives, r and h.

As regards the fricatives, the Varnaśatna-dīpikā Śikṣā remarks that the fricative s is doubled in only two Sanskrit words—viz., in śasva and rāsva, and in no other word. There is no doubt that as a general rule Sanskrit declension did not allow s to stand before another s within a word; it was either dropped or changed into the dental plosive t (cf. asi, vatsyāmi). And though grammatical rules allowed it to stand when it was final but preceded another s, as in narassaravatra, the actual usage has been generally to drop the s even in this position, and to change it into h. Again, even in those MSS. in which doubling has been carried to fantastic extremes, I have not found any instance in which medial s has been doubled; for instance, MS. Yajurveda (India Office, 2391) consistently doubles the fricatives ś and s, but does not double the s, although the rules of the Pratīśākhyaśa require the fricatives to be doubled except before plosives and vowels. The following are examples from this MS.:

<table>
<thead>
<tr>
<th>ś</th>
<th>s</th>
</tr>
</thead>
<tbody>
<tr>
<td>viśvataḥ</td>
<td>addhvarasvudyaḥ</td>
</tr>
<tr>
<td>āśvināḥ</td>
<td>amussya</td>
</tr>
<tr>
<td>mātariśvam</td>
<td>manussya</td>
</tr>
</tbody>
</table>

1 varṇā viniśatir ekas ca yeṣām dvibhāva iṣyate prathamāntaryāṣu iṣīyāḥ ca yata: iḥ saśasaiḥ saha. SS, p. 457.

2 atha sarveṣām vyayājananām dvibhāvo bhavati dvādaśaśaravarjanam te kha cha tha thaphā ghajhādhadhabhā rahayōṣ ceti. SS, p. 450.

3 SS, p. 131: sakāraśasya dviraktir yā sa dvayor eva nānyataḥ, ā ca śāsva ca rāsve yat sakāro 'tra dviruktiaḥ.

4 According to the general rule (cf. p. 117) that the first member of a consonant-group is doubled when preceded by a vowel.
Hundreds of examples could be quoted regarding the non-duplication of s before a semi-vowel. Among the Gupta inscriptions, I have remarked only a single inscription (No. 17) in which s has been doubled in ‘yasayya’, occurring five times therein. Now the question arises, Was the orthographic doubling of s avoided on phonetic grounds, or only for convenience’ sake? I hold that it was avoided only for orthographical convenience, and that in actual pronunciation s in the group vowel+sya was doubled in Sanskrit: cf. Sanskrit asya=Prākrit assa; Sanskrit tasya=tassa; kasya=kassa. But then, how is this view consistent with the aversion of Sanskrit to allowing s before another s as in asi, vatsyāmi, vidvatsu? The reason why s in these examples could not stand before another s was due to the fact that the first s was presuffixal. It behaved something like a final, and was therefore implosive. This particular “s” could not stand before any consonant without losing its aspiration, or being changed into h: cf. vidvadbhih, vidvatsu, candramahsu. The case of the medial s in asya was different. Even in Sanskrit the s of asya could be pronounced double without conflicting with the tendency to keep the presuffixal s implosive; s in the group vowel +s+semi-vowel was therefore actually pronounced double in Sanskrit, and its doubling was avoided in orthographical transcription for convenience’ sake, as the group sy, sv were very common in Sanskrit. When, therefore, the Varnaratnādipikā Śīkṣā states that Sanskrit has only two words in which s is double—i.e., can stand before another s—it refers only to presuffixal s. Moreover, strictly speaking, this is not a case of doubling, but only two consonants of different syllables coming in conjunction with each other. And yet even their case was open to the question whether they were merely written double or actually pronounced double. Their exceptional orthographical treatment indicates that they were pronounced actually double in some dialects. As regards the fricative h, the vast majority of Indian grammarians are unanimous that it is not doubled. There is no doubt that orthographical evidence supports this view, for h has not been found written double in manuscripts or inscriptions. But it is hardly likely that the phonetic quantity of h, especially

1 In asi and vidvatsu, the treatment of s may be a relic of parallel Indg. sounds; cf. Wackernagel, p. 111.
2 Atharv. Prāt.. III. 31; Gautami Śīkṣā, SS, p. 450; Māṇḍūki Śīkṣā, SS, p. 473.
as it was a voiced sound, remained short in all Indian dialects in all positions. And a few exceptional cases were actually noticed by Indian grammarians. Thus Uvāṣa, commenting upon Ṛg Prāt., VI. 2, states that \( h \), like any fricative, can be optionally doubled when it is not preceded by any sound or word, and when it is a member of a consonant-group—e.g., Ṛgveda, I. 35, 1, begins with the expression \( hvāyāmy aṃnīm \), which could be optionally pronounced as \( hhvāyāmy aṃnīm \). With regard to \( h \) before \( r \), we find divergent views. Thus while according to Hārīta\(^2\) \( h \) was not doubled when it preceded \( r \), as in ḏuḍukre, ḍhrayaḥ, it was doubled according to the Cāraṇyaṇya Śikṣā,\(^3\) which illustrates \( ahhratam, hhriyate, hhṛādinī, hhṛadam \). It was not unlikely that this divergence of views was based on actual dialectic variations. According to this Śikṣā and the Lomaśī Śikṣā, \( h \) is also doubled when it occurs between \( r \) and \( y \), as in Ṗarhīyaṇghī. The Lomaśī Śikṣā says that \( h \) after \( r \) or after an Anusvāra or before \( r \) was doubled—e.g., \( barhha-, siṃhha-, hhṛādinī \). As regards \( barhha- \) and \( siṃhha- \), the increased length of \( h \) in these cases may possibly have been due to the intensification of stress or tone on their respective syllables (cf. Lahndi \( ma'rhāj, rhhā, 'rhythm' \)), but there seem to occur no literary records of such doubling in Sanskrit. The increased length of initial \( h \) was possibly the transcription of the high tone so much generalized at the present day by some of the northern dialects, though, in the absence of sufficient records, it is impossible to hazard a definite opinion on this point, especially because even mid-Indian records do not show any orthographical evidence of this tendency. Prākrit separates initial \( hr \) and medial \( ṛḥ \) by Svarabhakti—e.g., Skr. \( hraswa- \) = Prākrit \( rahassa- \); Skr. \( hrada- \) = Prākrit \( haraya-, garhā = garahā, barha- = bariha- \). According to the Lomaśī and the Cāraṇyaṇya Śikṣās,\(^5\) \( h \) between \( r \) and \( y \) was doubled, as in \( Ṗarhīyaṇghī \): even here from the tendency of the

---

\(^1\) voṃma samyukto 'nupdaḥ.

\(^2\) Taṅt. Prāt., XIV. 9: repahparaś ca hakāraḥ.

\(^3\) ārauy atra niyujyete hakāraḥ kramate tadā, ahhratam hhriyate hhṛādinī hhṛadam ca nidārasanam. Fol. 3.

\(^4\) ŚŚ, p. 46, 2: repahparvvo hakāras tu repḥāt param athāpivā, anusvārāt pāo yatra hakāraḥ kramati tiryo.

\(^5\) rayāv ubhayato yatra hakāro madhyataḥ shītaḥ, ubhayoḥ kramanaṃ vidyād ētarhīya aṃnīr nidārasanam. Fol. 3.
language we expect a Svarabhakti, and not a doubling of \( h \); etarḥya was likely to have been pronounced etarīḥya.

Another interesting condition under which doubling was said not to occur has been mentioned by Pāṇini.\(^1\) He states that "in the opinion of all teachers doubling does not occur after a long vowel." This was a sound and important observation of the phonetic tendency of the language. For it is generally confirmed by literary Pāli and Prākrit, which have shortened the quantity of the vowel before the corresponding double consonant when in Sanskrit there had been a long vowel before a consonant-group; while, on the other hand, after a long vowel the double consonant has been reduced to single: cf. Pāli khajja—Skr. khādya-, but Pāli sāsapa—Skr. sāsapa- (through sassapa-).

But if 'all teachers' implied that doubling never occurred after a long vowel in any dialect of the country, they were wrong; for (1) Sanskrit allowed intervocalic double consonants after long vowels, as in āttam; (2) in several Vedic manuscripts, inscriptions, and classical works, doublings of the first member of the consonant-group after long vowels are often met with; cf., for instance, the following examples from the above-mentioned manuscripts:

\[
\begin{align*}
tebbhyaḥ & \quad \text{ārthtyāya} & \quad \text{mātrayā} \\
tērthhebbhyāḥ & \quad \text{śākavararaivaṭe} & \quad \text{īndrāggnā}
\end{align*}
\]

Similarly in the Guptā inscriptions:

āṛttham (Inscription No. 14), āṛtthiḥ (No. 14), mārgga- (No. 17), kīrttiḥ (No. 15), sagotra- (Nos. 16, 21).

(3) Literary Pāli\(^2\) also occasionally maintained double consonants after long vowels: cf. dābbī, 'name of a plant'; dāttā-, 'sickle'; svākkhātā-, 'well-known'; ājjava-, 'honesty.' (4) Some of the modern dialects, e.g. Panjabi and Lahndi, retain a long vowel before double consonants: cf. Panjabi and Lahndi sūṭar, mūṭtar, nettar, khettar, gottar, for Sanskrit sūtra-, mūtra-, netra-, kṣetra-, and gotra- respectively.

**Rules of Doubling.**

According to Indian grammarians, only that consonant was doubled which was the member of a consonant-group. No Indian grammarian, except the Sarvasammata Śikṣā and the Taitt. Prāt. (see above, the

\(^1\) VIII. 4, 52: dirghāḥ acāryāṇām.  
\(^2\) Geiger, p. 43.
section on Intervocalic Consonants) in a few individual cases, has prescribed the doubling of intervocalic consonants. Whether Indian dialects show any traces of intervocalic doubling has been discussed in the section on Original Doubling.

I now proceed to examine the detailed rules of doubling as prescribed by our grammarians.

I. Vowel + Consonant-Group.—This was the most general rule.\(^1\) After a vowel, the first member of a consonant-group was to be doubled. Thus mukta- became mukkta-, sapta- = sapppta-, adya- = addya-, cakra- = cakkra-. Pāṇini,\(^2\) however, as already pointed out above, states that such doubling was optional; one could say sapta- or sapppta-, cakra- or cakkra-, and so on. As I have already discussed above, the general tendency of the language as reflected in the living dialects proves that this doubling was decidedly predominant in the actual pronunciation of Sanskrit.

Pāṇini’s option was therefore valid if it was orthographically allowed for convenience’s sake. But if he meant to imply that both the pronunciations were equally current, he was wrong, as the opposite tendency for non-doubling (except when the second member of the group was a fricative after r), reflected in only a few dialectic examples like rāi for rātri-, puā for putra-, ruāṇa for rarna-, ruāṇi- for aratni-, was rare.

II. Anusvāra + Consonant-Group.—The Rg Prāt. and the Pārīśikṣā\(^3\) state that after an Anusvāra the first member of a consonant-group was doubled. It is interesting to note that both these works mention two alternative conditions that ought to precede a consonant-group before its first member is eligible for doubling. The preceding sound may be either a vowel or an Anusvāra. The Anusvāra was therefore not a merely nasalized vowel in the opinion of these authors, and they consequently seem to imply that an Anusvāra intervening between

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\(^2\) VIII. 4, 47: anaci ca.

\(^3\) Rg Prāt., VI. 1: svarānusvāropahito dvir ucyate samyogādiḥ. Pārīśikṣā, chapter on Doubling: kṣravād anusvāra iyād dvitarṇam, yo ghe pate tasya ca mātrikaḥ syat, yo gādīr apy atra tathā dvirucyate ’nusvārapūrvo ’py athp cāgamaḥ syat. 162.
a vowel and a consonant-group did not hinder the doubling of its first member. But the testimony of the living dialects does not confirm the observation of these grammarians. For in Prākrit, whenever an Anusvāra has appeared before the corresponding original Sanskrit group, we do not find any traces of doubling, but in the absence of Anusvāra the doubling is maintained: cf., for instance—

<table>
<thead>
<tr>
<th>Sanskrit</th>
<th>Prākrit</th>
</tr>
</thead>
<tbody>
<tr>
<td>dārsana-</td>
<td>damsana-</td>
</tr>
<tr>
<td>pakṣa-</td>
<td>pāmkkhi</td>
</tr>
<tr>
<td>plakṣa-</td>
<td>pilammkhū-</td>
</tr>
<tr>
<td>tejasvinī</td>
<td>tejamsi</td>
</tr>
</tbody>
</table>

These examples indicate that Anusvāra did not hinder the doubling. It may be objected on behalf of our Indian grammarians that doublings in words like pāmkkhi may have been orthographically avoided, but that it does not necessarily prove that they were phonetically absent. It is more probable, however, that in pronouncing pāmkkhi or Sanskrit vaṃḍḍya- the quantity of the original double consonant was very probably affected by the intervention of Anusvāra in the same syllable. The syllabic quantity of the vowel to which the Anusvāra belonged was long, and after a long syllable, as after a long vowel, the doubling of the first member of the consonant-group was very probably avoided, as the quantity of the double consonant succeeding a long syllable and followed by another consonant was likely to have been reduced: cf. Skr. aṇṇi—dialectic aṇṇi- or āṇṇ If, however, the dialects observed by these grammarians had an extraordinarily strong tendency for doubling, then the original long quantity of the consonant may have been considerably preserved in spite of the intervention of the Anusvāra. That the existence of such dialects was not improbable may be indicated by double consonants after Anusvāra sometimes occurring in Prākrit: cf. Śakunttalā. mahāṁtte in Dravidian MSS. of Prākrit works.¹. The phenomenon may be noticed even in a few Skr. inscriptions—e.g., vedāṇṭta- ("Epi. Ind.," VI. 109), gaṅggāḍi- (Ibid., VI. 348), teṣāṁ mmayā (Ibid., V. 127, 130). Even in several modern Indian dialects (except many of the N.W. and Singalese) Skr. short vowel+nasal+plosive is represented by long vowel nasalized+plosive, and so indicates that among certain dialects of the original language, consonants were

¹ Pischel, p. 192.
pronounced double after the Anusvāra: cf. Skr. kantaka—Hindi Marathi kātā, but Singh. kaṭu, Sind. kanḍo, L. Panj. kanḍā.1

But a still more surprising rule comes from the Vyāsa2 Śikṣā and the Pārisīkṣā.3 According to these authorities, not only is the first member of a consonant-group doubled after the Anusvāra, the Anusvāra itself is also doubled after a short vowel before the consonant-group in question. It will be shown in Chapter IX. (on the Anusvāra) that in the opinion of the Taittirīya school of phonetics, to which these Śikṣās belong, the Anusvāra was a consonant, being equivalent to half g, consequently pronounced like ñ, and it will be also pointed out that this view was based on facts (cf. pp. 151 ff.). If, therefore, the Anusvāra in the pronunciation noticed by these Śikṣās was a consonant, it became the first member of a consonant-group, and hence was subject to duplication according to the general tendency of the language. The lengthening of the quantity of the Anusvāra before another consonant or consonant-group was therefore not unlikely in some of the Indian dialects: cf. how nasality by progressive assimilation has attacked the succeeding plosive in Prākrit pañna or Lahndi pañ for Sanskrit pañcan-, Panjabi jammu for jambu-, Hindi ammā for ambā.

It would be of interest to note in this connection the more probable observation of the Vāj. Prāt. (IV. 109), which explicitly states that the Anusvāra before a consonant-group is not doubled.

III. r+Consonant.—The Prātiśākyas4 give a general rule that a consonant after r is doubled. Pāñini, as usual, optionally allows this doubling. I have amply illustrated in the above pages that the tendency of the living dialects and the Gupta inscriptions confirm the doubling of the consonant after r.

The grammarians5 have noted an important exception in the case of r+fricative when followed by a vowel. Thus the fricative in varṣa- will not be doubled, but in varṣṣya- it will be doubled. This

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3 krasvad dovitam anusvāraḥ prāṇāyaṁ saṁyute pare tadanusvārapārvāṁ ca saṁyogādir dvir ucayale. XIX. 5, 6.

4 Cf. footnote 3 on p. 117.

observation was based on an important phonetic fact in the language, for when a vowel followed this group in the original Sanskrit form, the corresponding Prākrit form, in most cases, has given the Svarabhakti—e.g., Sanskrit varṣa- has become varīsa-, though vassā- also occurs in a minority of cases. But when in the original Sanskrit word the group r+fricative (except the voiced fricative h, which, according to Indian grammarians, was not doubled) was not followed by a vowel, Prākrit invariably preserved the doubling—e.g., varīsa=—Skr. varṣa-, karīsa=—Skr. karṣya-, harīsa=—Skr. harsya-.

IV. l+Plosive.—As regards the group l+plosive, the grammarians have given divergent views, though the majority of them prescribe the doubling of the plosive in this case. The Taitt. Prāt.¹ does not prescribe this doubling, except in the case of l+aspirated consonant, as in pragalbha-; but quotes the authority of Pauṣka-rasādi, who maintained the doubling of l or of the plosive optionally. The same work quotes the opinion of other teachers who prescribed the doubling only of the plosive. And I hold that the evidence of Prākrit and manuscripts confirms the theory that maintained the doubling of the plosive after l. Thus Sanskrit l+p= Prākrit pp; e.g., jalpati=jappati, kalpanā=kappanā. Prākrit does not give the doubling only in that case when a nasal m or Anusvāra has been substituted for l: cf. Prākrit jampai=Skr. jalpati. The doubling of the plosive after l has been sometimes met with in Sanskrit manuscripts, although I have not come across it in the Gupta inscriptions. The following are a few examples from a MS. of the White Yajurveda (No. 2391, India Office):

<table>
<thead>
<tr>
<th>abhikalppamānā</th>
<th>vvisvagulkkāḥ</th>
</tr>
</thead>
<tbody>
<tr>
<td>kalppantām</td>
<td>kilbbisāt</td>
</tr>
<tr>
<td></td>
<td>ubbam</td>
</tr>
</tbody>
</table>

V. Plosive+Plosive.—In accordance with the general rule of the Prātiṣākhyas, a plosive after a vowel would be doubled before another plosive, and I have given several examples from manuscripts in the above pages that confirm this view. But, as I have also pointed out above, the doubling of a final plosive+plosive, among the majority of areas speaking colloquial Sanskrit, was more orthographical than

¹ XIV. 2, 3, 7: lavakārapūrveḥ sparśaḥ ca pauṣkarasādeḥ, sparśa evaikṣam advāryānāṃ lakārapūrve ca.
phonic, as the living dialects and the general tendency of the language indicate doubling only when a medial plosive is followed by another plosive. On the other hand, the Taitt. Prāt. mentions the opinion of some authorities according to whom a plosive before another plosive is not doubled in any position, and the commentary Vaidikābharana explains it by stating that according to these authorities a plosive before another plosive is not heard. In the opinion of these grammarians, then, the doubling of a plosive before another plosive did not occur. As already discussed above, there is no copious evidence from the living dialects in favour of this non-doubling. But even this opinion indicates that these authorities had observed another living and probably a more predominant phonetic phenomenon—viz., the Abhinidhāna of a plosive before another plosive (cf. pp. 137 ff.).

It may be objected here that the rule regarding the doubling of a plosive before another plosive, though enjoined by grammarians and confirmed by inscriptions and manuscripts, is not corroborated by the living dialects, where, as in nattā- (naka-) sattā-(sapta-), it is not the first but the second plosive that seems to have been doubled. But a little reflection will show that the apparent doubling of the second plosive in Prākrit is in reality the effect of a twofold process: (1) doubling of the first plosive (nakk, sapp), (2) its assimilation to the second plosive due to Abhinidhāna. Otherwise it is hardly likely that naka became natta through the process nak-tta, for Indo-Aryan shows no tendency for doubling the initial consonant of a syllable.

The doubling of Skr. inscriptions and MSS. was therefore the actual pioneer of Prākrit doubling, as Jacobi has rightly pointed out.²

VI. Fricative + Consonant.—The Vāj. Prāt.³ prescribes the doubling of a consonant after a fricative—e.g., haste will become hasste, sparśa= soppera-, yaḥ kāmayeta=yaḥ kkāmayeta, griśma= griśmna-. As regards fricative + nasal consonant, however, our authorities differ. According to the Taitt. Prāt. an additional consonant was inserted in the group, but the consonant inserted was not a nasal consonant. The inserted consonant was the breathed unaspirated plosive of the class to which the nasal consonant belonged. Thus griśma- became griśpma-, aśma=aśpma, kṛṣna= kṛṣṇa-. In other words, in the

1 XIV. 27: sparasā sparsekaparaḥ : parasepareṇa savyogah sparśanāṃ tu bhaved yadi, tatpuruṣasya śrutir nāti prāhūs teśām idaṃ maṇam.
3 IV. 102.
4 aghośād āṣmayah parah sparsekapat tasya sasthānāḥ. XIV. 9.
opinion of this authority the first element of the doubled group was
denasalized. According to Plākṣiṣṭ,\(^1\) only a breathed plosive after the
fricative was doubled; thus there was doubling in niśkkevalya-, but not in brahman-.
In the opinion of Plākṣāyaṇa,\(^2\) however, only nasal consonants in this group could be doubled, and not plosives. According
to this authority, then, there was doubling in aksīṇayā, brahma, but not in niśkevalya-.

