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THE PRONUNCIATION OF SANSKRIT*

By

SUNITI KUMAR CHATTERJI, *Calcutta*

Sanskrit as a language has been studied in India ever since the Vedic hymns and rituals began to be taught in the priestly schools, and the legends and traditions and history as current among the Aryan-speaking peoples of North India began to be collected, from Vedic times onwards; and the study of Sanskrit has thus had a continuous and unbroken history for 3000 years and more. Sanskrit is the classical language of India *par excellence*, and at one time it was also *the* classical language of certain countries outside India—particularly in South-Eastern Asia and Indonesia and in Central Asia; and it used also to be studied in Tibet, in China, in Korea and Japan, in Mongolia. At the present moment Sanskrit is of paramount cultural importance for India itself. Its cultural value is almost equally great in Ceylon, and only to a lesser extent in Siam, Laos, Cambodia, Burma and Indonesia. The language has never been dead in India. Its very detailed study has gone on through the centuries long after Sanskrit (or some dialects analogous to it) ceased to be a spoken language, and composition in Sanskrit on a very large scale has gone on and has come down through the centuries unabated to our times. There is no part of India which has not taken an active interest in the study and propagation of Sanskrit throughout these 30 centuries. Sanskrit is used in conversation and as a *lingua franca* among a large section of the élite in India, whether orthodox Brahman scholars or Jaina monks, or students in Sanskrit Schools as well as in Modern Schools and Universities. Public lectures in Sanskrit are quite a common phenomenon; and Sanskrit dramas are performed by learned associations in different parts of the country, and they attract large audiences, who know the story and in general can follow the action and also to a large extent the language. It is the language of Hindu religious ritual; and till recently, in many of the high schools in India, Sanskrit was a compulsory classical language for Hindu students.

In the course of these centuries of its existence in India as the true National Language of the country, Sanskrit has taken the colouring of the spoken languages in the different areas. The Grammar of Sanskrit was

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fixed finally by Pāṇini, who has been placed by competent scholars in the 5th century B. C.; and everywhere the Pāṇinian norm is followed in Sanskrit, and there is no question about that. But Sanskrit pronunciation has altered in all parts of the country. As a matter of fact, there has been a development in the sound-system of Sanskrit also, and we can note the successive stages in which the sound-system of Sanskrit underwent changes century by century and became transformed into the sound-system of the Prakrits; and subsequently the Prakrit sound-systems in different parts of the country in their turn became transformed into the sound-systems of the *Bhāshās* or the Modern Indian Aryan Languages. This normal change of Sanskrit through Prakrit into the Modern Indo-Aryan languages is, of course, expressive of the historical development of the language in its phonetics and phonology. But after Sanskrit became an obsolete speech in its grammar, and began to be studied, mainly as a cultural language, in learned literature and in conversation, in religious ritual as well as in the staging of dramas, in public recitation of *Purāṇa* stories and so forth, its pronunciation naturally enough also could not remain uniform all over the country. It changed from century to century, and changed also in the different parts of the country. There were attempts on the part of scholars to restore what was considered to be the correct ancient pronunciation of Sanskrit. But these attempts were not always successful. The result of it is this that at the present moment we have in different parts of India various standards or traditions of Sanskrit pronunciation. Some of these are fairly correct, from the ancient standards; others are very much modified by the vernacular habits of pronunciation as current in the different language-areas. Each area whether speaking an Aryan language, or a Dravidian language, has at the present moment its own special tradition of Sanskrit pronunciation. The attempt or ideal generally is to resuscitate or follow the norm as presented by Pāṇini in the 5th century B. C.

But Sanskrit as it was spoken in its earliest or Vedic form, say about 1000 B. C. or earlier, in certain matters was unquestionably different from the Pāṇinian standard of the 5th century B. C., like Homeric Greek differing from the Attic. Then, again, when Sanskrit ceased to be a spoken language, some centuries before the Christian era, we have newer developments in the pronunciation of Sanskrit as a cultural language. In subsequent centuries we have similarly a series of changes in Sanskrit articulation. These are in the main represented in the modern local traditions in the various parts of the country.