As regards the plosive after fricative, its doubling has often been met with in manuscripts. The following are a few examples from
two MSS. of the White Yajurveda (British Museum, 5350, and India
Office, 2391):

\[
\begin{align*}
tastthuh & \quad ghanasappāta- \\
traistthubhena & \quad stokānām \\
tastthuṣah & \quad srṣṭaḥ \\
&mānasatṛistthub- \\
&graismī \\
yuñjānāh ypprāhamam & \quad savituh ypprasave \\
&visnoḥ kkramosī
\end{align*}
\]

Prākrit also manifests similar doubling of the plosive after the
fricative, as the following examples will show:

<table>
<thead>
<tr>
<th>Prākrit</th>
<th>Sanskrit</th>
<th>Prākrit</th>
<th>Sanskrit</th>
</tr>
</thead>
<tbody>
<tr>
<td>nikkha-</td>
<td>niśka-</td>
<td>hattha-</td>
<td>hasta-</td>
</tr>
<tr>
<td>pukkhar-</td>
<td>puśkara-</td>
<td>atthi</td>
<td>asti</td>
</tr>
<tr>
<td>agnitthoma-</td>
<td>agniśṭoma-</td>
<td>puppha-</td>
<td>puspa-</td>
</tr>
<tr>
<td>diṭṭhi-</td>
<td>drṣṭi-</td>
<td>āpphoḍana-</td>
<td>āsphoṭana-</td>
</tr>
</tbody>
</table>

But the striking proof of this doubling tendency in the language
is given by the following examples from the living dialects, in which
the doubling of the plosive had been so predominant that the aspiration
of the preceding fricative has been entirely driven out:

<table>
<thead>
<tr>
<th>Prākrit</th>
<th>Sanskrit</th>
<th>Prākrit</th>
<th>Sanskrit</th>
</tr>
</thead>
<tbody>
<tr>
<td>suκka-</td>
<td>śuṣka-</td>
<td>miṭṭa- or miṭṭha-</td>
<td>miṣṭa-</td>
</tr>
<tr>
<td>paroppara-</td>
<td>paraspara-</td>
<td>bappa- or bappha-</td>
<td>bāśpa-</td>
</tr>
<tr>
<td>kaṭṭa- or kaṭṭha-</td>
<td>kaṣṭa-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above examples, then, do not confirm Plākṣāyaṇa's view that
plosives could not be doubled after the fricative.

\(^1\) Taitt. Prāt., XIV. 10: aghoṣe plākṣe.
\(^2\) Ibid., uttamanarāt tu plākṣāyaṇaṇa.
Doubled as regards the nasal consonants after fricatives, their doubling has often been met with in manuscripts. The following are a few examples from the same MSS:

\[
\begin{align*}
\text{asmin} & \quad \text{tasmmai} & \quad \text{asmmabbhyam} \\
\text{brahmma} & \quad \text{raśmniśu} & \\
\text{amuśmme} & \quad \text{brahmmanā}
\end{align*}
\]

Traces of this doubling of the nasal consonant may be noticed in Jaina Māgadhī—for e.g., 
\text{ninēha—} for 
\text{nīnēha—};
\text{tammi=Skṛ. tasmin;}
\text{eammi, eyammi=Skṛ. etasmin.}
But divergent tendencies, in which the nasal consonant has not been doubled, are also met with in some dialects of Prākrit: cf. Ardhamāgadhī and Saurasenī
\text{assim=asmin; bhassas=bhasman—.}
These examples offer us some grounds to suppose that Plākṣī, who did not favor the doubling of voiced consonants after fricatives, was referring to a geographical area to which Ardhamāgadhī and Saurasenī belonged.

But the most remarkable observation regarding the treatment of a consonant after a fricative is that which we find in the Taittī. Prāt. This work prescribes the insertion of a breathed unaspirated plosive in the group fricative+consonant, so that this insertion could occur even if the consonant was a nasal consonant. Thus grīṃa—was to be pronounced grīṃma—, aśman=aśman—, Kṛṣṇa=Kṛṣṇa—, Viṣṇu=Viṣṇu—. In my opinion this observation of the Taittī. Prāt. throws a definite light on a moot point in the philology of Indian dialects. It has come to the notice of several scholars that Viśṭhala and Kīṭṭa (or Kṛṣṭa) correspond to Sanskrit Viṣṇu— and Kṛṣṇa— respectively. Thus Fleet discovered an inscription dated A.D. 1224 which presents the name of the prince Viṣṇuvardhana in the forms Bīṭṭīdeva and Bīṭṭiga. Again, Sir George Grierson² has pointed out that “in Bengali every ṛṇ is pronounced ṛt at the present day. Everyone, even a pandit, pronounces Viṣṇu as Biṣṭu, Vaiṣṇava as Boiṣṭom, and Kṛṣṇa as Kīṭo.” In Marathi and Canarese, persons who bear the name ‘Viṣṇu’ are colloquially addressed as ‘Viṣṭhala.’ In Canarese, persons bearing the name ‘Kṛṣṇa’ are addressed as ‘Kīṭṭa.’³ But in spite of these data, modern scholars have been unable to demonstrate the phonetic

1 JRAS for 1907.  
2 JRAS for 1908.  
3 Thus a Canarese friend of mine, Mr. Kṛṣṇa Iyenger, tells me his people always address him (and all people bearing the name ‘Kṛṣṇa’) as ‘Kīṭṭa.’
connection between Viṣṇu- and Viṣṭha. Thus M. Bloch states in this connection that "there is no phonetic connection between Veṣṭha-, Viṣṭha-, and Viṣṇu-. The normal representative of Viṣṇu in Marathi is Vinī." This phonetic connection, however, can be explained in the light of the general tendency pointed out by the Taitt. Prāt. in the above prescription, and confirmed by certain Aśokan inscriptions and several additional examples from Prākrit. For if in certain dialects Viṣṇu- was pronounced Viṣṭnu-, and Krṣṇa- as Krṣṇa-, the next stages, Viṭṭha- and Kṛṭha-, are easily explicable as being due to assimilation and dissimilation. That the tendency in question was general in some of the leading dialects in India is confirmed not only by examples from the treatment of the Sanskrit group sn, but also by the treatment of the Sanskrit groups sm and sṃ, which have become ph, i.e. ppha in the Magadhean dialects of Aśokan inscriptions. Thus in the Dhauli and Jaugada recensions of Aśokan edicts the consonant-group sm or sṃ in the personal pronouns (plural) asmad- and yusmad-is represented by ph, i.e. ppha. The following forms of these pronouns occur in the above-mentioned inscriptions:²

asmad (Plural).  
Nom. maye  
Accus. ape, apheni  
Gen. aphaka, aphakā, ne  
Loc. aphaśu, aphaśu

yusmad (Plural).  
Nom. tuphe  
Acc. tuphe, tupheni  
Ins. tupheki  
Gen. tuphaṇa  
Loc. tuphesu

Some of these forms have also been met with in the Aśokan inscriptions at Rūpanātha and Sāranātha, where may be noticed tupaka, tupaṇam, and tuphe. Now, is there no phonetic connection between asmad- and ape, Viṣṇu and Viṣṭha? It is here that Taitt. Prāt.'s suggestive observation comes to the philologist's help: asmad-, according to our Prāt., became aspmad- (although not orthographically so written), which further changed into appha-, and the consonant ph in these pronominal forms was really a double consonant, though written only single, as has been often met with in Aśokan inscriptions. That even the personal pronouns underwent this phonetic change shows the frequency and the wideness of the general tendency in question occurring in the imperial dialects of Magadha.

¹ "La formation de la langue marathe" (Index).
² Hultzsch, "The Inscriptions of Aśoka," 1925.
Traces of this tendency have also been met with here and there in Prākrit. Thus, as Pischel has pointed out (p. 185), some Prākrit dialects have bappa- for bhasman-, bhippa- for bhīṣman-, sepha- for śleṣman-. The Abhidhāna Rājendra² quotes a passage from the Jñātādhamakathā Sūtra which represents King Bhīṣmaka as Bhipphaya. Singhalese has also inherited a few products of this tendency, as may be illustrated by the pronominal forms topa, api (‘we’). Prākrit, however, betrays only a few relics of the tendency, which was probably present in a more general form much earlier. There are grounds, therefore, for the supposition that the chronological and geographical data to which this prescription of the Taitt. Prāt. refers may be traced back to the period of Aśoka, if not earlier, and to the dialects particularly connected with the languages spoken in the central area of the Magadha Empire.

² "kumāravagare tathāyam turuminiḥ bhiphayasyaṃkarayala."
CHAPTER VI

THE PRONUNCIATION OF \( y \) AND \( v \) IN DIFFERENT POSITIONS

Several Śiksās and the Pratijñā Śūtra give interesting directions regarding the pronunciation of the orthographic \( y \) and \( v \) in different positions.

Thus, according to the Yājñavalkya Śiksā, \( y \) was to be pronounced as \( j \) in the beginning of a hemistich, in the beginning of a word, in a consonant-group, or after an avagraha; otherwise it was to be pronounced as \( y \). But \( y \) remained a semi-vowel in the initial syllable of a word when it was preceded by a prefix, as in the word vidyut.

\( v \) in vaiḥ and vām (both enclitic pronouns), and in the particles vai and vai, and in similar words signifying “option,” was to be pronounced with only a slight obstruction of the mouth passage.

\( Y \) was to be optionally pronounced as a semi-vowel (under the above conditions), and after the word “na.”

\( Y \) was said to be of three kinds—“heavy” (the gloss explains it as “pronounced with great obstruction”), “light,” and “very light.” In the beginning of a word \( v \) was heavy; in the interior, slightly light; and at the end, very light. Similarly \( y \). \( Y \) or \( v \) when arising from Sandhi or preceded by a prefix was said to be light; but it was optionally a semi-vowel after the words atha, mā, sā, and na.

\( Y \) and \( v \) when preceded by a nasal consonant in the same word were said to be heavy, although when products of Sandhi they were light. \( Y \) when combined with \( h \) or \( r \), or followed by \( r \), was heavy, but not if it was combined with any other sound.\(^1\)

According to the Laghu

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1 Yājñavalkya Śiksā, verses 150 ff.:

\[ \text{padādau ca padādau ca samyogānagreṣu ca} \\
\[ \text{jah sabda iti viṣṇe yo 'nyaḥ sa ya ēti smṛtaḥ.} \\
\[ \text{vpaṣaṇāparo yas tu padādir api drṣyate} \\
\[ \text{iṣateṣṇaḥ yathā vidyut padacchedāt paraṁ bhavet.} \\
\[ \text{tvadarthavācinau vo vāṁ vā vai yadi nipaṭaṇau} \\
\[ \text{ādeśā ca vikalparthā iṣateṣṇā iti smṛtaḥ.} \\
\[ \text{vibhāṣayā yakāraḥ syāt tathā neti padāt paraḥ} \\
\[ \text{bhavatīt api pūrvaiva tathā ca sapadād api.} \\
\[ \text{yad eva laksanaṁ yasya vakāraṁyāpi tad bhavet, etc.} \]

Cf. Pārśāri śīkṣā, 60-63; Laghu Amoghānandinī Ś., 1-5; Padyātmikā Ś., 1-5; Nārada Ś., 16-18; Keśāvi Ś., Sūtras 1-2; Pratijñā Śūtra, II. 1; Amoghānandinī Ś., 25-27.

126
Amoghānandini Śikṣā, y in the former case (i.e., when combined with r or h), was pronounced as j in the texts of the Mādhyaśākta school; thus bāhya- was pronounced bāhja-, sūrya- was pronounced sūrja-. Y when followed by r was said to be always pronounced j, e.g. vyṛddhi- was pronounced vyṛddhi-. After prefixes generally, however, the pronunciation of y as j was said not to occur, e.g., y in upaṭajñāt was not to be pronounced j (upaṭajñāt), though simple yaṭāt was pronounced yaṭāt. Even here there was an exception mentioned by the Keśāvī Śikṣā (ŚŚ, p. 138), viz., after the prefix sam, y and v were to be pronounced as heavy. Thus saṃvapāmi was to be pronounced saṃvapāmi, saṃvarcase as saṃvarcase, saṃyaumi as saṃyaumi, saṃyaṣṭiṣṭi- as saṃyaṣṭiṣṭi-.

The Laghu Amoghānandini Śikṣā points out in this connection that the pronunciation of the orthographic y as y was maintained in all schools but the Vājasaneyaśrins. It states that although the orthographic reading of y was the same in both cases (when it was to be pronounced as y, and when it was to be pronounced as j), yet when a reading like yaṭāt occurred, it was to be pronounced as yyaṭāt—i.e., with a heavy sound in the beginning of the word.1

The Prātiṣākhya-pradīpa Śikṣā2 states in this connection that y was not pronounced as j when it did not begin a word; thus ayajjanta was not to be pronounced ajajjanta. Nor did this pronunciation occur when y was combined with another consonant, as in asmyaṭiṣṭe. It occurred, however, even at the end of a word, when the y was doubled—e.g., nṛpāsya-, dhāyya-, jārāyu-—were said to be respectively pronounced nṛpājjam, dhājjā, jārājju-.

The Keśāvī Śikṣā (ŚŚ, p. 138) states that the initial and therefore heavy y and v should be pronounced double y and double v; thus vāyāva stha should be pronounced vāyāva stha, vāsōḍh pavitrām asi as vāsōḍh pavitrām asi, yājamānasya as yājamānasya. In the next Sūtra the same Śikṣā implies that this doubled y was to be pronounced as j.3

The phenomenon that the final y and v were to be pronounced with only a slight effort was observed by authorities even earlier than

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1 yat kṛtām sūtrākāreṇa tadvat yāt samprastāranaṁ, taj jñeyam sarvadākārac na tu vājasaneyaśrins. lakṣāṇasya virodhe 'pi pāthaikyan yadi drāyate, tat tathā pratipattavyam yājñāyaṭāva ity atha. 13-14.
2 ŚŚ, p. 297.
3 ŚŚ, pp. 138 ff.
Pāṇini, for he attributes this opinion to Śākaṭāyana, who is also cited by the Atharv. Prāt. in this connection.

But the Śikṣās have gone further, for they point out that \( y \) and \( v \) even in the interior of a word were to be pronounced with only a slight effort. This phenomenon was noticed in Prākrit by Hemacandra, who in his Prākrit Grammar² points out that \( y \) (the result of the elision of a consonant) should be pronounced with a very slight effort (laghu-prayatnataḥ), provided that it is preceded and followed by \( a \) or \( ā \), as in nayana-, dayālu-. But if an \( a \) or \( ā \) does not follow, even this light \( y \) will be dropped, as vāũ- for vāyu-. Moreover, this light \( y \) was to be pronounced only after an \( a \) or \( ā \). Thus the \( y \) was not to be pronounced in devara-.

In the beginning of a word, however, both Hemacandra (Prākrit Grammar, I. 245) and Vararuci (II. 31) state that Sanskrit \( y \) became \( j \) in Prākrit, and they illustrate jasa-, jaṭṭhi-, jakkha- for yasas-, yastī-, and yakṣa- respectively. But in the interior of a word, according to these authors, \( y \) did not become \( j \), e.g. in avayavu-. Hemacandra notices this \( j \) even after the prefixes sam and ava, as samjoga-, avajasa-, though perhaps he did not notice the wider use of \( j \) after sam, as the Kesāvī Śikṣā did. He also notices that the \( y \) of the final verbal suffixes anīya, īya, and īya was optionally pronounced \( jj \), as uttarīya-= uttarīya-, karanījja-= karaniya.

The general accuracy of the above observations will be acknowledged, as the facts thus described have been borne out by the development of Sanskrit into the middle and modern Indian languages (cf. Pischel, pp. 176, 178). In addition to the evidence afforded by Pischel’s investigations, the above remark of the Kesāvī Śikṣā about the heavy pronunciation of \( y \) after sam is supported by spellings in the Pallava Grant Inscription—e.g., samjuttō side by side with ppayyute (=prayukte). It is also confirmed by the practice of literary Prākrit—e.g., samjamanti (=samyacchanti), samjoapara, etc.⁵

The Śikṣās and the Pratijñā Śūtra definitely lay down that this particular pronunciation of \( y \) and \( v \) was confined to the Mādhyanandina school, the geographical position of which was North India west of

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¹ VIII. 3, 18: vyor laghu-prayatnataḥ śākaṭāyanaaśya.
² II. 24.
³ I. 180: avarṇāt paro laghu-prayatnatarayakāraśrutī bhavati.
⁵ Cf. Index of words in the Karpūramaṇjari (Sten Konow’s Edition).
Prayāga—the country known as Madhyadeśa. It is a significant fact that the change of initial \( y \) into \( j \) has not occurred in Māgadhī, which was confined to eastern countries. In Māgadhī, according to grammarians, not only does the initial Sanskrit \( y \) remain unchanged—e.g., \( yadi \) remains \( yadi \), \( yathā = yadhā \)—but quite the opposite change has taken place—viz., Sanskrit initial \( j \) has become \( y \); e.g., in Māgadhī \( jānāti \) has become \( yānāti \), \( jāta = yāta \), though even here \( y \) may have been a fricative (cf. Chatterji, p. 55). But when we come to that branch of Prākrit which is par excellence the dialect of Madhyadeśa, viz. Śauraseni, we find the pronunciation in question quite universal.

As regards the pronunciation of \( v \), the Śikṣās prescribe similar rules—that in the initial position it should be pronounced as heavy, in the interior of a word as light, and at the end as very light.

According to the Pārāśāri Śikṣā, the \( v \) which is the product of Sandhi of \( au \) and \( a \) was also very light, as in the phrase \( agnāvagnī- \).

And again, \( v \) or \( y \) between two short vowels, in the Mantras, was said to be not only very light, it was also short, as in the word \( abhi-yūḍhya- \) the intervocalic sonant \( y \) was short.

This view of the Pārāśāri Śikṣā, that \( v \) between vowels, or the \( v \) which was the product of Sandhi, was very light, was based on accurate observation of phonetic changes in Vedic Sanskrit, and of the actual pronunciation of the sounds in the dialects, as in the former the \( v \) which was the product of Sandhi was subject to elision, while in the later dialects it tended to disappear altogether between vowels.

In this connection the remark of Brugmann that the Sanskrit \( v \) became labio-dental in the historical period requires modification. For at least a thousand years before Brugmann, Indian grammarians had observed, and correctly, that the Sanskrit \( v \) in the medial and final positions was not a labio-dental. In this connection Hemacandra gives an interesting example, illustrating the change which the Sanskrit

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3 A. C. Woolner, Ibid., p. 5.
4 aukārānte pade pūrve akāre parataḥ sthīte,
laghūtaram vijāniyād agnāvagnī cetī nidarsanam. 63.
Also Amoghānandini Śikṣā, 29.
5 ādyantahrasavayor mānte vakāro yatra dyāyate, sa tu hrasva iti prokto bhīyādhyetī nidarsanam. Ibid., 81.
7 I. 237.
medial $b$ has undergone—viz., from a labial plosive to a labio-dental or a semi-vowel, which subsequently disappeared; e.g., Sanskrit alābu—Prakrit alāvu—later alāū.

But in the initial position Sanskrit $v$ has not only maintained its consonantal position, it has in several cases become a regular plosive consonant. It is in view of this that the Amoghānandini Śikṣā takes pains to enumerate a list of words with the initial labial $b$, and another list with the initial labio-dental $v$. Thus it gives 102 words with an initial $b$, such as: brahman-, bāhu-, bhad-, bodhaya, brūte, bandhu-, bahula-, bādhā, bibharsi. It definitely specifies that $b$ in īsubalābala- was always a labial plosive, and was not pronounced optionally as a labio-dental. It gives a list of forty-eight words with the initial $v$ which it expressly specifies as being (labio-)dental, some of which may be mentioned: viṣṇu-, vāyu-, vahā-, varuṇa-, vasi-, veda-. It enumerates a number of words, such as kuvala-, vala-, vīvola-, which can be optionally pronounced as labio-dental.1

Probably in view of a similar confusion of $v$ and $b$, the whole of the Māṇḍavī Śikṣā2 is exclusively devoted to the enumeration of 641 words in the Yajurveda containing the labial plosive $b$.

It is now well known that this change of initial $v$ into $b$ has occurred in several modern dialects. But the phenomenon has occurred even in the classical Sanskrit inscriptions of the Gupta period.3 Thus—

(a) Inscriptions No. 55 and No. 56, and several others, double the initial $v$ after the prefix sam; thus we have samyvatsare 'śtādaśame. No. 62 has samavat.

(b) The Khoh inscription has barśa- instead of varśa-, and sambat-sare instead of samvatsare, but in the medial position we have $v$ for $b$ in several cases; thus in the Gupta inscriptions, Nos. 51, 79, and 80, we have lāvkalha- instead of labdha-. Inscription No. 22 reads lamvoṣṭha-instead of lamboṣṭha-.

Equally remarkable and accurate is the Yājñavalkya Śikṣā’s observation that the $v$ of the enclitic pronouns vaḥ and vāṁ and of the particles vai and vū was light, i.e. semi-vocalic, for these enclitics, being unstressed, were not pronounced with so much obstruction and effort. It was probably owing to the obscure impression left on the

1 ŠŚ, p. 94: bibharsi bibharsy astve samhitayam kramena tu, ete oṣṭhyah samā-khyātaḥ ēśā dantyāḥ prakārtitaḥ

2 ŠŚ, p. 72.

3 Fleet’s “Gupta Inscriptions.”
hearer by their "light" pronunciation that the enclitic pronoun \( \text{vaḥ} \) and \( \text{va} \) of Sanskrit were for the most part eliminated by Prākrit which generalized \( \text{tumha-} \) forms instead. Thus although in Pāli we find \( \text{vo} \) side by side with \( \text{tuḥmākam} \) and \( \text{tuḥme} \), in Prākrit we generally find \( \text{tumḥānam} \), etc., although in Māgadhī and Śaurasenī we occasionally find \( \text{vō} \) (Pischel, p. 298).

As regards the Yājñavalkya Śikṣa’s observation that \( y \) when combined with \( h \) and \( r \) was consonantal, we do not find any distinct evidence of this in Pāli, which still preserves bāhyya- for Sanskrit bāhyya- and gāhya- for Sanskrit grāhya- (Childers)—the \( y \) remaining unchanged. But in Prākrit we do find that \( y \) in combination with \( h \) or \( r \) has become \( j \). Thus, as Hemacandra\(^1\) has pointed out, Sanskrit grāhya- has become gejjha-, Sanskrit āryā has become ajjū or ajjā.

**Conclusion.**

Indian grammarians, then, have accurately observed the phonetic change which Skr. semi-vowels have undergone in various positions. In this connection two questions will naturally arise: (1) How far does this change fit in with the general tendency of Indo-Aryan dialects? (2) How far can it be phonetically explained?

1. This change is a part of the general tendency of Indo-Aryan dialects to maintain plosion of consonants in the initial position, and to reduce their plosion in the medial and final positions. Thus Hemacandra noticed the well-known fact (Prākrit Grammar, I. 177) that in the medial and final positions Sanskrit plosives are generally dropped, e.g., Skr. loka—Prākrit loa—; naga—naa—, etc. This tendency has been general, although some dialects in the north and the west have maintained the old pronunciation: e.g., Kashmiri has still yih, yogi, yod, and yotu for Sanskrit yad-, yogya-, yuddha-, and yatra, and it still pronounces vat for varman-, vuh for vimsati—; while Marāṭhi, Rājasthāni, and Singhalese have also followed the general tendency by changing initial \( y \) into \( j \): e.g., jo and jau for Sanskrit yad- and yava-. As regards \( v \), it is the eastern dialects—viz., Hindi, Behari, Bengali, and Uriya—which have developed the initial \( v \) of Sanskrit into \( b \); while the western dialects—viz., Sindhi, Lahndi, Gujarāti, and Marāṭhi—have kept up the \( v \): cf. Sanskrit vana-, Sindhi waṅu=Hindi ban; Sanskrit vimsati=Lahndi vi, Hindi bīs.

\(^1\) I. 78.
2. Professor Meillet has pointed out in this connection\(^1\) that the plosion of intervocalic consonants in various languages has been gradually reduced, except, as in Slavonic and Italian, where syllables are isolated from one another. What, then, is the phonetic explanation of this phenomenon? It may perhaps be attributed to the fact that it is easier to maintain the stronger breath-force for a plosive in the initial than in the succeeding positions. In the majority of cases it has been found easier to pronounce \(av\) than \(ab\), because in the latter case the transition from one vowel to another would be more abrupt. This is, in fact, a stronger case of the assimilation of intervocalic consonants to vowels, for intervocalic breathed consonants have also undergone a change in several languages: cf. Sanskrit \(jag\)\(at\) + \(i\)\(śv\)\(ra\) = \(jagadīśv\)\(ra\). If the vowel’s force of assimilation has vocalized breathed consonants, it has further changed voiced consonants into semi-vowels.

The tendency to maintain and intensify plosion in the initial position can be further illustrated from child language. Thus the Panjabi child says \(chap\) instead of \(sap\) (serpent), \(co\)\(c\)\(ā\) instead of \(rofi\) (bread).

Professor Passy\(^2\) illustrates the French child’s pronunciation of \(tēpā\) for \(serpent\), and there is considerable force in his explanation that it is easier to maintain two organs against each other by closing the passage of air than by producing a friction. But this mode of articulating the initial consonant with a full plosion would not be easy for all classes of speakers. As has been shown above, even Indian dialects have shown considerable variation in the treatment of these sounds. The phenomenon described by the Śiksās, then, is a part of the general phonetic tendency which has occurred in several, though not all, linguistic areas in the country.

\(^1\) IF, Vol. XXXI. \(^2\) “Changements phonétiques,” p. 144.
CHAPTER VII

SVARABHAKTI

The subject of Svarabhakti has been exhaustively treated by Schmidt in his "Geschichte des Indo-germanischen Vokalismus," and it is unnecessary to go over the same ground again. But a few interesting points may be noted here relating to the conditions and pronunciation of Sanskrit Svarabhakti which have been mentioned by Indian grammarians, and which do not seem to have come to the notice of that scholar.

I. Svarabhakti and the fricatives.

All the Indian works on phonetics, with the single exception of the Rg Prāt., point out the close connection of Svarabhakti with a succeeding fricative, stating that Svarabhakti occurs after r or l when they are followed by a fricative—e.g., ğaraśa- will be pronounced as ğaraśa-, arha=ariha, etc. The close connection of Svarabhakti with a succeeding fricative is confirmed both by Pāli and Prākrit.

In the case of Prākrit, the r of Sanskrit is generally assimilated to a succeeding non-fricative consonant in Prākrit—e.g., Skr. garjati= Prākrit gaṭjati; gardabha=gaddabha; garbha=gabha; ālarka= ālakka-. But when the r is followed by a fricative, Prākrit may have the Svarabhakti vowel i or a—e.g., Skr. varṣa=Prākrit varisa-; karaśa=kariśa-; arha=ariha- or arahā-; garhā=gariḥā.

In the case of Pāli, there is no doubt that assimilation to the succeeding consonant is more marked, so that for Sanskrit darśana- we have Pāli dassana-; for Skr. dīrghikā, Pāli digghikā. Yet even Pāli has invariably the Svarabhakti vowel a or i before the fricative h—e.g., Skr. barha=Pāli bariha-; arhati=arahati; etaṛhi=etarhi; garhā= garahā.

That the Svarabhakti vowel was closely connected with fricatives in Indian dialects may be further corroborated by the following examples

from the edicts of Aśoka:¹ garahā, garaha-, galahati, garahati, yathāraхam.

The general tendency to prefer the Svarabhakti before fricatives seems to be peculiar to Indian dialects, and it would be unsafe to venture a definite phonetic explanation of an obscure phenomenon occurring in these dead languages. Why did the Indian speaker say varga-, but varaha-? To explain this contrast, three points may be borne in mind:

1. Assimilation in Sanskrit was nearly always regressive. Thus the Sanskrit speaker always pronounced vāk+dānam as vāgdānam, tat+fīkate—tātīkate. But the assimilating force of the succeeding consonant was much stronger when it was a plosive, so that in the group r+plosive, r was entirely lost in Prākrit, and thus no Svarabhakti occurred in this case. Even in the transitional stage before the duplication of the plosive in Prākrit, it appears that r lost part of its individuality and ceased to be a sonant.

2. But when r was preserved, it remained a sonant in Indo-European languages.

3. Fricatives involve less closure than plosives do, and so are nearer to vowels than plosives are. In fact, their relation to vowels is so close, that, as Professor Passy observes,² all fricatives can be changed into vowels, if only the passage of air be enlarged.

It will appear from the above facts that assimilation in Indian dialects being regressive, the succeeding fricative was a more favourable ground for rendering more distinct the vocalic effect of the preceding sonant r, and so a vowel was heard more clearly before h than before g. Still, I confess that the above explanation is not adequate, for this does not explain why in several other languages, as in French, in which regressive assimilation is predominant, the Svarabhakti before the fricative has not occurred.

The only safe assumption seems to be that the Indian preference of Svarabhakti before fricatives was an independent innovation.

II. No Svarabhakti when the fricative was followed by a consonant.

All Indian works on phonetics³ maintain that the fricative before which Svarabhakti arises should not be followed by a consonant—i.e.,

¹ Woolner’s Glossary, pp. 84, 125.
² "Changements phonétiques," p. 94.
³ Vāj. Prāt., IV. 7; Atharva Prāt., 1. 102.
must precede a vowel; thus there was said to be no Svarabhakti in 
\(\text{pārśvataḥ}\), where the fricative \(\hat{s}\) is followed by a consonant.

This opinion of Indian grammarians is confirmed by Pāli and Prākrit, for Sanskrit \(r+\) fricative+consonant has often become in Pāli and Prākrit a doubled fricative, so which \(r\) was entirely assimilated: cf. Skr. \(pārśva\) — Prākrit \(pāssa\); Skr. \(varsya\) — Prākrit \(vassa\), etc. Their observation, then indicates the transitional repression of Skr. \(r\) before it ceased to be a sonant (cf. p. 134).

The above two facts, then, as corroborated by the evidence of the living dialects, would solve Whitney’s difficulty in understanding our grammarians’ particular observation of Svarabhakti. For he says in this connection, “The reason for distinguishing the case of a following spirant—and that, too, only when followed by a vowel—as requiring a longer insertion, is not so clear, and I confess myself unable to discover the pertinence of the distinction; it is, however, a marked and important one to the Hindu phonetists” (Atharva Prāt., I. 101-2). By “longer insertion,” Whitney refers to the Atharva Prāt.’s opinion that Svarabhakti before fricatives was longer in quantity than before other consonants. In other words, Indian grammarians had observed that Svarabhakti was more distinct before fricatives than before other consonants—a fact which had actually happened in the history of the language, as shown above.

III. As regards the pronunciation of Svarabhakti, some of the Śikṣās give us interesting data. According to the Keśavī Śikṣā¹ and the Pratijñā Sūtra,² the Svarabhakti vowel should be pronounced like \(e\), thus \(dārśatām\) was to be pronounced \(dareśatām\); \(pārśavyena\) = \(pāreśavyena\); \(sātāvālēṣāḥ\) = \(sātāvālaēṣāḥ\); \(hvārṣṭī\) = \(hvārēṣtī\).

That the pronunciation of Svarabhakti as \(e\), or as a vowel approaching the quality of \(e\), actually occurred in some of the ancient Indian dialects is perhaps confirmed by parallel phenomena in other Indo-European languages, where \(e\) has emerged after a liquid before a consonant. We find this in Old Bulgarian—e.g., \(jeleni\) (deer), \(zelēzō\) (iron).

According to the Lomaśī Śikṣā, however, Svarabhakti was to be pronounced³ like \(a\). Both the Yājñavalkya and the Māṇḍūkī Śikṣā,

¹ ŚŚ, pp. 141-142.
³ ŚŚ, p. 460: \ldots svarabhaktes tathaiva ca, avarṇavat prayogah
however, prohibit what they call the defective pronunciation of Svarabhakti. To pronounce it like $a$ or $u$ was said to be a defect, and was to be avoided. The correct pronunciation of Svarabhakti, according to these authorities, was like $i$, so that $s$atāvalśa- was to be pronounced $s$atāvaliśa-. It appears to me that this prohibition betrays a living phonetic fact, that all these pronunciations of Svarabhakti were actually current among the dialects of the time, and that the prohibition by the Śikṣās was an attempt to standardize its pronunciation by restricting it only to $i$. That $a$ and $u$ also intruded as Svarabhakti among several dialectic areas of the country is indicated by the examples already given. Thus in Pāli we have arahā side by side with arihā, while dhūrusādam, even in the time of Brāhmaṇas, became dhūrusādam (see p. 85). As, according to Pischel (p. 103), $a$ often appears as a Svarabhakti vowel only in Ardhamāgadhī and Apabhraṃśa, it is not unlikely that the Lomaśī Śikṣā, which prescribes its pronunciation to be $a$, represents a geographical area to which Ardhamāgadhī and Apabhraṃśa belonged.

It is difficult to determine how far, where, and when $i$ was the standard pronunciation of Svarabhakti. It appears without doubt from the orthographic evidence of Pāli and Prākrit parallels that $i$ was more common; for while we have $a$ only before $ḥ$, $i$ occurs both before $s$ and $ḥ$; e.g., arahā-, but varisa-, arihā. Compare in this connection Pischel (p. 104), who holds that $i$ was the most common Svarabhakti vowel in Prākrit.

1 Māṇḍūkṛ, verse 101.
CHAPTER VIII

ABHINIDHANA (INCOMPLETE ARTICULATION)

The Prātiśākhyas and the Cārāyaṇiya Śīkṣā describe the phenomenon of incomplete articulation, which has been generally called "Abhinidhāna," although two more names—viz., "Asthāpita" ("stoppage")¹ and "Bhaksya" or "Bhukta"²—are also used. This phenomenon has an important bearing on the Indian theory of the syllable and the history of consonants in the living dialects.

The phenomenon, as described in the Rg Prāt. (VI. 5), consists in the repressing or obscuring of a plosive or a semi-vowel (except r) before another plosive or a pause. The sound displaying this phenomenon is said to be pressed (pūḍitaḥ), quite weakened (sannataraḥ), and lacking in breath and voice (hīnavāsanādah).³ The term commonly used for this phenomenon is Abhinidhāna, which etymologically means "adjacent imposition." A parallel term has been used in Sandhi, the well-known "Abhinihita Sandhi,"⁴ in which a is merged in the preceding e or o, as in āgnetra (=āgne+atra). Similarly, the consonant or semi-vowel while undergoing Abhinidhāna loses part of its articulation in the adjacent consonant or a pause.

This phenomenon took place under the following conditions:

1. Plosive+Plosive.—According to both the Rg and the Atharva Prātiśākhyas, and the Cārāyaṇiya Śīkṣā,⁵ a plosive followed by another plosive underwent Abhinidhāna; thus in arvdgdevāḥ, g before d was said to be obscurely pronounced; similarly, d before bh in marūdbhīḥ. That in the actual pronunciation of the language there was a tendency to explode a plosive incompletely before another plosive, as the English do in words like "act," "empty," "begged," is corroborated by Pāli and Prākrit, in which, as is well known, a plosive followed by plosive is assimilated to the latter, as in sapta=Prākrit satta. It may, how-

³ Atharv. Prāt., I. 43. ⁴ Rg Prāt., II. 13.
⁵ parasparāṃ sparśau bhuktāu varjayita tu paṅcamau. MS. Gött., Fol. 8.
Rg Prāt., VI. 5.
ever, be objected that this tendency might have been acquired by the living dialects at a later stage, and that Sanskrit proper does not distinctly manifest the Abhinidhāna of a plosive before another plosive. Nor were Indian authorities unanimous regarding this point. Thus, according to Vyādi (Rg Prāt., VI. 12), there was no Abhinidhāna of a plosive before another plosive; it only occurred when a consonant was doubled. According to the Śākalas, Abhinidhāna was optional when a plosive preceded another plosive of a different place of origin, as in mukṛaṭh, dogṛaṭh; t was necessary only in the case of double consonants. Moreover, according to the same authority, Abhinidhāna did not occur in the joint utterance of two consonants; it only occurred when the plosive in question was pronounced apart from the succeeding consonant—i.e., when there was a little pause between the two consonants, the first consonant behaving like a final consonant. Thus there was said to be no Abhinidhāna when the phrase yadyad was pronounced as yadyad, where d+y formed a consonant-group articulated without any intervening pause. But when the phrase was pronounced as yadṛyad, then d was said to undergo Abhinidhāna before the infinitesimal pause or breach of continuity between d and y. The Atharv. Prāt. also seems to be of the same opinion, for after laying down rules regarding the conditions of Abhinidhāna, which begins with the contact of plosive and plosive, it states that consonant-groups in which Abhinidhāna does not occur have a joint articulation. Thus, both according to the Śākalas (mentioned in the Rg Prāt.) and according to the Atharv. Prāt., Abhinidhāna belonged to separate or asymyukta articulation of consonants. Hence Whitney’s remark on Atharv., I. 49, that “nothing is to be found in the other Prātiśākhyas corresponding to this rule,” is subject to correction, for the parallel rule does occur in the Rg Prāt., VI. 7, where it is ascribed to the Śākalas. According to this opinion, then, there was no Abhinidhāna when an unbroken articulation, marūḍbhiḥ, was made; but when a separated utterance, as marūḍ:bhīḥ, occurred, in which there was a pause between d and bh, then d did undergo Abhinidhāna.

We have thus three different views before us: (1) Every plosive before another plosive suffered Abhinidhāna. (2) No such phenomenon occurred, except in double consonants. (3) It occurred only in separated utterance. Now which of these three views was nearest

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1 Rg Prāt., VI. 7-8.  2 I. 49. Cf. Rg Prāt., VI. 7; cf. Max Müller ad loc.
the facts? As regards the first view, I have already indicated above that the evidence of Prākrit very strikingly supports it, as it is hardly probable that the tendency to Abhinidhāna only abruptly arose in the living dialects. The germs of this tendency must have been present in the pronunciation of Sanskrit when it was a spoken language. The presence of these germs of Abhinidhāna can be inferred from several declensional forms in Sanskrit. Thus in the declension of words like marut, jogat, we find that the plosive in Sanskrit declension is assimilated to the succeeding plosive, so that we get forms like marudbhyaṁ, kakupsu. These examples indicate that the articulation of the plosive in question was lax; it comparatively lacked breath or voice, and so gave way to the succeeding sound. Forms like the above, then, are very probable cases of Abhinidhāna. But the clearest case of Abhinidhāna was, as Vyādi had observed, that of the first member of a double group of consonants, as in datta-, aggni-, where tt and gg exploded only once, the first t and g being unexplooded. As regards those words, however, in which the plosive in question is in the medial position, and does not give any indications of assimilation, we cannot be certain whether the plosive underwent Abhinidhāna before another plosive. For instance, the plosives in words like akta-, śrutkāra-, budbuda-, do not give any indications of assimilation. In the case of such words Abhinidhāna must have varied with geographical conditions, some dialects exploding the plosive before another plosive, and others not. Compare, for example, the pronunciation of the words vakt, rakt in Hindustani and Panjabi. In the former, k nearly always undergoes Abhinidhāna before t; in the latter, it does not; the k, in most cases, exploding fully before t.

Besides variations due to geographical conditions, plosion of the plosive may have varied with different consonant-groups even in a dialect which generally exploded a plosive before another plosive. French, for instance, has a strong tendency to explode a plosive before another plosive, and yet even in French plosion of p before t often does not occur—e.g., in obtenir (otpeni: r), petit Jean (pti ľa)—while in the group kt, the explosion of k before t does not occur among many French speakers, e.g. in acteur. There was considerable truth, therefore, in the observation of the Śākalas that Abhinidhāna was necessary only

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in the case of double consonants, and that it was optional in the case of plosives with different places of origin. For in Sanskrit, whenever there is a plosive-group with the same place of origin, the second member of the group must be always either an aspirated consonant—e.g., kakkhati, gagghati, 'to laugh'; vijīḥ, 'to abandon'—the group being practically an aspirated consonant doubled, or the same as the first consonant, as datta-, puttra-. In both these cases the plosive undoubtedly underwent Abhinidhāna. This was not necessary in those cases in which a nasal consonant followed a plosive, even if it belonged to the same place of origin as the plosive. Thus in ratna-, t and n were of the same place of origin: the explosion of t before n must have been subject to dialectic variations, though even here Abhinidhāna of the plosive was more probable. Many forms of the past passive participle of Sanskrit verbs ending in a dental betray a tendency of d to Abhinidhāna before n: e.g., pad -panna-, klid -klinna-, ad -anna-, kṣud -kṣunna-, khoṣd -khinna-. On the other hand, the corresponding substitute in several Prākrit dialects for the Sanskrit group t+n=tt. This indicates that in the first instance t before n, instead of suffering Abhinidhāna, was so distinctly pronounced that it drove out even the n, but when once the second t also came in, the first t naturally underwent Abhinidhāna; cf. Sanskrit pātī=Prākrit patti; sapatna= sāvatta-; sapatni=savatti-; prayatna=paatta-.

To sum up, then, in a group plosive+plosive there were three possible cases of Abhinidhāna: (1) Clear cases of Abhinidhāna occurred in double consonants. (2) Probable cases of Abhinidhāna, at least originally, were those in which the plosive was assimilated to the succeeding consonant. I say 'originally,' because it may have been more convenient to explode the consonant subsequently arising from assimilation. Thus in vāgbhīḥ, the original k of vāk very probably underwent Abhinidhāna, but the subsequent g arising therefrom may have been easier to explode. (3) Variable cases of Abhinidhāna were those in which the first plosive does not give any indications of assimilation.

2. Abhinidhāna of Finals.—As regards finals, both the Rg and the Atharva Prātiṣākhyaśa (VI. 5, I. 45) state that final plosives suffer Abhinidhāna, while according to the former the final semi-vowels except r are also similarly affected. Even the Śākals, who were generally opposed to the theory of Abhinidhāna, stated that if Abhini-
dhāna ever took place at all, it occurred only when there was an infinitesimal pause after the sound which was affected by this change; in other words, when the consonant or semi-vowel in question was semi-final. Thus when valśa- was pronounced as val:śa-, l was said to suffer Abhinidhāna, as there was a short pause after it, but there was said to be no Abhinidhāna when there was no such pause between l and ś. This observation is important in the history of Indian philology. For it is now an established fact¹ that the finals of Sanskrit were implosive, and this was also the opinion of Indian grammarians, as I have shown above. But as regards pronunciation in a consonant-group, the fact that Indian authorities were not unanimous on this point shows that the Abhinidhāna of a medial consonant when followed by another consonant was still passing through a transitional stage in the pronunciation of Sanskrit. The medial consonant also was influenced by Abhinidhāna, though not so much as in the case of finals. Thus, while Sanskrit final plosives have been lost in Prākrit, Sanskrit plosive+plosive or semi-vowel+plosive has been assimilated to the latter in Prākrit. This doubling when a succeeding plosive followed indicates that in the medial position the sound undergoing Abhinidhāna did not entirely lose its individuality, as it did in the final position, and that consequently in the transitional period of Sanskrit pronunciation, Abhinidhāna did not affect the medial consonant so powerfully as it had affected the final consonant. As regards the semi-vowels, I have demonstrated in the chapter on Semi-vowels (see p. 127) that in the final position they underwent leśa and so largely lost their articulation.

The commentary on the Vāj. Prāt., I. 90, gives the interesting injunction that the final plosive of a word should be articulated by a release or separation of the organs of production.² This injunction to complete the articulation of finals betrays the fact that the actual state of affairs was the contrary, and that the injunction was a warning against the presumable provincialism of the incomplete articulation of finals.

The Atharv. Prāt., II. 38, states an exception to the Abhinidhāna of finals, and calls it “Sphoṭana,” (lit. break), consisting in the full release of breath in the articulation of a plosive at the end of a word. It states that when a final plosive is followed by a consonant the

² sparṣāntasya sthāna-karaṇa-vimokṣaḥ kartavyaḥ.
tongue position of which is more backward, the said final plosive is fully exploded, and consequently suffers no Abhinidhāna. Thus the \( t \) in vasaṭkārēna, \( t \) in avukām and ejatāh, \( b \) in triṣṭubh-gāyatṛ, \( d \) in yuddh-gacchati, \( p \) in anuṣṭuph-tātha, are to be fully exploded, as they are followed by more backward consonants, \( k \), \( g \), and \( t \). But \( t \) in tat-pasyati, \( k \) in vāk-tasya, \( t \) in saṭ-tadā will undergo Abhinidhāna, as they are followed by more forward consonants. The author is right if his theory is to be taken in a relative sense, for when a forward plosive is followed by a more backward consonant, the former, being nearer the opening of the mouth, has a better chance of exploding than in the reverse case. But the theory breaks down if it is to be strictly applied to the facts of Sandhi. Thus in tat-tiṅkate, \( t \), being a more forward consonant, ought to have exploded fully before \( t \), but we know that it did not; for it was cerebralized, and so suffered Abhinidhāna in tat-tiṅkate. Similarly, in the example triṣṭubh-gāyatṛ, \( p \), although a more forward consonant, was vocalized and changed into \( b \), indicating a laxity of articulation. And when we take into account the great fact of the loss of the original Sanskrit finals in Pārkrit, irrespective of the forward or backward nature of the consonant, we are forced to the conclusion that the tendency to implosion of all finals must have been originally present in the articulation of all Sanskrit plosives, though relative variations among individual consonants may have existed.