To arrive at a knowledge of the development of Sanskrit pronunciation in the different centuries, we have to take help of the following matters :

(1) Modern Practice as we have it at the present day in the different language-areas of India and in Ceylon in pronouncing Sanskrit;

(2) Ancient Theory and Ancient Description as found in the Prātiśākhyas and grammatical works, beginning from the middle of the first thousand years before Christ;

(3) The Indian System of Writing and its application to the sounds of Sanskrit from its inception—from the 4th century B. C. onwards. The peculiarities of orthography and sometimes even mistakes in spelling as preserved in ancient contemporary documents have a great value in giving us some glimpses into the actual state of Sanskrit articulation in the early times;

(4) The History of the Development of Prakrit or Middle Indo-Aryan out of Vedic and (Classical) Sanskrit representing Old Indo-Aryan; and also to a lesser extent the history of the development of the *Bhāshā* or New Indo-Aryan from Prakrit;

(5) The early Transcription of Sanskrit Names and Words in foreign languages like Greek, Iranian, Chinese, Arabic etc., and similar transliterations of words from foreign languages in Sanskrit and the Prakrits;

(6) The Comparative Phonology of the Indo-European languages, which would help to establish the pronunciation of Sanskrit in the oldest period; and finally,

(7) Modern Phonetics, which is to consider, check up and correlate the evidence from the above 6 sources.

In this way we can arrive at something precise with regard to the pronunciation of Sanskrit from the oldest i. e. Vedic period onwards. In this matter we are certainly on a much surer ground than in the case of the pronunciation of the ancient Greek or Latin, which of course has been built up bit by bit by modern scholarship; and this was facilitated by the better and fuller and more scientific type of the phonetic material which we have for Sanskrit and other Indian languages.

In India, at the present moment, according to the old tradition, Sanskrit scholars of the old type were quite content to follow their traditional pronunciations as they obtained in their various localities, pronunciations which went hand in hand with those of the local living or colloquial speeches. This practice is to a large extent followed in the various language and dialect areas. The traditional, local systems of Sanskrit pronunciation, it must be said, have never prevented mutual intelligibility in the different areas, although there are some extreme cases of local differentiation or aberration (as for example in Easten India—particularly in Bengal both West and

East, and in Assam) which do not permit immediate understanding for th greater part of India. There is generally a vague desire to follow a pai Indian norm in this matter, which cannot be fulfilled as there is no speci care taken for this. But Sanskrit as taught in the modern English schoo throughout the greater part of the country could not remain unaffecte by the desire to follow the Common Indian Norm. It is generall admitted that the best kind of pronunciation which conforms to very large extent to the Pāṇinian norm is that preserved by the Sanskri scholars, particularly those who have specialised in Vedic studies, i the Dravidian-speaking countries of the South—the Andhra or Telugu country, the Tamil country, and Karnataka; and also in the Aryan-speaking Maharashtra. A modern pan-Indian norm is now developing for the whole of India, and this is based on the pronunciation of Sanskrit as it obtained among Maharashtrian and South Indian *paṇḍits* and *śāstrins* settled in Banaras from the 18th century, modified by the local *paṇḍits* from Eastern U.P. and Mithila. In this new and composite type of pronunciation, some of the peculiarities of Eastern U. P. were dropped, and attempts are made to bring in the pronunciation of the South. This has not yet been universally accepted, and many parts of India like Assam and Bengal and Mithila and Orissa as well as Panjab and U. P. are still far from coming up to this standard. But this standard, sometimes known as the "Banaras Pronunciation", is generally regarded as correct and authoritative, and it is helping to bring about this desired result, viz. the establishment of a Modern All-India Standard of Sanskrit Pronunciation which runs close to the Pāṇinian tradition.