3. Variation of Abhinidhāna among Individual Consonants.—The Cāraṇyaśī Śikṣā handles the problem of the variation of Abhinidhāna among individual consonants, and points out in this connection that the breathed unaspirated plosives, the nasal consonants, and the semi-vowels \( l \) and \( v \) are incompletely articulated (bhukta); the rest are completely articulated.\(^1\) But when another consonant follows, then, says the Śikṣā, the ten breathed plosives suffer Abhinidhāna.\(^2\) “When two plosives come together, they repress each other;\(^3\) not so, however,

\(^1\) vargāṇāṁ prathamā bhumā bhuktā bhukta caiva tu pañcamāh antasthānāṁ lavau bhuktav desāṁ cānye" bhuktaśītāḥ.

\(^2\) varge varge devikaṁ cādyam dasakaṁ varṇa-saṅcayaṁ paresanm aha-yogena bhakṣya-vrīḍh prākṣaye.

\(^3\) paraśparaṁ sparṣau bhuktau varjayitaṁ tu pañcamau nakarāṁ pañcamāśīt ñatra bhokṣayantī tat pruyanataḥ.

MS. Göttingen, Chap. VIII., Fol. 8.
two nasal consonants, except that \textit{a} before \textit{a} should be repressed with effort, as in \textit{vānnopadhasyati}. The eight consonants, viz. the semi-vowels and fricatives, do not repress one another, but when a plosive is followed by a semi-vowel, it belongs, like wine, to both the classes.

The above details regarding the variation of Abhinidhāna among individual consonants are interesting, and show how minutely the Śikṣās had observed this phenomenon. These details must have varied with particular dialects and even with individual speakers, and so we in this age are not in a position to pronounce a definite judgment on their accuracy. At any rate, the vast variations of incomplete articulation among individual speakers and dialects observable at the present day indicate that there is nothing against the possibility of these particulars being actual in the particular sphere of speakers observed by the author of the Čārāyaṇiya Śikṣā. We may, however, consider the relative probability of these data.

The Śikṣā asserts that the breathed unaspirated plosives and nasal consonants when not followed by a consonant are incompletely articulated. If the Śikṣā refers to them only when in the final position, the case is quite clear and requires no further discussion. But as there is no such qualifying statement in the verse in question, the author is presumably speaking here of the consonants both when final and when followed by a vowel. Two questions now arise: (1) Of all consonants, why were only the breathed unaspirated plosives and nasal consonants marked out for Abhinidhāna in these two positions? Was the relative degree of Abhinidhāna greater in their case than in the case of other consonants? (2) Why did these two sets of consonants suffer Abhinidhāna even before vowels? The only safe reply to these questions is the one already made above—viz., that there is nothing against the possibility of these variations being actual in the particular sphere of speakers observed by the author—provided that the variation was only relative.

But when we take the case of the remaining sets of consonants—viz., the breathed aspirated and the voiced plosives—the comparatively lax utterance of these consonants probably could not strike the hearer so distinctly as in the case of breathed unaspirated plosives. For when \textit{ṭh}, \textit{ḍ}, and \textit{ḍh} were incompletely articulated, something like

\begin{footnotes}
1 \textit{yakāra-di-hakārāntam aṣṭakaṁ ca parasparam}
\textit{catus catuḥ vāpi tv abhākṣyam śoḍaśākṣaram.}

2 \textit{sparsā antastha-saṁyuktā madireva dvijātibhuk.}
\end{footnotes}

\textit{Ibid.}
\( t, q, \) and \( d \) respectively, the hearer probably heard consonants familiar to him, the extra aspiration and the voice having been reduced. But when \( p, k, \) and \( t \) were incompletely articulated, the resultant sound was presumably much less familiar to the hearer, and so it was specifically the breathed unaspirated plosives that were set apart as subject to Abhinidhāna. The incomplete utterance of these plosives even before vowels probably meant only a shade of laxity so common to Sanskrit consonants. But if the author is speaking here of intervocalic plosives, their being more or less subject to Abhinidhāna was beyond dispute.

As regards the nasal consonants, the reason why they were specifically set apart for Abhinidhāna is not far to seek. When in the final position, their change into Anusvāra even before vowels and before a pause in Prākrit proves how powerfully Abhinidhāna had affected them. Moreover, the fact that even in the initial position the original Sanskrit \( n \) is represented in Prākrit by a much laxer consonant, viz. the fricative \( n \), shows a laxity in the articulation of Sanskrit nasal consonants. The Śīkṣā does not find any Abhinidhāna, however, in a group of nasal consonants, except in \( n + n \). The completeness in the articulation of a nasal consonant before another nasal consonant may have been actually observed by the author in the dialects of his time; but there are three reasons why his theory cannot be accepted if it is taken as a general tendency in the history of Indian philology. Firstly, in the case of double nasal consonants, Abhinidhāna of the first nasal consonant, as in \( anna-, himmati, \) could not be questioned. Secondly, when the tendency to lax utterance of sounds is present, it is particularly easy to pass immediately from one nasal consonant to another. Thirdly, the evidence of the living dialects does not confirm the Cārāyaṇīya Śīkṣā's view of the complete articulation of a nasal consonant before another nasal consonant. Thus in Prākrit both \( m \) before \( n \) and \( n \) before \( m \) have been assimilated to the succeeding nasal consonant: cf. Sanskrit \( nīnakā=\)Prākrit \( ninagā \) or \( niṇṇad; \) Sanskrit \( unmūla=\)Prākrit \( unmula-\).

The Śīkṣā states that in a group plosive+semi-vowel, the plosive, "like wine, belongs to both the classes." The analogy is rather obscure, wine probably being referred to both as a beverage and an intoxicant. At any rate, the author's intention is plain: the plosive remains partly a plosive, but partly partakes of the succeeding semi-vowel. This modification of the plosive was correctly observed when
a dental was followed by the semi-vowel \( y \): compare, for instance, Sanskrit \( adya \) = Prākrit \( ajja \), the dental retaining its occlusion, but at the same time becoming a palatal affricate. But the theory does not seem to be corroborated in the case of other groups—for instance, in \( k+y \) or \( t+v \): cf. Sanskrit \( sakya \) = Prākrit \( sakka \); Sanskrit \( sattva \) = Prākrit \( satta \).\(^1\) It is possible, however, that there was a slight shade of modification in the plosive even in these groups, especially in \( k+y \), during the transitional stage of this change, but whether the plosive was affected to such a degree as to belong to a different phoneme is not confirmed by the orthographical data of literary Prākrit and Pāli.

In this connection the observation of the Vṛṇparatnadipikā Śikṣā is interesting. It states that the combination of plosive+semi-vowel was lax, and compares the combination to a wooden ball,\(^2\) which can be broken easily. This observation was more valid in the case of Vedic Sanskrit,\(^3\) where words containing plosive+semi-vowel had under certain conditions doublets containing plosive+vowel+semi-vowel; e.g., \( ded \) beside \( dud \). But when we also take into account the fact that in Vedic manuscripts \( adya \) was often transcribed \( addya \), and in the parallel development of the language became \( ajja \), the connection between \( d \) and \( y \) was not broken in the division \( ad/aya \), though it may have been broken in the division \( add/ya \); while in \( ajja \) the combination became much closer. These facts indicate that the combination was not so universally easy to break as was supposed by the Śikṣā. In the same connection there is to be found in the Yājñavalkya Śikṣā a curious classification of consonant-groups according to the laxity or closeness of their combination. This Śikṣā classifies consonant-groups into seven kinds, and figuratively calls each combination respectively (1) an iron ball, (2) a ball of clay, (3) a ball of flame, (4) a ball of wool, (5) a wooden ball, (6) a ball of air, (7) a ball of thunder.

(1-3) A consonant-group in which a Yama occurred was called an iron ball, e.g. in \( a\acute{g}\ddot{n}i \), \( patk\ddot{k}n\ddot{\imath} \); that in which an Anusvāra occurred, a ball of clay, as in \( samsth\ddot{a} \), \( simh\ddot{i} \); and that in which a Nāsīkṣya occurred, a ball of flame, as in \( brah\ddot{m}an \), \( v\ddot{a}hnitama \). It is extremely difficult

\(^{1}\) There are some indications of such corroboration, however, for the groups \( tv \) and \( ku \): cf. catpāro (Hultsch, p. 23), Kash. \( papu 'ripe' < paka \).

\(^{2}\) SS, p. 133:

\[ \text{spartā \ apaścamā ye cāntasthābhīte sa samyutāh} \]
\[ \text{dārū-piṇḍena te tulyāḥ śalāha-bandhāḥ prakṛitiāḥ}. \]

to determine now how far this figurative differentiation of Yama, Anuvāra, and Nāsikya actually represented the facts. But the comparison, if true, seems to indicate that in actual pronunciation the combination between a consonant and a Yama was closer than it was between an Anuvāra and a consonant. The Anuvāra, as will be explained in Chapter IX., had sometimes a vocalic and sometimes a consonantal element, and consequently its combination with the succeeding consonant was likely to be facile, especially when it had a strong vocalic element. The Śīkṣā seems to distinguish between a Yama and a Nāsikya, restricting the former to the group plosive+nasal consonant, and the latter to the group non-plosive+nasal consonant, as in the word brāhmaṇ-. The combination of this additional nasal sound with the fricative has been compared to a ball of flame—a comparison which it is very difficult to explain. Perhaps nasality so intensely attacked the ā in the actual pronunciation of the group that it called forth the analogy to a flame.

(4) A hissing fricative+nasal consonant, in which no Yamas were said to occur, was compared to a ball of wool, as in ṣāmn-, kṛṣṇa-. As a nasal consonant was not said to nasalize the fricative in these examples, the two sounds remained distinct from each other, and were compared to a ball of wool, of which the threads remain comparatively apart from one another.

(5) The group consonant+semi-vowel was compared to a wooden ball, as already explained above.

(6) and (7) The fricative Upadhmāṇīya+labial was compared to a ball of air, as in dydu(h):pitā, yuvāṇā(h):prathamām; while the fricative Jīhvāmūliya+velar plosive was compared to a ball of thunder, as in havi(h):kṛt, diva(h):kakūt. The analogy to “thunder” and “air” respectively seems to indicate that when followed by velars the explosion of the fricative had to meet greater resistance than when followed by labials. This difference was phonetically possible if the transition from the fricative to the velar plosive was more abrupt than from the fricative to the labial plosive. But the pronunciation of the Upadhmāṇīya and the Jīhvāmūliya not being exactly known at the present day, it would be unsafe to give any definite opinion on the matter.¹

¹ ŚŚ, p. 29: aha saptavidhāh samyogapindāh. ayaspindō dārupinda urbā-pindo jalāpinda mṛtyupindo vāyupindo vajrapindad ceti. yamān vidyād ayaspindān sāntasthān dārupindavat, antastham yamavarjam tu urbāpindam vinirdītē. jalā-pindān sanāsikyān sānusvāraṁ tu mṛṣmayān, sopadhān vāyupindāṁ tu jīhvāmule tu vajrīṇāḥ.
ABHINIDHĀNA (INCOMPLETE ARTICULATION) 147

Again, the Cārāyanīya Śīkṣā asserts that the ten breathed plosives, when followed by another consonant, suffer Abhinidhāna. If the author intended to restrict the Abhinidhāna only to the ten breathed plosives, then his observation was valid if he meant it in a relative sense, for modifications, as in marudbhyaṁ, vāgbhīḥ, arudgdevdh, etc., indicate that the Abhinidhāna of breathed plosives was a more common occurrence. But words like anna- from ad-, klīnna- from klīd, indicate that the Abhinidhāna of voiced plosives was not uncommon in Sanskrit. This is also confirmed by the living dialects: cf. Sanskrit udgama= Prākrit uggama-; Sanskrit budbuḍa=Prākrit bubbu-; Sanskrit udbhāta=Prākrit ubbhaḍa-; Sanskrit pudgala=ḍōgala-.

According to some authorities, as stated by the Rg Prāt.,1 Abhinidhāna was necessary in the case of velar plosives, as in samyak sravanti. This seems to be a valid observation, if taken in a relative sense, for of all plosives, the velars, being the farthest from the cavity of the mouth, are among those plosives which run the greatest risk of suffering Abhinidhāna. And this is to some extent corroborated by the same Prātiśāṅkhyā in Chapter XIV., on incorrect pronunciation of Sanskrit. Among the various faults of pronunciation, a particular defect, viz. grāsa,2 consisting in the repression of the back of the tongue, was mentioned, and the back vowels a and ā were stated as being subject to this incomplete articulation. What happened to the vowels may have similarly affected the velar plosives.

The Atharv. Prāt.3 states that l before fricatives suffers Abhinidhāna, as in vakṣaḥ. This probably refers to a sporadic phenomenon in some of the dialects, for in the majority of cases we should expect Svarabhakti after l or r before fricatives. The fact that this sporadic phenomenon actually existed in some dialects is corroborated by Prākrit vassa-, side by side with, in the majority of cases, varisa-, valiśa- (Venīṣamhāra, III. 3, 4).

1 Sākalam prathame sparśa varge. VI. 8.
2 jihvāmūlanigrāhe grastam etat. XIV. 3; grāsaḥ kanyāyoḥ. XIV. 4.
3 I. 46: lakārasyoṣmasu.
CHAPTER IX

THE ANUSVĀRA

As regards the nature of the Anusvāra, three different views may be mentioned:

1. According to the first view, represented by the Atharvaveda Prāt. and the Siddhānta Kaumudi, the Anusvāra was a pure nasalized vowel. The former work describes the phenomenon as the elision of n or m, and the consequent nasalization of the preceding vowel. There is no doubt that the term Anusvāra does not occur in this Prātiṣākhya, an omission which has led Whitney to the erroneous supposition1 that the Atharvaveda Prāt. does not acknowledge the Anusvāra. Whitney, in my opinion, is not right, because this Prātiṣākhya distinctly describes the same phenomenon which is specified by other grammarians with the name of Anusvāra. Thus while Pāṇini2 specifically speaks of the Anusvāra as a sound into which “m” is changed before a consonant, and while his expounder Bhaṭṭoji Dikṣita speaks of it as a pure nasal sound arising from the nose, the Atharvaveda Prāt. has described the same as the dropping of the m and the nasalization of the previous vowel. In both cases it is the m that has led to a particular change; in both cases no original nasal vowel has been acknowledged. It is a ‘conditional’ sound, appearing only under certain conditions, or, as the Cārāṇyaīya Śikṣā3 would have it, Anusvāra is a dependent sound, which can manifest itself only on the basis of another sound. In the same way Kaccāyana,4 in his Pāli Grammar, terms the Anusvāra as Niggahita

2 ma ṇusvāraḥ, VIII. 3, 23.
3 Chap. I., Fol. 1a:
   anusvāro visargaḥ ca kalapāthah plutā yamāḥ
   jīvāṃśulam upādhamā ca ṣoḍāśaite parāsrayāḥ
   asarīrās tu ye varṇā vijnayās tu parāśrayāḥ
   anyam varṇam samāśritam darśayanti nigham vaprūḥ.
4 I. 18: aṃ tīti niggahitam nāma.
or arrested $m$. Whether the $m$ is arrested, dropped, or changed, it is essentially the same phenomenon, termed as Anusvāra by Pāṇini, Nīgghātaka by Kacāyana, and Anunāsika by the Atharvaveda Prātiśākhya. The real defect in the treatment of Anusvāra by this Prātiśākhya lies in the ambiguity of the term ‘Anunāsika,’ by which it designates both the nasal consonants and the Anusvāra, just as the Rgveda Prāt. uses the general term Nāsikya for Nāsikya proper (pure nasal vowels), Anusvāra, and Yama. Moreover, there is another passage in the Atharvaveda Prātiśākhya which indicates that even this work does not acknowledge an original or absolutely pure nasalized vowel, for it gives the antithesis pure vowel (non-nasal): nasalized vowel, stating, in connection with Krama Pātha, that a vowel which is pronounced nasal in the first instance should be pronounced pure when the word is repeated in the Krama Pātha; thus the Krama version of ā babhāvā, will be ābabhāvāṅ: babhāve 'ti babhāva. Again, it was the nature of the Anusvāra which taxed the brains of ancient grammarians like Vyādi, who, according to the Rg Prāt., was not decided as to whether the Anusvāra was a pure nasalized vowel or a nasal appendage to a vowel. It is the Anusvāra, then, of which the Atharv. Prāt. speaks as a nasalized vowel.

It is in later phonetic treatises, the Śiksās, that a special term has been reserved for the pure nasalized vowel, viz. ‘Raṅga,’ though we find traces of it in the Rg Prāt., which speaks of the rakta or nasalized (lit. coloured) pronunciation. According to the Pārśiksāṭikā (MS. Madras, No. 924), Raṅga proceeds from both the nostrils; it has a deep and sweet sound—sweet like the notes of bells, deep like a tiger’s roar—and should be pronounced without any addition of the consonantal element $n$, just as the milkmaid in Surāṣṭra, when selling curd, exclaims “takṛāṁ,” the vowel therein being purely

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1 I. 11: uttamā anunāsikāḥ; I. 83: annunāsiko 'ntaḥ pade hravah; I. 67: nakāramakārayor lope pūrvasyānunāsikāḥ.
2 nāsikyaṁ nāsikyamatānusvārān. I. 20.
3 IV. 121: annunāsikāḥ pūrvaḥ ca suddhāḥ-yaḥ pūrvaḥ-anunāsikāḥ deśaḥ sa parihāarakāle suddhāṁ kṛteḥ parihāravayaḥ.
4 XIII. 15: anunāsikāṁ tv anusvāram āhur vyādīr nāsikyam anunāsikāṁ vā.  
5 XIII. 5: rakto vacana mukhanāsikābhyaṁ. XIV. 20: rakṣam hravam drāghavyanty ugrāṁ okah.
I. 17: raktaśamśṣaō 'nunāsikaḥ.
nasalized.¹ That the entire vowel was nasalized in this case has been illustrated by another MS. work, viz. the Śikhyā Pāṭha.² Just as a pearl, overpowered with the light of sapphire, becomes blue, so the entire vowel, when nasalized, becomes a Raṅga.

This Raṅga, then, as in mahāṁ indraḥ, ślokāṁ u, was a distinctive designation for the pure nasalized vowel, the term Anusvāra being more general and indefinite, sometimes restricted only to what the Śikṣās termed as Raṅga, and sometimes covering both the aspects of a nasal sound.

2. According to another view, represented by the Rg Prāt., Anusvāra had either of the vocalic and consonantal elements, or, as the Rg Prāt. puts it, Anusvāra was either a vowel or a consonant.³ Uvāṭa’s explanation, that it was equivalent to saying that it was neither a vowel nor a consonant, is, in my opinion, not satisfactory. For this negative explanation not only fails to give any definite and positive idea of the Anusvāra, it misses an important phonetic phenomenon which must have been observed by the Prātiṣākhya in the various dialects of its time. Of these, some had the consonantal, the others the vocalic element of the Anusvāra predominant. This is strikingly illustrated by the mistakes in Sanskrit pronunciation pointed out in that remarkable chapter,⁴ viz. Chapter XIV., of the Rg Prāt. It points out, for instance, that some people erroneously nasalizeō a vowel before a nasal consonant, as in na nūnam; in some people the tendency to nasalize was so strong that they nasalized even the Visarga after a nasalized ō or after a nasalized r, as in svatavāṁ pāyuḥ and nīṁh patibhyah. While these were pointed out

² raṅge mukhe vyāghrarutopamaṁ syat
mātrādavyayaḥ hṛjjanitaṁ tu anāsyam

... iha kāṁsaḥgauṇṭāṇādaḥ
nādaḥ sakampaḥ sa tu mūrākajātaḥ.

nāṣikāraṁdrādvaṁ-nisruto ’ntyas
syād ekamātraḥ sa tu kākāki syāt. 153.

Saurāṣṭrīkā gopavadānāḥ sukantha-svarena takṛā iti bhāgata yathā, tathā samuccārya vade svakālāṁ raṅgaḥ ca kampāḥ khalu vardhate saḥ. 55. Similarly Pāṇiniya Śikṣā, SS. p. 380.

³ In the collection No. 21 of 1875–76, Bhandarkar Oriental Research Institute, Poona: yaḥthenāmānāṁraṁbhayabhīṣṭāḥ muktāmanir yāti hi niśabhdvam, tathaiḥva nāṣikagunyena yuktāḥ svaropī raṅgavām upaiti kṛtenāḥ. ⁴ XIV. 24.
as examples of exaggerated *rakta* pronunciation or vocalic nasalization, there were other people who exaggerated the consonantal element of the Anusvāra and added a strong consonantal *a* to an Anusvāra, as *tamghnanti* was pronounced *tanāghnanti*, or *tanh gnanti*. While these extreme cases of nasalization on the vocalic or consonantal side were condemned as provincialism, the Rg Prāt. evidently observed a living phonetic phenomenon, and finding that even the educated could hardly escape it, had to set up a standard. a via media between these two types of pronunciation.

According to the third view, represented by certain phonetic treatises of the Taittirīya school, the Vaidikābharāṇa, the Sarvasammatā Śikṣā, and the Yājuśabhūṣana, the Anusvāra was entirely a consonant, and was to be pronounced like half *g*. Thus, commenting on the Taitt. Prāt., II. 30, the Vaidikābharāṇa remarks, “The object of the statement that both the Anusvāra and the nasal consonants are Anunāśika is to reject the theory of another school which maintains the Anusvāra to be either a vowel or a consonant. For Anusvāra in our school is entirely a consonant like the nasal consonants proper, as its articulation is that of half *g*.”¹ The Vaidikābharāṇa does not give here a valid interpretation of the statement of the Taitt. Prāt. For merely putting together both the Anusvāra and the nasal consonants in the same category—i.e., designating them as Anunāśika—could not necessarily imply that the Anusvāra was also a consonant. It only indicated a feature common to both, viz., nasality. Moreover, that the Taitt. Prāt. did not intend the Anusvāra to be entirely a consonant is implied by another set of rules—viz., those in which the Prātiśākhya puts the Anusvāra side by side with other vowels like *a*, and designates all of them, including the Anusvāra, as short,² while if Anusvāra had been intended to be entirely a consonant, its quantity (like the quantity of every consonant, according to Indian grammarians) being a half-mora, the Anusvāra would not have been allowed the same length as a short vowel, the quantity of which was

¹ Taitt. Prāt., II. 30: anusvāra vyāśjanam vā svaro vety paramatam tannirā-sārtham idam ucyate. anusvāro ’py uttamavad vyāśjanam evāmacchākhāyam, ardhakārārūpatvāt. Similarly, Sarvasammatā Śikṣā, 43. Pāriśikṣā:

vyāṣpy anusvāra śāpi yatra
bhaved dhy ardhakārārayuktaḥ. 161.

² I. 32, 33, 34:

akāraś ca, tena ca sāmanakālasvaryaḥ, anusvāraś ca.
held to be one mora. But, however untenable this interpretation of
the original intention of the Taitt. Prat. may have been, its expositors,
in maintaining the Anusvāra to be entirely a consonant, betray a
tendency for consonantal Anusvāra in certain dialects of the time, a
tendency for which several Sanskrit inscriptions offer considerable
evidence. A few examples may be given:

I. Gupta inscriptions:
parivṛṇhāṇārtham (No. 2).
anśāni (Nos. 12, 28).
guptavanśakavīraḥ (No. 13).
vanśalakṣmīn (No. 13).
tefānsī (Nos. 33, 34).
vinsatime (No. 30).
vanśe (No. 33).
āṣṭāviniśati- (No. 38).
ansa- (Nos. 39, 49).
hansa- (No. 46).
ṃśaṃsāḥ (81).
vanśajasya (Nos. 15, 26, 28, 29, 31).
catvārinśad (No. 16).
sinḥāḥbhīm (Nos. 16, 23).
kārūnś ca (No. 29).
anśumān (No. 17).
singha- (Nos. 39, 40).
prānśūḥ (No. 32).
bhūyānsī (No. 35).
yāsānsī (No. 35).
abhrāṇśī (No. 35).
nistṛiṃśā- (No. 81).

II. Badar Pillar Inscription of Pāla kings ("Epigraphia Indica," Vol. II.):
kalyāṇaśaṅśi, vaṃśasya, pāṇyu-.

III. Duddhapani Rock Inscription of Udayayamana, eighth
century A.D. ("Epigraphia Indica," Vol. II.):
tusārabhānsi, yaśānsi, kasmincit, sinha-, anśuka-, nistṛiṃśā-.

The above examples indicate a strong tendency, in certain dialects
of the time, to pronounce the Anusvāra as a consonant or very nearly
like a consonant. Thus the Pratijñā Sūtra¹ lays down that the Anusvāra
should be pronounced nearly like the nasal consonant corresponding
to the plosive that follows it—e.g., in tam jānaṃ the Anusvāra should
be pronounced nearly like ṅ. Again, the Siddhānta Śīkṣā² (MS.
Madras, No. 1012) states that the final m of tvam may be optionally

¹ Ed. Weber: 25:

parasavarna ṯat prakṛtyā čāṇyatra.

² tvam mā hy arvān tato viśvan tiryahī āvān natau sadā
evnte vṛtne sma mantān ca yuvāṁ vṛt dhṛī dhīrās tathā . . . 53.

Com.: . . . tvam ity asya vā nakāro 'ntādesāś chāndasa ity anyo' rthaḥ.
pronounced \( \hat{n} \) in the Vedas, and it enumerates a few more words in which the Anusvāra is said to be pronounced as \( \hat{n} \)—e.g., śīnte, vṛnte, manīdm, yuvāḥvam, vṛṇāḥvam. In this connection the etymological explanation of the term Anusvāra given by the MS. work Yājuśabhūṣāna (Madras, No. 924), however fanciful, is interesting: Anusvāra is that in which the succeeding half of the syllable is pronounced like a vowel; from anus=succeeding, swara=vowel. But according to the same author, as I have already indicated above, the Anusvāra is to be pronounced like half \( g \) in the Yajurveda. There is an apparent inconsistency in these two views; but perhaps the author either meant that although the Anusvāra had essentially a vocalic element, it had acquired a consonantal element in the particular dialect or dialects of the Yajurveda School, or he meant, as it seems more probable, that the Anusvāra had both elements, the consonantal element being only half \( g \) and not a full \( g \), as in the modern Bengali and Uriya pronunciation of the Anusvāra in Sanskrit loan-words. That there was a distinct consonantal element in the pronunciation of Sanskrit Anusvāra in certain geographical areas of northern India is corroborated by the evidence of some of the modern living dialects. Thus Hindi has lengthened the quantity and at the same time effected the pure nasalization of those vowels which have an Anusvāra in the corresponding Sanskrit words, while Panjabi has preserved and probably emphasized the consonantal element of the Anusvāra without lengthening the quantity of the vowel. Thus Sanskrit vamśa- has become Hindi bāś—Panjabi vaŋjh, in the same way as Skr. danta—Hindi dāt—Panjabi dand; Skr. bhāṃga—Hindi bhāṅg—Panjabi bhāṅ; Skr. hamsa—Hindi hāś—Panjabi hans; Skr. rāṅgā—Hindi rāṅ—Panjabi rāṅ; Skr. khaṇḍa—Hindi khāṅ—Panjabi khaṅ; Skr. bandhaya—Hindi bāṅh—Panjabi ban; Skr. kampaya—Hindi kāṅ—Panjabi kamb. The quantity of the Hindi vowel in these examples indicates a compensatory lengthening to correspond to the original heavy syllable due to the consonantal element of the Anusvāra, which Hindi has lost. On the other hand, Sanskrit dasa (‘ten’) has remained Hindi das, Panjabi das, no change in the quantity of the vowel having taken place, as

1 anuvārya paścārāhe svaranad uccārysta ity anuvāraḥ. 15 (chapter on Technical Terms).
2 yajuy anuvāra ihāpi yatras
bhavet tadādyardhagakārayuktaḥ. 161. (Cf. p. 151.)
there was no Anusvāra with presumably a consonantal element after the vowel.

From the above paragraphs it will appear that both the pronunciations of the Anusvāra existed side by side in classical and pre-classical Sanskrit: it will now be of interest to consider which of these pronunciations was more predominant in the historical development of the language. It seems that during the period of pre-classical and classical Sanskrit, the consonantal element of the Anusvāra was more predominant, and that in Pāli and Prākrit the Anusvāra verged more towards the vocalic side. For the striking difference between the Anusvāra as we find it in Sanskrit and in Prākrit consists in its more limited scope in Sanskrit. Anusvāra in Sanskrit (1) cannot stand before a vowel: we always find its corresponding nasal consonant ṇ before a vowel; (2) cannot stand before a pause; (3) strictly speaking, cannot stand even before a plosive consonant, for although rules\(^1\) of some grammarians optionally allow it at the end of a word before another word with an initial plosive, its proper place in the interior of a word is only before fricatives,\(^2\) while some of the above examples from inscriptions show that even before fricatives nasal consonants were often pronounced.

All these facts indicate that the Anusvāra in classical Sanskrit had a predominant tendency to possess a consonantal element, or an element that was only an appendage to the preceding vowel or the succeeding sound. In Pāli and Prākrit, however, as is well known, the Anusvāra can and does most frequently stand before any of the above conditions, or it a vowel, a consonant, or a pause, although grammarians,\(^3\) under the influence of academic Sanskrit, optionally allowed it before a vowel or a plosive. As the nasal consonant ṇ ceased to appear, as a general rule, before a vowel, a plosive, or a pause in Prākrit, this indicates that in most of the living dialects the Anusvāra had a growing tendency to lose its consonantal element, although grammarians and certain literary works, under the influence of academic Sanskrit, continued to preserve the old distinction of Anusvāra and Anuṇāśika in a comparatively limited number of instances, as the Anuṇāśika in

\(^{1}\) Pāṇ., VIII. 4, 59; Taitt. Prāt., II. 50.


\(^{3}\) Kaccāyana, IV. 2, 5; Hemacandra, I. 24, I. 30.
jaṁunā, cāṁunḍā, kāuo. In this connection it would be interesting to note a parallel phenomenon in the Italic dialects, in which the consonantal n of Latin has been superseded by the nasalized vowel in French: cf. Latin centum=French sā; Lat. dens=Fr. dā; ventus=Fr. vā.

1 Hemacandra, I. 178. As regards the quantity of the Anusvāra, cf. pp. 188, 189.
CHAPTER X

THE NATURE OF ACCENT

The accent, in the opinion of Indian grammarians, was predominantly musical. This view of accent can be clearly seen in a striking passage which I have come across in the Pārīśikṣā.\(^1\) According to this work, the seven notes of the musical scale proceed from the three accents, the high (‘udātta’), the low (‘anudātta’), and the Svarita. The first note (‘ṣadja’) and the second note (‘ṛṣabha’) are said to “arise from” the low accent, the third (‘gāndhāra’) and the fourth (‘madhyama’) from the high accent, and the fifth, the sixth, and the seventh (‘pañcama’, ‘dhaivata’, and ‘niṣāda’) from the Svarita. Of the last three notes, the seventh (‘niṣāda’) is said to “arise from” the independent, the Abhinihita, and the Kṣaipra varieties of the Svarita. Thus the independent Svarita as in kanyā, the Abhinihita as in sō bravī, and the Kṣaipra as inkṛdhī svāsmān were said to “produce” the seventh note (‘niṣāda’) in the musical scale. The sixth note (‘dhaivata’) “proceeded from” the Tairovyāñjana and the Pādavrītta varieties of the Svarita—e.g., the Tairovyāñjana Svarita as in dṛjāsvaśi and the Pādavrītta as in iva āśmā “produced” the sixth note. The fifth note (‘pañcama’) “proceeded from” the Praśīṣṭa and Pratihata varieties of the Svarita. Thus the Praśīṣṭa in sūdgāra- and the Pratihata in ḫē tvā “produced” the fifth note in the musical scale.\(^2\)

\(^1\) gāndhārakv madhyama uccajātāḥ
ṣadjaṃḥ bhave dvau niḥatodahavan evaḥ
sapañcamo dhaivatāκo niṣādāḥ
trayaḥ svarāḥ ca svarikā tu jātāḥ. 83.

Com.: gāndhārakhyasvāraḥ madhyamaḥ tadākhyasvāraḥ ca uccajāta uddātasvādā jāto bhavati, etc. (Cf. p. 11, footnote 3.)

\(^2\) tatrāpi niśyo niḥitāsa ca te ‘tra
kṣaipro niṣādasvarahetavah syuh. 84.

Com.: tatrāpi tasmin svarīsāya ‘pi ye nūyābhinhinīkṣaipraḥ.
svarīsas te ‘tra prakarane niṣādasvarahetavah syur
niṣādasvarasya kāraṇānity arthāḥ.
tathāntimagārakapādavrītau
syātāṃ tathā dhaivatahetubhātāu. 86.

Com.: tairovyāñjanāsa ca pādavrītakhyas ca dhaivatasvārahetubhātāu syātāṃ.
praśīṣṭapratihātahūḍhānau
syātāṃ tathā pañcamakāranaṃ taup. 85.

156
The first note was said to "proceed from" the low accent if it belonged to a long sound, while the second note "proceeded from" the low accent if the quantity of the sound was short.1

Similarly, the Nārada Śikṣā also states that the seven notes of the musical scale originate from the three accents of the spoken language. But this Śikṣā differs from the Pārīśikṣā as regards the particular musical notes originating from the accents in question. For according to this Śikṣā the seventh and the third (and not the fourth and the third, as the Pārīśikṣā asserts) proceeded from the high accent; the second and the sixth (and not the first and the second, as the Pārīśikṣā asserts) originated from the low accent; while the first and the fourth and the fifth notes proceeded from the Svarita accent.2

The commentators do not explain what these authorities actually meant when they said that the various musical notes "arise from" the three accents. Three interpretations of this phraseology are possible:

I. These authors actually believed in the linguistic origin of music. Compare similar opinions in modern times, according to which "plain-song has been characterized as 'the blossoming of the tonic accent.'"3

II. It was "only an instance of artificial systematization on the part of these authors," as Burnell maintains.4

III. It may have been mere symbolic representation, with which Indian scientific literature copiously abounds.

I. As regards the first interpretation, there are indications, in some Sanskrit works on music, of the tendency to attach greater importance to human song than to instrumental music, and to connect song with human speech. Thus the leading Sanskrit work on music, viz. the Sampgitaratnākara,5 states that "music is of three kinds, vocal, instrumental, and the dance. But the dance follows instrumental

1 athānudāttau yadi dirghabhrasvau  
hetū ca sādjarśabhayoh kramena. 88.

2 ŚS, p. 424: uddāte nipādaqāṇḍhārav anudāttaḥ sābhadhaivatau, svaritaprabhavā 
hy ete sādjamadhyamapāṇīrmanāḥ.


4 Rktantravyākaraṇa, p. xlvi.

5 I. 1: 
gitām vādyam-kathā nṛtyam trayam sampgitar ucayate 21. 
nṛtyam vādyānugam praktaṁ vādyam gitānuyttii ca, 
ato gitām pradhānatvād atrādāv abhidhiyate. 24.

1 "proceed from"  
2 "arise from"  
3 "the blossoming of the tonic accent."

4 "only an instance of artificial systematization on the part of these authors,"  
5 states that "music is of three kinds, vocal, instrumental, and the dance. But the dance follows instrumental"
music, while instrumental music follows vocal music. Hence, owing to its predominance, we shall first describe vocal music." The author, in another passage, ultimately traces vocal music to the tone, but states that "this tone, the product of energy and breath, is first manifested in the form of articulate sounds (of the alphabet), from which arise words, and words lead to sentences." According to this, then, language was the immediate, if not the ultimate, cause of vocal music, which, in its turn, dominated instrumental music and the dance. And according to our grammarian, the author of the Nārada Śikṣā, good music depends upon distinctness of pronunciation. Thus it speaks of ten kinds of good music, which it respectively designates as "the coloured, the complete, the elegant, the cheerful, the distinct, the loud, the gentle, the balanced, the delicate, and the sweet." Of these, the 'distinct' music was defined as that which consists in the proper expression of grammatical forms—viz. "words, the meanings of words, roots and suffixes, the augment, verbal and nominal derivatives, compounds, verbs, particles, prefixes, accent, gender, cases," etc.

These facts indicate that, according to the authors of the Saṃgītaratnākara and the Nārada Śikṣā, music and language were closely connected. A much earlier work than the Saṃgītaratnākara (circa thirteenth century), viz. Bharata's Nātya Śāstra (fifth century A.D.), does not attribute similar predominance to vocal music, but even this work speaks of a type of music which was said.to be exceedingly liked by the gods, and which he designates as the "Gāndharva." This Gāndharva had "three aspects—viz., pitch, rhythm, and language. This language consists of vowels, consonants, syllables, Sandhi, cases,

1 gitam nādātmakam vādyam nādavyaktyā prāsāyate
tad āvāṇyugataṃ nṛttaṃ nādādhiṇam atas trayam. I. 2. 1.
nādena vyajyate varṇah padaṃ varṇāt padaḥ vacaḥ
cavaco vyavahāro 'yaṃ nādādhiṇam idaṃ jagat. I. 2. 2.
nakāraṃ prāṇanēmānumaṃ dakaṃr am anālaṃ viduḥ
jātaḥ prāṇāgniśanyogātenādābhidhiyate. I. 3. 6.

2 SS, pp. 401-2: ganaśya tu daśavidhā guṇaśya, tad yathā raktaṃ pūrṇam
alaṃkārāṃ prasaṅgāṃ vyaktaḥ vikruṣṭaṃ slakaṇṇāṃ sādhuṃ vādaḥ
nāmam padapadārtha-prakṛti-vikāragamalopakṛt-tadās aśamsādhaTa
upalipatopaparseya-uvidya-vacanaṃ samayag upadāne vyaktaṃ ity

3 Chap. 28, 9-16: atyartham iṣṭam devānāṃ tatāḥ pritiśaṃ puṇaḥ, gāndharva-
naṃ ca yasmād dhi yasmād gāndharvam ucyate, etc.; gāndharvanāṃ trividham vidyāt
svaratālapadātmakam, etc.
the noun, the verb, the prefix, and the particles.” The close connection of music and language is therefore apparent in these works, though the later works seem to be inclined to establish a causal connection between them. Their attitude on this point, however, was not definite. Thus the Nārada Śiksā, which, as already mentioned above, attributes the musical notes to the three accents, states in another passage that the seven notes in the musical scale “arise” from the various organs of the body. “The first note arises from the throat, the second from the head, the third from the nose, the fourth from the chest, the fifth from the head, the chest and the throat, the sixth from the forehead, and the seventh from a co-operation of all the organs.” Moreover, both the Nārada Śiksā and the Saṁgītaratnākara, which seem to find a causal connection between music and human speech, mention in other passages some animals which are said to produce notes in the musical scale. For instance, according to the Nārada Śiksā, “the first note is uttered by the peacock, the second by the cow, the third by goats and sheep, the fourth by the heron, the fifth by the cuckoo in the springtime, the sixth by the horse, and the seventh by the elephant.” It is possible, however, that these parallel analogies from the brute creation were given only to illustrate what, in the author’s view, actually occurred only in the human voice, just as short and long quantities were measured in terms of the cries of certain birds (see p. 179). Or they may have discovered the infancy of the causal connection between

1 ŚS, p. 411:

\[
\text{kaṇṭhād uttisṭhate sādjaḥ śirasas tu ṣrabhaḥ smṛtaḥ gāndhāras tu anunāśikya urasaḥ madhyamaḥ svarāḥ urasaḥ śirasas kaṇṭhād uchrittāḥ paścamaḥ svarāḥ laḷāṭād dhaivatamā vidyān niśādaṁ sarvasandhiham.}
\]

Cf. Bhāṣika Sūtra, III. 19-244.

2 The gradation of pitch mentioned above in the different animals seems to be fairly accurate; but it is curious that the author puts the cow’s note higher than that of the peacock.

3 ŚS, p. 407:

\[
\text{ṣadjaṁ vadati mayūro gāvo rambhanti caṛṣabham ajāvek tu gāndhāraṁ krauṇo vadati madhyamam \[puppassāḥhāraṇe kāle kokinā vakte paścamaṁ asvās tu dhaivatamā vakte niśādaṁ vakte kuśijaraḥ.}
\]

Cf. Saṁgīta-Ratnākara, I. 3, 48:

\[
\text{mayūracātakachāga-krauṇacakika-dardurāḥ gajaḥ ca sapta sādjaṁ kramād uccārayantu amī.}
\]
music and inarticulate speech even in the primitive stages of the animal kingdom.

Our authorities, then, indicate some faint ideas of a general theory of a causal connection between music and language, but I have not come across any passage in which they have definitely worked out the theory.

II. According to another interpretation of this view, which was suggested by Burnell, it was only an instance of artificial systematization on the part of these authors. He maintains that these authors attempted "to identify absolutely the accents with certain definite musical notes. . . . The pitch of the accents is merely relative, and the attempt to fix them absolutely by certain definite notes is merely one more instance of the spirit of artificial systematizing that meets one everywhere in Indian literature." This reason, however, cannot be accepted because, firstly, the wording of the text does not imply the identification of the accent with musical notes. The text used by Burnell was of the Nārada Śikṣā,¹ and even in this we find "svaritaprabhavāḥ" ("arising from Svarita"). Now when B is said to arise from A, it does not imply that A=B. It rather suggests either a causal connection between A and B or a symbolic representation of A in terms of B. Now it has been shown above that the idea of a causal connection between accent and musical notes may have possibly occurred to our grammarians. If, however, it did not occur to them, I think it very probable that ‘arise’ indicated a symbolic representation of accent in terms of musical notation. And this representation is not "artificial systematization." It has been done in modern times, with a touch of living reality, by Professors Daniel Jones² and Klinghardt.³

III. We see, then, that Indian grammarians had observed a living musical phenomenon in Vedic accent, and they tried to describe the phenomenon of accent in terms of parallel facts which they had observed in music proper. That this was not an "artificial systema-

¹ The passage may again be quoted from Burnell’s Edition of Rāktantravyākaraṇa, p. xi:

udātta nisādagāndhārāv anudātta prabhodhaivaiva
svaritaprabhavā hy ete sādjamadhyamaṁpaṁcīmaḥ.


³ "French Intonation."
tization" but the observation of a living connection between music and accent is further corroborated by the Saṃhitopaniṣad Brāhmaṇa, according to which, in several chants of the Śāmaveda, the low accent becomes high—e.g., "in the Saṃhitā text of the Śāmaveda, the syllable vi is marked low, but in the Parka hymn it is sung very high,\(^1\) while "during a musical series in which the third note was followed by the second, and the second by the first (3:2:1), 'the high becomes the highest' (udāttatama), and is designated as udūha.\(^2\)

These facts indicate that our authorities had observed a living connection between accent and music, and that it was not a case of mere "artificial systematization," for the accent varied with different musical conditions. It also seems to have varied with different dialects, as another passage of the same Brāhmaṇa indicates. It refers to certain schools in which the syllable which was pronounced as high in the Lāṅgala school was said to be articulated low in other schools, and vice versa.\(^3\)

We have, unfortunately, no means at present of estimating the accuracy of the details regarding the relation of accent to the various notes in the musical scale. And yet these passages strikingly indicate the general viewpoint of Indian grammarians regarding accent, showing that by accent they meant predominantly a musical accent. The relation of the Svarita accent to the highest notes in the musical scale, mentioned by the Pārīśikṣā, is another interesting point, which seems to tally with the Rg Prāti.'s observation that the first half-mora of the Svarita was higher than the high accent.\(^4\) If the Svarita was the origin of the highest musical notes, its intonation was likely to be high enough to render at least conceivable the extraordinary theory of the Rg Prat. regarding the Svarita. I say 'extraordinary' because the Vedic Svarita generally arose out of the low accent when the

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1 Burnell's Edition, p. 20:

"sarvatrodātās ev anudāttāni" iti.

Com.: ārcikasamhitāyām "vi" varṇo 'nudāttāḥ paṭhitāḥ, sa parkasāmanni asi vocaeva piyate.

2 Ibid., pp. 27-28: trīyaprakṛtiṁ udāttatamaṁ kaścit svaro bhavati tam udūha ityācakṣate.

3 Ibid., p. 29.

4 III. 2, 3: tasyodåttataraodåttād ardhamātrārdham eva vā.
latter was preceded by the high accent. That the succeeding low accent should thereby start higher than even the preceding high accent seems to be an unusual phenomenon. And yet, if the resultant Svarita was observed to be related to the highest musical notes, the high pitch of its starting-point was possibly an actual phenomenon in the Vedic pronunciation noticed by the Rg Prāt. Moreover, the rise of the low tone to the level of the preceding high tone has been actually discovered in Sechuana, an African language, and it is not impossible that the preceding high tone in some languages may be a rising tone, and that rise may be carried into the following syllable. A phenomenon of this kind (as Professor D. Jones tells me) is found in Norwegian, where the tones are spread over a stressed syllable and one or more unstressed syllables in certain connections.

While the above facts indicate that accent, according to Indian grammarians, was predominantly musical, it is not unlikely that some authorities implied by accent a combination of both musical and stress accent. For according to Uvāta, Patañjali, and Kaiyyaṭa, breath plays an important part in the production of accent. Thus, commenting on the Rg Prāt., III. 1, Uvāta defines the high accent as that which is due to the upward movement (tension) of vocal organs caused by breath, while the low accent is defined as that which is due to the downward movement (relaxation) of vocal organs caused by breath. Patañjali does not accept this definition of accent, not because he does not believe in the leading part played by breath in the production of accent, but because the definition does not give a fixed standard of determining what is high and what is low.

Thus, commenting on Pāṇini, I. 2, 29, I. 2, 30, Patañjali remarks: "High and low do not denote a fixed object (in other words, they are relative terms). The same sound may be high for one person and low for another person. Thus when a person is reading to another, the hearer may say, 'Why are you screaming so high? Speak low.' While another person may say to the same reader, 'Why are you muttering between your teeth? Speak high.' What is extremely high for a man of poor breath may be extremely low for a man of strong

1 By Professor Daniel Jones; vide his "Sechūana Reader," p. 37, where the low tone of 'le' in leseatei, 'sun,' becomes high when preceded by the high-toned particle le 'with.'

2 āyāmo nāme vāyunimittam ārdhavagamanam gārānāṃ tenocyate sa udāṭṭaḥ, viśrambo nāmādhogamanam gārānāṃ vāyunimittam.
breath." High and low being, therefore, relative terms, both from the standpoints of the hearer and the speaker, Patañjali uses the terms high and low with reference to the various parts of the vocal organs.

"In articulating the high accent," as Kaiyyaṭa² says, "the higher part of the articulating organ, by coming into contact with breath, is called into play." According to these authorities, then, it was the particular part of the articulating organs that constituted a fixed standard for determining whether the accent was high or low, and that was the invariable factor of the production of accent. The symbolic representation of the particular accent, according to the Pārīśikṣātikā Yājuṣabhūṣaṇa³ and the commentary on the Pratijñā Sūtra,⁴ was to be made by a movement of the hand. Thus in the low accent, the right hand was to be placed or moved near the heart; in articulating the high accent, the hand was to be near the head; while in the case of the Svarīs, the hand was to be near the ear. But, as I have said, these movements of the hand in the direction of the head, the heart, or the ear were symbolic.

Thus, with reference to these movements of the hand, the Pārīśikṣā points out that the high accent occurs when the effort is directed towards the lower part of the vocal organ. The head, then, represented the upper part, the ear the central or transverse part, and the heart the lowest part of the articulating organ.

This theory, which attributes the accent to the various ‘altitudes,’ if I may use the expression, of the vocal organs, may possibly refer to the raising of the larynx for the high pitch, and its lowering for the low pitch, and if it was intended in this sense, it was sound. The reason which led Patañjali to localize the accent in the various altitudes

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¹ *idam uccāśi ca anāvasthitapadārthakam.*

² *tad eva hi kāṅciḥ pratya uccāsir bhavati kāṅciḥ prati nicaṁ.*

³ *evāṁ kāṅciṁ kaścid adhiyānam āha kimuccai rōriyase 'thā nicaṁ variṭātāṃ iti.*

⁴ *tam eva tathādiḥyānam aparā āha kim anākārdantakenādhiṣṭa uccāsirvariṭātām iti.*

---


³ *uccāsir uparibhāge jātena prayatnenaoccāryamānas coddatāḥ syat.* On 99.

⁴ *... evāṁ hastasvaravayyūsam udattādinaṁ udattādvavarāyāṁ utpattau kāraṇāṁ āha.* On 81.

⁴ I. 4-8 (Benares Edition): ārḍy anudattāḥ ārḍyasamīpe dahṣīyāhastavānu: dattapradarśanaṁ bhavatiḥ bhāvāḥ, etc.
of the vocal organs was the need to determine a fixed standard of accent for all speakers and hearers. There is no doubt that this theory of accent, according to which the high accent proceeds from the highest part of the vocal organ, does not help us to determine whether accent, according to Indian grammarians, was decidedly musical or tonic. And yet the fact that Patañjali and Nāgęśa attribute the high accent to the "higher part of the vocal organs coming in contact with breath"—this fact indicates that the element of breath-force was not entirely excluded from the Indian grammarians' view of accent. But the predominance of the musical accent, even according to these writers, is quite plain. Thus Kaiyyaṭa, while expounding Patañjali's theory of accent, remarks, "In this way the word 'high' means the higher part of the vocal organ, while 'low' means the lower part of the organ. These particular accents can be learnt by practice, and should be understood as being like the notes in the musical scale." A comparison with the notes in the musical scale, then, clearly implies that the Indian grammarians meant by accent predominantly a musical accent, though probably they did not entirely exclude from it a combination with stress-accent. I say only 'probably,' because when they attributed the high accent to the breath coming in contact with the higher part of the articulating organ, the mere mention of 'breath' does not necessarily indicate that the resultant accent in their opinion was stress-accent, for the breath-element is not absent from the productive factors of musical accent, just as it is not absent from the musical tones of the human voice.

The Pārśīkṣāvatikā Yājuṣabhūṣana holds the 'altitude' theory to be only symbolic and secondary, meant only to help the reciter in the articulation of various accents by the movement of the hand, and remarks in this connection: "In the articulation of the high accent, effort is directed towards the upper part of the vocal organs. In the articulation of the low accent, effort is directed towards the lower part of the vocal organs. After thus describing the play of the hand during the articulation of accents, the author now proceeds to describe the causes of the production of various accents."

"These causes are, in the case of high accent, tension (lit. 'length ')

1 evam coccair ity amenordhuabhago gṛhyate nīcavr ity adharabhāgah. abhyānasamadhiṣayasya cāyan evanāviścaḥ padjaśivād vījiṣṭaḥ.
2 Cf. footnote 3 on p. 163.
of the organs, firmness of the voice, and narrowness of the cavity of the throat; in the case of low accent, looseness (lit. 'shortness') of the organs, weakness (lit. 'gentleness') of the voice, and wideness of the cavity of the throat." The same theory has been advanced in the Taitt. Prāt., XXII. 9, which has been also quoted by Patañjali on Pāñ., I. 2, 29-30. Two of the conditions mentioned in this theory—viz., tension of the organs and firmness of the voice—would be common both to stress and musical accent; but the second condition—viz., narrowness of the cavity of the throat in the case of high accent, and its wideness in the case of low accent—would have been impossible if only stress-accent had been intended, for a high accent, if expiratory, would have required a copious emission of breath, and consequently a widening, and not narrowing, of the cavity of the throat. Even this passage, then, indicates that musical accent was predominantly intended, though the other two conditions mentioned do not exclude the possibility of stress-accent.

The Pārīśikṣāṭikā Yājusabhūṣana, therefore, rightly interprets the 'altitude' theory to be only symbolic (though it may have a natural basis, for people have generally the tendency to raise their head for a high note, and to lower it for a low note), the movement of the hand in the direction of various organs being only an accessory help to the reciter. In addition to this accessory movement of the hand, the Cārayanīya Śikṣā also mentions the movement of the eye, and remarks, "One should always articulate accent properly, indicating the direction of the accent by a movement of the hand. In the case of high accent, one should cast a contracted glance of the right eye on the junction between the nose, the cheeks, and the eyebrows."

yad gātradasirghyam dṛṣṭhata ca yā dhvaneḥ
tathānūta kaṇṭhabilasya ya ca
etāni kuvantī ca śabdam ucacair
yad dhrasvatā yā mṛdutā svarasya
yā visṛṅtī kaṇṭhabilasya caivalah
karāṇi śabdam nibaltaḥ ca niyam.

(Pārī Ś., 81, 82.)

* MS. Göttingen, Fol. 6: samāṃ svarāṃ paśten niyamāḥ mārgaṃ haste
pradaṛśayet, yad vāṇi gacchati sthānāḥ tad dhastena pradaṛśayet. daksinā-
keśinīpātāna dṛṣṭān hanyāt kaniyasi, nāśāgandabhūvoh sandhīm uddattaviṣayā
vidyūḥ.

Professor D. Jones tells me that modern teachers on singing often advise their
These secondary movements of accessory organs, like the movements of a musical conductor’s stick, may have offered something like a fixed standard for the regulation of accent in Vedic recitals, but the Pārīśikṣātīkā is right in interpreting that neither these accessory movements nor the various altitudes of the vocal organs were the causes of accent, and if Patañjali’s fixed standard be taken in this restricted sense of accessory guidance, his theory may be accepted, though it does not help us to determine the essential nature of Vedic accent.

**Accent and Quantity.**

The Āraṇya Śikṣā mentions an interesting theory, according to which “the final syllable of a word has the low accent, if the penultimate is long; but it has the high accent, if the penultimate is short.” The Śikṣā, however, refuses to accept the theory as a general principle.

The passage in which this theory has been mentioned, first enumerates words in the Taittirīya Āraṇyaka which end in two syllables with a high accent—e.g., *avalaumpatā*, which occurs in X. 24, 1, X. 25, 1. The normal accent of the word should have been only on the penult, thus *avalaumpatā*. But an objector here suggests that an enumeration of such words is unnecessary, for “the high accent of the final syllable *tā* could be explained by the general principle that with a short penultimate (as *pā* in the above example) the final syllable has the high accent.” The Śikṣā, however, states that this phenomenon often occurs, but it cannot be accepted as a general principle, for “it is contradicted by such examples as ‘*tīlāh, kṛṇāh*’.”

The Śikṣā is right in asserting that the correspondence long penultimate: unaccented final, short penultimate: accented final,

pupils to “make their voice issue between the eyes.” According to Sir E. D. Ross, it possibly meant a change from the “open” to the “covered” note, in which the voice is presumably placed at the back of the nose.

1 *namu “āhas tād avalumpatā” “rātris tād avalumpatā” iiti vākyadvayasya ērūvivāyatvād evavandottattve siddhā punar atra grahaṇam vyartham iiti cet, satyam, ērūvivāyasyandottattva-nīyame puy udātta-deyāntaniyamābhāvena tan-niyamārtham atra grahaṇam. laghūpāntyaśrūvivāyasya tanniyama iiti cet tīlāh kṛṇā ilyādau vyābikanāreṇa tan-niyamābhāvāt “upāntyas tu guruḥ syāc cen nihataṁ tatra cseyate, laghū cet tad udāttaṁ syāc ērūvivāyasya manyaṁ” iiti vacanaaya práyikatva-tātparyād iiti. Com. on 27.
often occurs in Vedic words. This is true of words like the following:

<table>
<thead>
<tr>
<th>Long Penultimate</th>
<th>Short Penultimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>devēna</td>
<td>pūtā</td>
</tr>
<tr>
<td>dēva</td>
<td>pūtāh</td>
</tr>
<tr>
<td>kdmahi</td>
<td>pādā</td>
</tr>
<tr>
<td>devēbhiḥ</td>
<td>pādé</td>
</tr>
<tr>
<td>vdri</td>
<td>praṭjā</td>
</tr>
<tr>
<td>śātruḥ</td>
<td>pūrā</td>
</tr>
<tr>
<td>yajñāsyā</td>
<td>tṛṣū</td>
</tr>
<tr>
<td>vdcam</td>
<td>aymān</td>
</tr>
<tr>
<td>gātyā</td>
<td></td>
</tr>
</tbody>
</table>

And the Śikṣā is also right in maintaining that the theory is untenable if it is accepted as a general principle, as the following counter-examples will show:

<table>
<thead>
<tr>
<th>Long Penultimate</th>
<th>Short Penultimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>agnim</td>
<td>agnīnā</td>
</tr>
<tr>
<td>pūtrā</td>
<td>agnaye</td>
</tr>
<tr>
<td>pūtrā</td>
<td>gātā</td>
</tr>
<tr>
<td>kṛṣṇdāḥ</td>
<td>gātim</td>
</tr>
<tr>
<td>kumārāḥ</td>
<td>svāsuḥ</td>
</tr>
<tr>
<td>rudrāḥ</td>
<td>sādāḥ</td>
</tr>
<tr>
<td>sakhyāḥ</td>
<td>jāgat</td>
</tr>
<tr>
<td>svargāḥ</td>
<td>yāvā</td>
</tr>
</tbody>
</table>

It is not unlikely, however, that the theory in question refers to a later stage in the development of the Sanskrit tone accent, when it was converted into a stress-accent. The quantity of the penultimate syllable seems to have played some part in the development of this stress-accent, although, as has been rightly pointed out by Professor Turner,1 the opinion that Prākrit stress depended on the quantity of the penultimate syllable cannot be accepted as a general principle for all Prākrits.

The long penultimate, in some examples at least, became stressed — e.g., Skr. kāca—Prakrit kacca—; Skr. taṅdā—Prakrit tellā. It is not unlikely, then, that the theory mentioned by the Śikṣā refers to the stress-accent of the penultimate, which may have left the final

1 The Indo-Germanic accent in Marathi, JRAS, 1918, pp. 212 ff.
syllable with a weak expiratory accent. Again, the examples quoted
by the Śiksā from the Taittirīya Āraṇyaka are also interesting; the
two high accents, as in avalumāpō, probably refer to the development
of the secondary accent\(^1\) which has been noticed in the later stages of
Sanskrit and Prākrit.

Again, the Vaidikābharana\(^2\) quotes another interesting theory from
a Śiksā, according to which the quantity of a "Svarita-receiving
consonant" was lengthened. It states that "the beginning of Svarita
is like the high accent, but the end is like the low accent. This second
stage (i.e., the low accent), however, sometimes does not occur in vowels,
but only in the consonants which are adjuncts to those vowels, and
these consonants are called 'Svarita-receiving.' They cannot then be
pronounced without a longer duration."

This was a remarkable observation, and very probably accurate.
For by the author's own statement, the Svarita was a high-falling
tone. Now it has been noticed by modern phoneticians (as I learn
from Professor Daniel Jones) that a lengthening of the following
consonant sometimes accompanies a high tone in English when that
high tone is used for emphasis—e.g., n in splendid, tremendous,
and t in a little. My own pronunciation seems to illustrate a
similar phenomenon. Kymograph measurements have shown that the
quantity of the consonants d and t in the Lahndi words lit and lid,
pronounced with a high-falling tone, was appreciably longer than in
the case of īt and īd(o), which were pronounced with a low monotone.
The average length of d and t in the former case was 17.3 and 16.7,
and in the latter case 9.12 and 13.7 hundredths of seconds respectively.

But this observation regarding the lengthening of the consonant
does not seem to be confirmed in the case of consonants after the high-
falling tone of Lahndi as a word accent. For similar kymograph
measurements showed that the average length of the consonant after

\(^1\) Ibid., p. 240.

\(^2\) On Taitt. Prāt., I. 37:

svārīṣe-grāhīnāṁ vyākhyānāṁ kāládhikāyam
uḍaṁ śīkṣāyām:

svārīṣe kampās ca raṅgūs ca ye yatkālāḥ svabhāvataḥ vārdhante procyamānās.
te kṣiprayāne 'pi vukari. atra svarīṣe-grāhī kālāvyādi-vacanām tadvrahi-
vyākhyānārtham eva ... tad anuñātaśamātvan kṣepito varīṣe svaṃs
bhavañi kintu tadaṅgabhūtāḥ vyākhyānesu eva tāni svarīṣe-grāhīnītya
vyāgyante. teneśaṁ kāládhikāyāṁ vinoccāranaṁ na ghāṣate.
the high-falling tone in baggi (‘carriage’) and vādia (‘cut’) was even shorter than in the case of baggi (‘white’) and vādia (‘O great one!’), the average length of g and ḍ in the former case being 15·8 and 9·1, and in the latter case 16·3 and 13·2 hundredths of seconds respectively. The phenomenon, however, seems to be true of consonants following the high-falling tone of sentence accent used for emphasis.
CHAPTER XI

QUANTITY

The idea underlying the grouping of sounds into short, long, and puta was said to be duration. As the Pāṇiniya Śikṣā says, "Short, long, and overlong ('pluta') are determined by time." From the standpoint of duration, human speech was said to be of three kinds—viz., quick, intermediate, and slow. According to Kātyāyana, the quantity of sound in intermediate speech was one-third more than in quick speech, the ratio being 9:12. The quantity of sound in slow speech was one-third more than in intermediate speech, the ratio being 12:16. Kātyāyana connects the perception of this ratio with a psycho-physical process affecting the nervous system of the hearer. The ratio 12:9 implied that "twelve drops of the nervous fluid flow from the Suṣumṇa nerve of the hearer when he hears intermediate speech, while the number of drops in the case of quick speech is nine."

As regards the exact ratio of quantity between these three kinds of speech, authorities naturally differed. Thus, while Kātyāyana states the proportion to be 9:12:16, the Rktaṇtra Vyākaraṇa maintains the proportion 3:4:5, while Uvaṭa mentions some authorities holding the proportion 16:20:25. According to the Māṇḍūkī Śikṣā, the interval between a series of intermediate sounds was one more than in quick sounds, while the interval between a series of slow sounds was "two more than in quick sounds, the proportion being 1:2:3."

1 ŚS, p. 379:

kṛṣṇo dirghaḥ pluta iti kālato niyamā aci.

2 On Pāṇini, I. 1, 70: dooram śokam ṛcayam voccārayati vaktari nāḍikāya āsyā navapāṇiṇyaphalāni sravanti tasyā eva madhyamāyāṃ vṛttāu dvādasa phalāni sravanti. nāḍikā, according to Nāgūra, is here the Suṣumṇa nerve, and phalāni the drops of nectar flowing from this nerve when it is in unison with the universe.

3 Page 10: drutāyāṃ mātrā trikālā, catuskālā madhyamāyāṃ, paṇcakalā vilambi-tāyām.

4 On Rg Prāt., XIII. 98.

5 ŚS, p. 463: madhyamaikāntarā vṛttir dvyantrapā hi vilambitā.
QUANTITY

It is difficult to judge how far the above ratios of duration were accurate. I have consulted in this connection a leading authority on shorthand, Principal Holland (of Pitman’s School, London), and he informs me that “either the maximum or the minimum rate of speech would be difficult to ascertain, as speech is an individual matter. . . . Roughly, one can say that the average rate of speaking in ordinary conversation is round about 140 words per minute. Lecturers vary from 120 up to 200, the latter rate being for short spurts only.” Now if a ratio of duration be taken from these figures, it would roughly vary between $2:3$ (i.e., $\frac{140 \times 60}{200} : 60$) and $13:15$ (i.e., $\frac{140 \times 60}{160} : 60$) for quick and intermediate speech respectively. The former ratio would then nearly approach Kaiyyaṭa’s (9:12), while the latter would roughly approach the results given by Uvaṭa’s authorities (16:20). These figures, then, indicate that the calculations of Indian grammarians were not merely fanciful, but were based upon considerable observation.

Our grammarians prescribed the use of these three kinds of speech under different conditions. Thus according to Ṛg Prātaḥ,¹ “quick speech should be used in Vedic recitals, intermediate in business, and slow during instruction.” The Māṇḍukī Śikṣā² recommends the use of intermediate speech, for “in slow speech defects can be easily detected, while in quick speech sounds are indistinct. But a well-educated teacher gifted with a good voice may use any of these three forms of speech.”

So when the question of fixing a standard of quantity arose, the basis selected was intermediate speech. Thus the Kālanirṇaya Śikṣā, a manuscript work exclusively devoted to quantity, states in this connection that “we cannot speak of time as being uniform in the case of vowels, consonants, and the pause in all the various kinds of speech. This treatise (on duration) is based on intermediate speech, for other kinds of speech have been prohibited by the Prātiśākhya.”³ It is evident that intermediate speech, which presumably represented

¹ V. 21.
² ŚŚ, p. 463.
³ svaravarna-viramañāṁ bhinnavāṁ-vṛttivartināṁ aika-rūpyena kālasya kathanaṁ nopapadyate. 3. madhyamāṁ vṛttim ādityā mayā ceyam ktyā ktyā prātiśākhya nisidhyanye yasmāt saiva bodhyate. ⁴
ordinary conversation, was the only practical basis for the definite
determination of quantity.¹

Quantity Independent of Quality.

Patañjali maintained that quantity did not affect the quality of a
sound. For, as Kaiyyaṭa explains it, when a pot is perceived again
and again, it does not appear to be different. It is the same pot, and
is perceived to be the same pot, in spite of our observation for a short or
a long time. Duration does not affect its identity. In the same way,
a sound, say the vowel a, is not really affected by duration, though
apparently it is. “In slow speech a is repeatedly heard, but it is the
same a, and is perceived as the same a.” This appears to be a piece
of ingenious subtlety, by which Kaiyyaṭa conceives of a comparatively
long a as if made up of a series of short aaaa, and if he seriously meant
it, he was wrong, for a breach in the continuity of a long vowel has no
phonetic basis. But, as the succeeding paragraphs will show, it does
not seem that he really meant it, for he, with all Indian grammarians,
believes sound to be ultimately indivisible.

Again, continues Kaiyyaṭa, a drum-beat is heard, sometimes for
a short time, sometimes for a long time, and sometimes for a very long
time, but it is the same drum-beat. It is like three persons starting on
a journey: one goes in a car, another on a horse, and the third on foot
—modes of progression which are respectively quick, slow, and very
slow. But the road by which they proceed on their journey is the
same throughout. The road, being the substratum, is not affected by
duration. It is the same for all the three. “From this standpoint
sound has two aspects, apparent and real (vaiṅkṛta and prākṛta).
Apparent sound is affected by duration, and we then call it short, long,
and pluta. Real sound is Sphoṭa, an indivisible, sonorous whole,
and is not affected by duration.”²

quantity of a short sound as the minimum time required for the distinct articulation
of an accented syllable in intermediate speech (bei mittlerem Redetempo).”

² On Pāṇini, I. 1, 70: ghaṭaḥ punaḥ punar dṛṣṭamāno ’pi na bhedaṃ avalambate,
tathā vilambitavān vṛttāv akār eva punaḥ punarupalabhya iti vṛttibhedā ’pi varṣasya
bheda na ghṛhyaṇa iti sarvaṃvārtīṣu tattāltaṃ. hrasvaḍiṅgkaḥpunatā tu svata eva
bhinnābhinnair dhanvanbir vyajyanta iti teṣāṃ kālabhedaḥ. yatāḥ prayaṭnavasād
utpanno bherūṣabhaḥ kaścid alpaḥkalam upalabhya kaścic cirah kaścic cirārham
ca, evaṃ vṛttiḥupaladbhīṇāṃ kālabheda viṣayasya tu abheda eva. tam evaḍhvānaṃ
What, then, is the function of the individual sounds which constitute a word? Each individual sound, says Bhartrhari, creates an impression (lit. 'seed') in the human mind, which is able (lit. 'mature') to perceive the word when the last sound has been heard. In other words, the mind receives the impressions of individual sounds, but it is only the last sound with the cumulative effect of the previous impressions that enables the mind to perceive the word. Individual sounds, then, are only a means to an end—viz., the manifestation of the really indivisible whole—the word, technically called "Sphoṭa." "It is this Sphoṭa that is the sole reality in linguistics; the parts, viz., the individual sounds, have only an illusory existence."

The above discussion shows that Kaiyyaṭa did not really maintain the breach of continuity of individual sounds. When, therefore, he speaks of a long ā as a repetition of several short ā's, he only resorts to imagery in order to support his thesis that the quality of a sound is not affected by its quantity. This is further corroborated by the fact that Patañjali strongly maintains the continuity of sounds when coming in immediate contact with other sounds. There is no doubt, says Patañjali, that time is a necessary element in the pronunciation of every group of sounds, and that no two sounds can be simultaneously uttered by the same speaker. Nāgēśa thus illustrates it: utterance of different sounds, like the various organic movements of a dancer, cannot be simultaneous. In sounds as well as in the dancer's movements, "there is always a sequence of different movements, although this time-element, owing to its minuteness, is not perceived." But, says Patañjali, sequence does not affect the continuity of sounds. Two sounds, when uttered one after the other, have a contiguity (saṃkhyā) whether they are pronounced in quick, intermediate, or slow speech.


1 Vākyapadīya, I. 85-86:

nādair āhitaśīyāṁ antyena dhanarinā sana, āvṛttaparipākāyāṁ buddhau sābdo 'vadārhitaye. asataś cāntarāle yāṇ chhabdān astiti gamyate pratipattur asaktiḥ sā grahaṇopāya eva saḥ.

2 On Pāṇini, I. 4, 109:

vastuto yatānyayapadīyam eva nartakyā nānāvayavacchinnakriyāḥ kṣana-bhedenaiva kālasaukṣmyat tu tadagraha ity āśayāḥ.
Continuity of sounds is not confined only to quick speech. The relative proximity of two sounds is therefore the same in all the three varieties of speech. For, continues Patañjali, contiguity here means that the continuity of the sounds is not broken, though their perceptibility in time may differ. For instance, the contact of an elephant with another, or the contact of a mosquito with another, is the same, relatively speaking, although the space which their bodies occupy is different. But "the difference of space does not affect the degree of continuity or proximity which the elephant and the mosquito have to their fellow beings."

In connection with his theory of the continuity of two sounds Patañjali makes a very interesting observation. He states that "the proximity of two sounds also implies the continuity of voice. Thus a breathed intervocalic consonant is slightly vocalized under the influence of the two adjacent vowels—e.g., c in pacati is affected (lit. 'covered') with the voiced sound from the two adjacent vowels, just as a white cloth placed between two red pieces of cloth appears to acquire their quality of redness." This remarkable observation of a living phenomenon, so conspicuously reflected in Prākrit, indicates that it had come to the notice of our grammarians as early as the second century B.C., and shows how wonderfully accurate their observation was.

To sum up, then, Patañjali's theory of quantity gives us two main principles: (1) rate of speech does not affect continuity; (2) quantity is independent of quality. The first principle, within certain limits, seems to be valid. There is no doubt that quantity often modifies the syllabic division of words, but this does not necessarily affect a break in the chain of connected speech. And Patañjali is, on the whole, right in observing that continuity is not broken even in slow speech, if he refers only to normal and unaffected speech. The first

1 tulyah samnikaro varṇânāṁ drutamadhyamavilambitāsu vṛttīsu. kiṁ kṛtas tariḥ viśeṣaḥ, varṇānāṁ tu kālabhiyayastam.
2 Kaiyyaṭa on P. 1.4, I. 109:
ḥastinaḥ ṣastiṇāḥ yah samnikaro māsakaṇaḥ sa tulyah parasparāpekṣa-
yeyarthāḥ. hastināvomahāntaṁ desaṁ vyāpnuto māsakau tu svalpam. naṁranta-
ṛyaṁ tu anavaisŚṭaṁ ity arthaḥ.
3 On P. 1.4, I. 109: hṛddāvīraṁ saṁhitā . . . atka yatraikāḥ pacaty ekaṁ pūrvaparayor hṛḍena prachoḍyate (Com.: dvaṣṭor akarṣyor ghoṣavāyor madhye cakāra ghoṣavān iva laksyata ity arthaḥ.) tad yathā dvaṣṭor rakṣyor vastraṇor madhye śuklaṁ vastraṇ ity sam gñunam upalabhyaṭe.
principle therefore indicates that the infinitesimal pause which he mentions as occurring between two individual sounds (see p. 173) was only a phantasy, and that he did not actually believe in it. Kātyāyana’s explanation that a long ā appears to be a repetition of several a’s, if strictly taken, would be inconsistent with this principle of continuity: the statement, however, was presumably an attempt to explain symbolically the sequence during the process of a long quantity, which modern science describes in terms of vibrations.

Patañjali’s second principle—viz., that the quantity of a sound is independent of its quality—is evidently indisputable. But Patañjali’s statement is very suggestive, and opens up a great subject for inquiry—viz., whether our grammarians’ classification of the so-called long and short vowels was actually based on a quantitative or a qualitative difference. The treatment of the co-ordinate vowels in the Prātiṣākhya is straightforward; they speak of the long and the short vowels as samānākṣara—simple vowels, based on quantitative difference—or savarṇa (lit. ‘of the same colour’), with the same place of origin and way of articulation. But, as is well known, both Pāṇini and the Vāj. Prāt. pointed out the fact that short a was “close,” and that to regard it as the short of long ā was only conventional. The commentary on the Vāj. Prāt. states in this connection that “a qualitative similarity between a which is close and ā which is open, is not possible, but they are treated as if they are qualitatively similar.” Our grammarians, then, recognized that in the case of the vowel a a difference of length was associated with a difference of quality, though they ignored it for grammatical purpose.

As regards the relation between vocalic quality and quantity, our grammarians are, on the whole, silent. Only a single line occurs in the Pāṇiniya Śikṣā that “a close sound has one mora, but an open sound has two moras.” It is not certain whether the author here confuses a close vowel with a short quantity, or whether he refers to an actual pronunciation in which close vowels were short. The latter case was possible in some dialects. This connection between quality

1 Rg Prāt., I. 11; Vāj. Prāt., I. 43, 44; Taitt. Prāt., I. 2, 3.
2 VIII. 4, 68.
3 I. 72: samāptasyaprayatnasaṃyakṣayayor dvimātika-trimātkayoh sāvarṇaṃ tulyam na sambhavaṣi savarṇavac ca kāryam bhavati.
4 ŚS, p. 380: samāptam mātrikam jñeyāṃ vie ṭam tu dvimātrakam.
and quantity in many languages is recognized by modern phoneticians.¹ My own pronunciation of the Lahndi vowels shows the same phenomenon—viz., a longer quantity in the case of open vowels, but shorter in the case of close vowels in similar situations. For kymograph measurements have shown that the average duration of the open short vowel a in chaṭ was 10.10, but of the closer vowels i and u in chiṭ and chuṭ was 8.5 and 9.7 hundredths of seconds respectively. Again, the average duration of the open long vowel ā in rās was 30.9, but of the closer vowels ī and ū in rīś and rūś was 19 and 26.2 hundredths of seconds respectively. The quantity of open and close sounds must have, of course, varied with different dialects, as it does in English, French, and German.²

* Standards of Quantity. *

The minimum standard of quantity was called aṇu, which, however, was said to be "too delicate" for perception.³ Thus the quantity of the voiced off-glide of a final voiced consonant was said to measure an aṇu,⁴ which "could not be described" in terms of any other standard. The Lomasā Śiksā compares the aṇu to a "particle (of air) reflecting the sun’s rays,"⁵ the spatial comparison being presumably intended to convey an idea of its delicate nature.

Next to this imperceptible scale came a standard which, according to the Vyāsa Śiksā,⁶ was "just perceptible." This was called paramāṇu,⁷ being equal to two aṇus; e.g., a consonant was generally measured as a paramāṇu or half-mora. This is another significant example of the unimportant position that Indian grammarians ascribed to consonants, which, according to this standard, were "just per-

¹ Cf. Jespersen: "Lehrbuch der Phonetik," p. 181. From Meyer’s measurements of English and German vowels Jespersen concludes that it is a general rule in language that close vowels are shorter than open vowels in similar situations.
³ Śambhu Śiksā, 46:

> indriyaśiṣyo yo 'sāv aṇur ity ukṣate budhāḥ.

Vyāsa Śiksā: kālo 'ti śaktamako 'nuḥ syāt. XXVII. 2.
⁴ Cf. Uvaṭa on Rg Prāt., VI. 11.
⁵ ŚS, p. 462: sūryarāmāṣprātikāśa kanikā yatra dṛṣyate.
⁶ mātrārdhan evyakamatram. XXVII. 2.
ceptible." There were perhaps phonetic grounds for this view; for final consonants in Sanskrit were incompletely articulated, and eventually disappeared; while intervocalic consonants also, to a great extent, met the same fate. Initial consonants, if members of a group, generally belonged to the preceding syllable in connected speech, and as in this case their quantity increased, they were said to be doubled, their quantity then becoming a full mora according to this standard. But it is hardly likely that the quantity of an initial consonant when followed by a vowel was always "just perceptible."

Next to the paramāṇu came the standard actually current—vik., the mātrā or the mora. The quantity of a mora was analogically described in several ways. It was compared by the Vyāsa Śikṣā¹ to a snap of the finger, by the Nārada Śikṣā² to a twinkling of the eye, by some authorities³ to a flash of lightning, and by the Rg Prāt.⁴ to "a note of the woodcock." In the absence of delicate instruments, these comparisons served as useful guides, though the "flash of lightning" was too quick for a mora—the quantity of the short vowel.

Next to the mora came the two-mora standard—the quantity of the long vowel—and was compared to the cawing of the crow, while the three-mora standard—that of the ultra-long or "pluta" vowel—was compared to the "note of the peacock."⁵ These comparisons also were evidently only rough conventional guides, otherwise it was hardly likely that the duration of the pluta in connected human speech could be actually so long as the note of the peacock.

The current practical standard of quantity, then, was the mora, and was subdivided into four parts, called the four anus. The Carāyaṇīya Śikṣā⁶ gives a curious physiological correspondence of these anus. The seat of one anus, called the Maṇḍala, was in the heart; that of two anus, called the dvirāṇava, was in the throat; that of three anus was on the front of the tongue; while the mora was physiologically spoken of as being "diffused." Was it mere phantasy, or has it some actual basis? Perhaps it symbolically represents a

¹ XXVII. 3: angulispōhanām yāvān tāvān kālas tu mātrikāh.
² ŚŚ, p. 432: nīmesakālā mātrā svād vidyut kālēti cāpare.
³ Ibid., op. cit.
⁴ XIII. 20: cāpas tu vade tu mātrām.
⁵ Rg Prāt., XIII. 20.
⁶ MS. Göttingen, Folio 7b: kṛdayastham māṇḍalām vidyāt kānte vidyāt dviraṇavam, trivraṇavam tu jīhvāgre viśrām mātrikām bhavet.
feeling of upward diffusion when a comparatively long sound is pronounced, the sound seeming to traverse a wider area and towards the higher vocal organs.

Rules of Quantity.

The rules of quantity, according to the Kāḷanirṇaya Śikṣa, were of three kinds—viz., "(1) those relating to vowels (‘indivisible sounds’), (2) consonants (‘adjunct sounds’), and (3) the pause."

There was another item, however, the quantity of which has been copiously dealt with in Indian grammatical works—viz., the Anusvāra. The author presumably included it among either vowels or consonants.

Quantity of Vowels.—Vowels were classified as short, half-long, long, and ultra-long (pluta or vṛddha). Of these four, the half-long or kṣiṣpra deserves particular notice, as it is interesting to note that the various gradations of vowels, mentioned by modern phoneticians, did not entirely miss the observation of our grammarians. The term ‘kṣiṣpra’ (‘quick’) occurs in a passage in the Pārāśari Śikṣa, in which the kṣiṣpra is spoken of as a variety of the long vowel, its quantity being one-half of that vowel. The whole passage may be translated as follows: "The kṣiṣpra variety of the long vowel is said to be an interval (of a snap?) of the finger: the kṣiṣpra has one-half the quantity of the long vowel. A long vowel cannot be further lengthened (presumably referring to Sandhi rules, in which two longs—one long). The number (of moras) of the fricative is said to be equal to that of a long vowel; half of its quantity should be taken as the kṣiṣpra."

The quantity attributed to the kṣiṣpra, however, seems to be contradictory; for it may be confused with that of a short vowel, which also was measured as one-half the quantity of a long vowel. Thus in another verse in the same passage the author says, "With a mora added, the vowel becomes long; with a mora reduced, the vowel becomes short (ḥraṣṭa). Know this to be the quantity of a vowel (lit. syllable).


3 ŚŚ, p. 55: kṣipraṁ dirgham samākhyātām aṅgulyām ekam antaram, dirgha-ardham bhavet kṣipraṁ nāsti dirghasya dirghatā, yadā saṅkhya tu dirghasya tatha coṣmā prakirita, uto dirghas ca kṣipraṁ kuryāt tad-ardhakam.
The *kṣipra* is a long vowel. Unfortunately the author does not give any examples of *kṣipra*; but some of the Śīkṣās give examples of what they call "slightly long vowel." Thus the Keśavī Śīkṣā states that in connected Vedic texts (Samhitāpātha) of the Vājasaneyi Samhitā, "a short vowel is pronounced slightly long. Thus the *i* in *iṣṭe* tvoṛē, the short *a*s in *vāyāva stha devāḥ*, the *i* in *pasūn pāhi*, will be pronounced slightly long." But when the short vowels are followed by a syllable containing a long *ā*, they are not lengthened; e.g., "the *a* and *i* of *sāvid*, and *a* (in *ja*) of *yājamāṇasya*, are not lengthened." The non-lengthening of the vowels before long *ā* possibly implies the effect of stress on the succeeding syllable, a phenomenon which has not been specifically mentioned by Indian grammarians. According to the Pratijñā Sūtra, however, which this Śīkṣā professedly follows, only the *a* of an initial syllable was slightly lengthened; thus the short *a*s of the initial syllables *vā* and *pa* in *vāsoḥ pavitrām* were slightly lengthened, but not the short vowels in *vāyāva stha*, as they did not belong to an initial syllable.

Again, the manuscript work the Pārśīkṣātīkā Yājuṣabhūṣaṇa points out that a short vowel should be pronounced like a long vowel in the Kampa accent (a form of Svarita when it was depressed before another Svarita or Udāṭta), as in *piṭḍdevatāyām hī etāt*, where the final *a* of *piṭḍdevatāyām* was to be pronounced "like a long vowel" before the succeeding Svarita. Perhaps here also a half-long vowel was intended.

The ultra-long vowel was usually called *pluta*, a term which the Vaidikābharaṇa etymologically explains as that which, "like an arrow, is far-reaching," presumably from *plu*, to "jump." Another term, *ūṛddha*, has also been used, though a few manuscript works

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1. SS, p. 55: *mātrā (?) saka bhavaḥ dirghaḥ krasvaṁ mātram vinā bhavet, ity aksaraṁ vījāniyāt kṣipraṁ dirghaṁ bhaved iti.*
2. SS, pp. 147-148: *krasvaṁ kīṃcid dirghaṁ kalyutākāre halvisargayugvarne ca na samhitāyām.*
3. III. 5: *pādyasya samyuktākāraasyesad dirghaḥ ca bhavati.* Cf. the modern tendency in Nepali to lengthen initial short vowels (according to a private communication from Professor Turner).
5. On Taitt. Prāt., I. 36:

\[śarādīvad diragrāmītvāt pluta ity ucyate.\]

6. Rktantra-Vyākaraṇa, II. 44: *tiṇo śraddhām.*
Lomāśī Śīkṣā, SS, p. 456: *krasvaṁ dirghaṁ tathā śraddhām abhidhitam tu sāmāgaḥ.*
point out a distinction between \textit{uṛddha} and \textit{pluta}. Thus the \textit{Hrasvādirghaplutamātrālakṣaṇa} (a manuscript treatise on the moras of vowels) says, “A short vowel with two moras added is called \textit{pluta}, but a long vowel with a mora added is called \textit{uṛddha}.” This distinction was interesting; for the ultra-long vowel arose from the long or the short vowel in various contexts: no Sanskrit word with an original ultra-long vowel has been met with. So when a short vowel became ultra-long, it was aptly called \textit{pluta} (“having jumped”), owing to the abrupt change that it underwent. But when a long vowel became ultra-long, it was called only \textit{uṛddha} (“increased”), the change being comparatively graduated. The quantity of \textit{pluta} was said to be three moras, but the quantity of the pluta diphthongs \textit{ai} and \textit{au}, according to \textit{Patañjali}, was four moras. The passage in which his view on this point occurs, starts with an interesting and suggestive discussion on \textit{Pāṇini}, VIII. 2, 106, according to which the second element of \textit{ai} and \textit{au} was \textit{pluta}. Here an objector states the opinion, attributed to \textit{Śakaṭāyana}, that both the elements of the diphthongs \textit{ai} and \textit{au} were equal, being one mora each. Therefore, says the objector, when \textit{ai} and \textit{au} become \textit{pluta}, “both their elements should uniformly increase in quantity, just as all the limbs of a child grow (uniformly) in the mother’s womb.”\footnote{Similarity, \textit{Cāravyāniya Śikṣā}, Fol. 6:} \textit{Patañjali}, however, does not accept this opinion; he seems to follow the opinion, expressed by the \textit{Ṛg Prāt.}\footnote{As mentioned by \textit{Ṛg Prāt.}, XIII. 16: \textit{sandhyesv eko ‘ṛdham ikāra uttaram yujor ukāra iti Śakaṭāyananaḥ.} Cf. \textit{Kālanirṇaya Śikṣā}: 6. \textit{aikārāvakārayor ādāv akāro ’py ekāmātrakāh ivarṇovarṇoḥ ēsau bhavetām atha mātrakau.}} and the \textit{Pāṇinīya Śikṣā},\footnote{\textit{XIII. 16:} \textit{hravānusvāra-vyatijāṅgavat pare.}} that the second element of the diphthongs \textit{ai} and \textit{au} was \textit{pluta}. Hence, according to \textit{Patañjali}, \textit{ai} and \textit{au} were equal, being one mora each. Therefore, says the objector, when \textit{ai} and \textit{au} become \textit{pluta}, “both their elements should uniformly increase in quantity, just as all the limbs of a child grow (uniformly) in the mother’s womb.”\footnote{\textit{Similāry, \textit{Cāravyānaśī Śikṣā}, Fol. 6: \textit{hravān dvimātrāsamuyuktam plutam āhur muniśīnaḥ, ‘ṛdham tu mātrāsyogaḥ uṛddham ity abhidhiyate.} Verse 1.} \textit{Patañjali}, however, does not accept this opinion; he seems to follow the opinion, expressed by the \textit{Ṛg Prāt.} and the \textit{Pāṇinīya Śikṣā}, that the second element of the diphthongs \textit{ai} and \textit{au} was \textit{pluta}. Hence, according to \textit{Patañjali}, \textit{ai} and \textit{au} were equal, being one mora each. Therefore, says the objector, when \textit{ai} and \textit{au} become \textit{pluta}, “both their elements should uniformly increase in quantity, just as all the limbs of a child grow (uniformly) in the mother’s womb.”\footnote{\textit{Similāry, \textit{Cāravyānaśī Śikṣā}, Fol. 6: \textit{hravān dvimātrāsamuyuktam plutam āhur muniśīnaḥ, uṛddhas trimātrām evāpi vyañjane tu ardhamātrakā.}}
$ai$ and $au$ was longer. On the basis of this opinion, he takes Pāṇini literally, and states that the second elements "$i$ and $u$ of these diphthongs being pluta, the diphthongs $ai$ and $au$ (including one mora of $a$) have four moras each." Kātyāyana, however, does not seem to take Pāṇini so literally. He interprets the $pluta$ of $i$ and $u$ as "long," and so, according to his opinion, the total moras of the $pluta$ diphthongs $ai$ and $au$ would have been three. Nevertheless, according to the view of both of these authors, the second element tended to be longer in Plut. This suggests, then, the question whether in the actual pronunciation of $ai$ and $au$ the second or the first element was longer, or whether both the elements were equal in quantity. Unfortunately, the question cannot be decided in the light of evidence from Pāli and Prākrit, because both $ai$ and $au$ have disappeared from Middle Indian. Interesting light on this point, however, has been thrown by the Āśvalāyana Śruta Sūtra.$^2$ This work prescribes that whenever $e$, $ai$, $o$, and $au$ are pronounced $pluta$, they should be resolved (provided that they are not pragṛhyā$^3$) into āśi, āśu; only the first element $a$ should be pronounced pluta—e.g., "$dvau$ was to be resolved into $dva3u$." And Pāṇini also, after prescribing that the second elements of $pluta$ $ai$ and $au$ are long, states in the next Sūtra that "in calling somebody at a short distance, the first element of non-pragṛhya diphthongs becomes $pluta$ (e.g., $dvau$ was resolved into $dva3u$)."$^4$ It seems to be curious how the quantity of these elements should have so much varied with different contexts: nevertheless, these prescriptions indicate that under certain conditions the first element of the diphthongs $ai$ and $au$, being more sonorous, was lengthened rather than the second element.

As regards the various conditions under which the ultra-long vowel occurred, we have few records of it in the Vedic Saṃhitās. Thus, as the Rg Prāt.$^5$ points out, pluta occurs only three times in the Rg Veda; in the (White) Yajurveda it occurs only "seven times, there

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1 siddham tv idutor dirghavacanaat.
2 I. 5: vivicya sandhyaksarāṇām akāraṃ na cet pragṛhya vyaujjanānto va. Com.: yāny apragṛhyāni sandhyaksarāni tāni vivicyākāram eva plāvayed iti. ekaraikārayor a3 ti okāraukārayor a3 ity evam vivicya pluṣṭि kāryā.
3 This distinction accords with the origin of the pragṛhya vowel, the final element of which was originally long.
4 VIII. 1, 107: ecu 'pragṛhyasyadurdādahute pūrvasyārdhasyād uttarasyedutau.
5 I. 16.
does not occur an eighth”—according to the statement of the Amoghānandini Śīkṣā;¹ in the Atharvaveda, according to Whitney,² it occurs fifteen times; in the Taittiriya Āraṇyaka, according to the Āraṇya Śīkṣā,³ it occurs “sixteen times.” But it seems highly improbable that pluta was confined only to these orthographical texts; it must have occurred in the living speech many more times than these records indicate.

That Pāṇini had noted the ultra-long vowel as a living phenomenon in the language will be indicated by the following interesting data which we find in his Sūtras:

1. Pluta of the final was used in calling somebody at a distance, as in “āgaccha Devadattaḥ!” (“Come, Devadatta!”).⁴ According to eastern grammarians,⁵ however, even a non-final vowel was lengthened in the above circumstances, e.g. Devadattā! or Deśvadatta!

This was presumably a dialectical difference due to accent, which may be illustrated by a somewhat similar contrast between Panjabi and Lahndi treatment of accented vowels in the vocative. Thus a Panjabi will call a man, say “Sitāram,” as “Sitārāmā,” while a Lahndi speaker will address him as “Sitārāmā,” in the former case the vowel ī, in the latter case the vowel ā being comparatively longer.

2. Pluta of the final also occurred in reply to a greeting⁶ (except from a Śūdra)—e.g., in “bhō āyuṣmān edhi Devadattaḥ!” (“Live long, O Devadatta!”). The tone of the pluta was said to be high in this case.

But Kātyāyana⁷ adds the restriction that pluta was not used in reply to a greeting from “a woman, a Śūdra, or a malicious person.” Evidently the person greeted here was a Brahman, and it was the Brahman’s pronunciation that has been recorded in this particular case. Yet it seems to be none the less real, alluding to the presumably indifferent tone in which the Brahman replied to greetings from persons of low status.

¹ saṣṭā pluta bhavanti hy aṣṭamo na vidyate. Verse 47.
³ visvā agnikā sāvitrām asanneva dvayam dvayam, devā ekaṁ nakāṁ spaṭa poṣatāranyake plutaḥ. 80.
⁴ VIII. 2, 84: durā dhūte ca. That Prākrit has preserved the pluta in this sense, has been pointed out by Pischel, p. 64.
⁵ VIII. 2, 86: guro anṛto 'nantyasyāpy ekaikasya prācām.
⁶ VIII. 2, 83: pratyahāvīvadē sūdre.
⁷ Ibid. op. cit.: aśūdraṣṭrasūṭyakesu.
3. In deliberation. Many of the examples in the Rgveda and the Atharva Veda texts indicate this sense—e.g., “adhâḥ svīd āśīṣt, upâri svīd āśīṣt?” (“Was it above, or below?”). But here Pāṇini adds the restriction that in secular speech (bhāṣā) only the first word or phrase had a pluta final, the second word remained without a pluta—e.g., “ahir nu3 rajjur nu?” (“Is it a snake or a rope?”).

This seems to be a suggestive observation, but we have unfortunately no means at present to judge its accuracy. Does it imply that the Vedic pluta beγαδιν to fall into gradual disuse in classical Sanskrit? Or does it indicate that the Vedic language in the time of Pāṇini had become more formal, and its speakers, in academic speech, used the pluta more strictly than they did in actual speech? Nevertheless, these data indicate that they were not fanciful speculations, but based on considerable observation.

Quantity of Consonants.—The quantity of a consonant, according to the majority of our grammarians, was half a mora; but according to the Atharv. Prāt. it was one mora; while in the opinion of the Rkatantra Vyākaraṇa it was “either a mora or half a mora.” It may appear curious to the modern phonetician why the ancients attributed to the consonant a quantity decidedly shorter than they assigned to a short vowel, while the kymograph generally shows the majority of consonants to be often as long as the short vowel, and frequently even longer. But it seems that the view-point of the ancients was different. They seem to have identified the duration of the consonant with the moment of actual audition, and neglected, for practical purposes, the on-glide and partly the contact stage of a plosive consonant for the measurement of its quantity. Moreover, vowels as a rule being continuous sounds, tend to take more time than plosive or flapped consonants. If, however, it was only a difference of view-point, the opinion of the Atharv. Prāt. seems to tally more with the modern scientific view.

The quantity of a consonant when followed by another, according to the Vyāsa Śiksā, was shorter—viz., a quarter of a mora. This

1 VIII. 2, 97: vicāryamāṇānām. 2 VIII. 2, 98: pūrvaṁ tu bhāṣāyām.
3 Rg Prāt., I. 16; Taṅtī Prāt., I. 37; Vāj. Prāt., I. 59.
4 I. 60. 5 II. 28: mātrārdhamātrā vā bhavati vañjananam ity adhikāraḥ.
6 XXVII. 4: halyuktam halutaraṁ tud anumātraṁ prakritam.
Com.: vañjanaṇaparam vañjanaṇayuktam vañjanaṇam pādamātraṁ prayujyate, yathā viśvaphniyā, halyuktam iti kim, yat tan na.
observation was very probably accurate, for, other things being equal, the quantum of energy is more likely to be distributed in the articulation of two consonants than of a single consonant—a fact which is likely to affect the quantity of the consonant concerned. Moreover, the great phonological fact of Abhinidhāna (incomplete articulation) in Indian languages seems to further confirm the accuracy of the observation.

The manuscript work the Sarvasammata Śīkṣā¹ is of opinion that the quantity of a consonant without a vowel is a quarter of a mora, but when pronounced with a vowel it is half a mora. The reason why a consonant was generally measured as half a mora was said to be “due to its frequent connection with a vowel.” According to the author, then, the additional quarter of a mora attributed to the consonant really belonged to the succeeding or the preceding vowel connected with it. There seems to be an element of truth in the author’s observation, for, as Roude² has pointed out, when a consonant is followed by a vowel, there is a very short duration (2 to 3 hundredths of a second) of articulating movement which is common to both, and which Roudet is inclined to attribute to the vowel. If this is true, the quantity of a consonant is really shorter than it appears to be, and the author’s quarter-mora is only a symbolic way of representing this fact. Moreover, his opinion seems to be consistent with the general view-point of Indian grammarians as indicated above, which identified the quantity of a consonant with the duration of actual audition. The quantity of a fricative, according to the Pāṇinīya Śīkṣā,³ was equal to that of a long vowel. This observation was, on the whole, sound, for fricatives, being continuants, often tend to take longer time than other consonants.

The lengthening of certain consonants after the Svarita accent, mentioned by the Vaidikābharaṇa, has been already pointed out (see pp. 168 ff.).

¹ 94: avaram vyāyanām nityam anumātram prayujyate, saṃsargacceti bāhu-lyān mātrā vṛddhaiḥ prakīrtiṭā.

Com.: nāmo anumātram ity uktam hrasvārdhakālam vyāyānam ity uktatvād iti cet, satyam, tad autsargikam, mātrāvṛddhiḥ saṃsargād iti bāhuyāt prācuryena vṛddhaiḥ prakīrtiṭā.

² Éléments de Phonétique générale, p. 231.

³ SS, p. 55: yathā saṃkhyā tu dirghasya tathā cospā prakīrtiṭā. āsmā dirghaṁ samaitva ca kṣipraṁ kuryāt tadadarśhakam.
Many more details regarding the quantity of consonants have been given by the Vaidikābharana and a few Śīkṣās, which presumably refer to pronunciation of individuals or isolated areas, and the accuracy of which we have no means to judge in this age. For instance, the Vaidikābharana quotes a Śīkṣā1 according to which “a consonant after a long vowel is a quarter-mora shorter than after a short vowel.” This cannot be accepted as a necessary truth, and must vary with several additional circumstances—e.g., stress, quantity of adjacent sounds, and the phonetic tendencies of a particular speaking area. But other things being equal, this compensatory shortening was no doubt possible, as may be indicated by the simplification of double consonants after long vowels in the living dialects. Again, the quantity of a nasal consonant, according to the manuscript work the Āpiśali Śīkṣā,2 “after a short vowel was equal to that of a long vowel, viz. two moras.” Observations like this evidently refer to some dialect which it is now difficult to trace.

Quantity of the “Pause.”—The third section on the rules of quantity, according to the Kālanirṇaya Śīkṣā, was related to the “pause.” Indian works on phonetics have given very minute and exhaustive details on the quantity of the “pause,” but it is difficult to determine what they really meant by the term, and so it is impossible to examine these details. The commentary on the Vyāsa Śīkṣā3 defines it (vīrāma) as a “time of silence.” But the definition becomes obscure when it is applied to the actual phenomena mentioned by our grammarians.

The most important of these phenomena was said to be the hiatus. Thus the quantity of the hiatus in vā iyam, when a long vowel was followed by a short vowel, was said to be one mora (according to the Pārīśīkṣātikā)4 or half a mora (according to Uvaṭa).5 This “interval of silence” between one sound and another, if strictly taken, was inconsistent with the Indian theory of the continuity of sounds as discussed above. Nor are there any positive grounds for the supposi-

2 16: dvimātra uttamō hravād adhyarødho vyañjanāntaraḥ dirghād anantarās tadvan mātriko vyañjanāntaraḥ.
3 XXVII. 5: vīrāmaḥ varṇayor madhye hy anukālo 'py asaṃyute.
   Com.: . . . “vīrāmaḥ tūṃṅhūtaḥ kālaḥ syat.”
4 135: hravottārā yatra tu dirghapūrva vatāṇusāriny api saikamatrā.
5 On Rg Prāt., II. 1.
tion that the hiatus was accompanied by a glottal stop, for it has not been mentioned by Indian grammarians, and no such tendency has been so far discovered in modern Indian languages. By “pause,” then, Indian grammarians, to be consistent with their view of the continuity of sounds possibly meant a “glide” between one sound and another, and this seems to be confirmed by the Rg Prāt.,¹ which attributes only a very infinitesimal time, a quarter of a mora (time of a Svarabhakti) to the hiatus. The quantity of the “pause” was said to be longer between long vowels than between short vowels; thus the “pause” in tā īm was longer than that in prā ṛbhīḥṣaḥ,² perhaps because in the former case the quantum of energy was more diffused. Again, the “pause” between long vowels of different quality was said to be longer than that between long vowels of the same quality—e.g., it was longer in etā evā than in vā āranyam,³ probably because in the former case a change in the position of the articulating organs requires more time.

Again, according to the Rktantra-Vyākaraṇa⁴ and the Vyāsa Śikṣā,⁵ the “pause” between two individual sounds in general had a duration of a quarter of a mora, except in a consonant-group, where there was said to be no “pause.” The commentary on the Kālanirñaya Śikṣā,⁶ however, rightly combats this view, and says that “if there were a ‘pause’ between a consonant and a vowel, then the quantity of the vowel in tat would become ultra-long (piuta), but this is never so perceived.” It seems, then, that the “pause” indicated a glide the length of which was over-estimated by some authorities, and kept within more reasonable limits by others.

**Quantity of the Anusvāra.**—Besides the “three sections” on the rules of quantity, there is another item on which our grammarians

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¹ Rg Prāt., II. 1.
² Uvaṣa on Rg Prāt., II. 1: ubhayato dīrgāḥ pādonamātransa tā īma varādhēti.
³ Pārisikṣā: syātāṁ vinumā aci yatra yasyāḥ, ādyantayo cāpy asvarṇadīrghau, madhye visargo yadi vāpi mā vā vaisēśikā mātrikākālayuktā. 139.
⁴ savarnahūtāv api tau bhavetām, sā pādamātra ca pipilikā syāt. 141.
⁵ II. 34: varṇantaram paramānu.
⁶ virāmo varṇayor madhye 'nukalo 'py asaṁyute.
⁷ yadi svarasyaṇjanayor madhye 'pi virāmaḥ syāt, tadā tad iti padaṁ plutena samakālam avagamyeta, na cāragamyeta. On verse 25.
give exhaustive details—viz., the quantity of the Anusvāra. The
details, however, are of a very minute and subtle character, and
probably refer to the pronunciation of individuals or isolated areas.
We have, therefore, no means at present to judge their accuracy.
For instance, the Śīkṣās assert that the Anusvāra was “long after a
short vowel, but short after a long vowel. Thus it was long after
haṃsa-, but short after māṃsa.”¹ The Taitt. Prāt.,² however, speaks
of the Anusvāra as being only “short.” The question, then, referred
to the length of nasal consonants according as they followed a short
or a long vowel, and this must have varied with different dialects.
For example, Lahndi seems to confirm the observation of the Śīkṣās,
for corresponding to Sanskrit long vowel + Anusvāra we have in Lahndi
and Panjabi sometimes the long vowel without the Anusvāra—e.g.,
Skr. māṃsa-, but Lahndi mās. But after a short vowel Lahndi has
preserved the nasal: cf. Sanskrit daṃśa-, Lahndi daṅ; Sanskrit vamśa-,
Lahndi vaṃñh. Also cf. Sinā mos, Nepalī mās (=māṃsa-); Hindi kesu
for Skr. kaimśuka-

¹ Laghumādhyaṇḍinī Śīkṣā, ŚS, p. 115: hravat paro bhavat dirgho haṃsa iti
nidarśanam, dirghat paro bhaved dhravvo māṃsebhya iti darśanam.
² L. 34.
CONCLUSION

Our study of Indian grammarians has thus established two fundamental points:

1. The reality of the observations. India has been said to be a land of dreams and subtleties. But the above study gives us a view of Indian grammarians in an unexpected light. The chapters on Quantity and Doubling have particularly by prevalent & local accuracy of the observations, a thorough examination by them. Abhinidhaṇa, for instance, which was largely represented in old by foreign influences, has for the profound changes in the consonantal system of Prakrit and some Aryan, was observed to be of the minutest details.

2. A basis for Indo-Aryan philologists is sometimes added to the question of the transliterations of the Sanskrit literature. It may have been phonetically wrong. But so far as the phonetic descriptions of the Indian grammarians are concerned, it has been able to show the phonetic descriptions of Indian grammarians. The Indian phonology will therefore find a basis and a defence for its systematic influences. The study will make Indian linguistics as firmly based on evidence as possible.

3. A help for the solution of several points. It is well known that our study has not a mere antiquarian interest, but that it has a modern linguistic application. Some of these—e.g., the short quantity of मृदुल्लभ—will have been noted on page 187, and it may be hopeful that the rest will find in this study several problems of similar importance.

4. A stimulus for further research. There are several other lines of inquiry.

The points mentioned by the Śikṣās, which, although not directly connected with the present evidence we possess at present, may have to be seen in the Aryan dialects. For instance, the remarks of the Śikṣās on the diphthongization of s and h (pp. 113-115), and on Svara (pp. 84 ff.), may stimulate the exploration of similar phenomena in other unknown dialects, and thus lead to the "Forgotten Mother Tongue" of the Indo-Aryan.
INDEX OF WORDS QUOTED FROM INDIAN GRAMMATICAL WORKS

aṁśūnā, 81
akārṣam, 86
akṣauhiṇī, 27
akṣṇaṇayā, 122
aggni-, 139
agāṇi-, 145
agənīm, 67, 68
ahā, 101
ahādi, 101
ahāyavāsya-, 75
ahāṭṭa-, 111
annapate, 101
abhīgudhya-, 129
abhūtamaḥi, 73
abhūtastmahi, 73
arihā, 133
arkkṣā, 69, 70
alā-, 130
alāva-, 130
avatākām, 142
avalaumpatū, 166
aέpma, 121
aέpman-, 123
aśman-, 146
ahrayaḥ, 115
ahhratam, 115
āḍhūḥ, 34
ākṣkīdate, 101
ātūnā, 67
āpo ṣo
āprānānam, 80
āpr̥ṣānānam, 80
ār̥tini, 83
āśi, 183
āśiva-balabala-, 130
āsé, 179
āvstimu-, 42
āvādavati, 156
āyū-, 60
āyādeśe, 60
pāḍbhikpled-, 111
pāk(?)tritā-, 60
ajatkāḥ, 142
avabhīṣmāt, 80
kanyā, 156
kamīṣyante, 43
kāσ, 155
kāṇḍārdaraḥ, 85
kārtōṇya-, 110
kuvala-, 130
kūpa-, 55
krṣṇa-, 121, 123
kr̥pna-, 146
kr̥ṣṇi-, 166
kr̥ṣṭa-, 57
kr̥mī-, 59
kr̥vī-, 59
gej̥jha-, 131
gri̥pmma-, 121, 123
gri̥mmta-, 121
jamunā, 155
jakha-, 128
javāt, 127
javāthi-, 128
jas-, 128
jarājju-, 127
jihma-, 80
tamṇ, 151
takrāṇ, 149
tat, 186
tatāsatuḥ, 71
tilāḥ, 166
tis-, 59
tr̥ṣya-, 59
tr̥ṣṣunā, 80
tvān, 43, 152, 153
dagdaḥ, 138
datta-, 139
dādāsi, 22
dāyādu-, 128

189
darīśa-, 133
darekatāṁ, 135
(yā)darśarpārṇamāsa, 84, 85
dudhure, 115
deara-, 128
Devadatta3, 182
Devadatta, 182
Deśvadatta, 182
dvaśu, 181
ḍakṣēmovya-, 110
ḍhājjā, 127
ḍhūrsūdam, 85
ḍhūruṣadām, 85, 136
nayana-, 128
nayva-, 77, 78
nīkkevaḷya-, 122
nuś, 183
nṛpājjam, 127
nṛṇ, 150
pakoṇama-, 110
pacati, 174
pattkī, 145
padma-, 79
parōcāyaṃ, 77
pravāhuj, 101
pārēṣayena, 135
pāvīrītram, 179
prāvivataḥ, 135
pārśṇyā, 68
pārśvam, 68
pāhī, 179
pitrōdevatās, 179
prakkīdate, 101
pragālibha-, 120
pratārindram, 58
pravṛṇude, 27
prāśnī, 81
barha-, 115
bāhu-, 130
| bāhka-, 127 | varṣa-prāya, 68 | samāsthā, 145 |
| bhrad-, 130 | vala-, 130 | sampjoga-, 128 |
| brahma-, 80 | valā-, 141 | samyajñībhīṣa, 58 |
| brahma-, 122, 130 | valāh, 147 | samyak(ekavanti), 105, 106 |
| brahma-, 122 | vatsakārēṇa, 142 | samyak(ekavanti), 27 |
| brahmā-, 145 | vaśoḥ, 179 | samya-jñāpati-, 127 |
| bhriyanta-, 60 | vāñhita-ma, 145 | samya-yāumi, 127 |
| nāhā-, 153 | vā, 130 | savitā, 179 |
| mayākha-, 34 | vā, 126 | samyvatēmi, 127 |
| marudbhīṣ, 137, 138 | vām, 130 | samyavacase, 127 |
| mārya-, 60 | vāsāṃsi, 82 | adārāpanam, 86 |
| mard-, 60 | vāyava(sth), 179 | sahasra-stṛṣam, 85 |
| māṃs-, 22, 189 | vīvala-, 130 | simha-, 22 |
| māsa-, 22 | vīvapanyasya, 73 | simhi-, 145 |
| mukha-, 138 | vīvapanyasya, 73 | simha-, 115 |
| yājamānasya, 179 | viṣṇu-, 123 | sūdga-, 156 |
| (yu)nākyeyva, 51, 110 | viṣṇu-, 130 | sūra-, 127 |
| yuṇāmavam, 153 | viśnu-, 123 | apparaka-, 121 |
| yuṣṭa-, 55 | viśnu-, 81 | svatavānah, 150 |
| yajamānasya, 127 | viṣṇu-, 111 | svapnma-, 79 |
| yajñādi-, 127 | vriñṭe, 153 | svairini, 27 |
| rakṣaṃs-, 22 | vriṣṭhavam, 153 | sīnātva, 81 |
| rāṣṭva, 113 | vai, 130 | kāmca-, 187 |
| ripi-, 59 | vṛddhi-, 127 | hasti, 121 |
| riḍādas-, 59 | vruṣaḥ, 127 | holkaraḥ, 7 |
| riṣē, 60 | vṛṣaḥva(sth), 127 | holkaraḥ, 7 |
| rukkma-, 79, 111 | ṣatāvaliṣa-, 136 | hūrdeśit, 135 |
| repan-, 60 | ṣatāvalēśaḥ, 135 | hṛradama, 115 |
| lokam, 43 | ṣāsva, 113 | hṛradina, 115 |
| vaḥ, 130 | śīnte, 153 | hṛiyate, 115 |
| vaśrva-, 110 | saṭṭa-santaḥ, 72 | hṛvāyāmi, 115 |
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