In the present paper I am trying to give a consideration of the Sounds of Sanskrit according to the old Paṇinian Standard (with certain inevitable modifications in modern times). I am also attempting to give an indication of the various present-day types of pronunciation for each of these sounds, particularly to guard those, who have local forms of articulation, against deviation from what may be described as the old Pāṇinian norm, as adopted for present-day pan-Indian uses.

What is described below is primarily the sounds of Classical Sanskrit as they were current in North-Western and Middle India (the area from the Panjab to Western U. P. roughly) in the middle of the first millennium B. C. The earlier Vedic standard presented certain special and older characteristics which were lost during the 500 years, from say 1000 B. C.; and incidentally, these also have been noted.

In discussing these sounds of Classical Sanskrit, the sounds and illustrative words are given first in the Devanagari (or Nagari) script, which is now accepted as the pan-Indian script for Sanskrit at the present day, and

which fully represents all its sister-scripts in India, with the pronunciation indicated by the alphabet of the *International Phonetic Association.*

THE VOWELS

The vowels of classical Sanskrit are the following : अ /a/, आ /a:/, इ /ɪ/, ई / i:/, उ /u/, ऊ /u:/, ए /e:/, ऐ /ai/, ओ / o: /, औ / au /.

These are the ordinary *true* vowels, and there were besides 3 vocalic liquids (or sounds which are really consonantal but behave like vowels in forming syllables) : ऋ /r̥/, ॠ / r̥: /, and ऌ /l̥/.

Under certain conditions, the pure vowels of Sanskrit were prolonged with a nasalised extension following it (*Anusvāra*), or with an unvoiced extension (*Visarga*). This is noted below.

Of the normal vowels of Sanskrit /a/, /i/, /u/ and /a:/, /i:/, /u:/ were simple vowels, and /e:/, /ai/, /o:/, /au/ are known as Diphthongs (*Sandhyakṣara*).

The following observations may be made about the various vowel sounds, simple as well as diphthongal.

1. /a/ at the present day has got quite a number of different pronunciations in the different parts of the country. The commonest pronunciation for the greater part of India, both North and South, for this short vowel is the sound which we have in the English word *son* or *sun*, which is represented in the phonetic script by the symbol /ʌ/—/sʌn/. In the Upper Gangetic Valley (Central and Western U.P.), Panjab, Rajasthan, Gujarat and Madhya Pradesh generally, as well as in the Dravidian-speaking countries, this /ʌ/ pronunciation obtains. In Assam, Bengal and Orissa and in considerable parts of Bihar (under certain circumstances), the pronunciation of this short /a/ is something different. It is a rounded vowel, which is like the English sound of /ɔ/ as in *law* or *ball*, /lɔ:, bɔ:l/, only this sound is both long and short in these languages. In the Maratha country, the common substitute for the pan-Indian /a = ʌ/ is a very peculiar sound—that of an un-rounded /o/, a sound which is represented in the International Phonetic Script by the symbol /ɤ/. In Bengal, and in Assam also, owing to a number of phonological laws, this rounded vowel /ɔ, ɔ:/ frequently becomes a frank /o/ sound. When unaccented and weak, where the /ʌ/ pronunciation obtains, it becomes the "neutral vowel", /ə/, the sound heard in English *ago*, *China* /əgou, tʃainə/. Thus the Sanskrit word अमर would be pronounced as /ʌmʌr/, or /ʌmər/ in the Hindi and Panjabi and Rajasthani areas as well as in most other parts of North India; as /ʌmʌrʌ/, /ʌmʌrə/, /ʌmərə/, /əmʌrə/, and even /amʌrʌ/,

in the Telugu, Kannada, Tamil and Malayalam areas; as /ɔmɔr/ or even /ɔmòr/, in Bengali and Assamese; as /ɔmɔrɔ/ in Oriya; and as /ʌmʌr/ or /ʌmər/ in Marathi.

All these are the modern pronunciations of the short अ /a/. From the accounts of Pāṇini and other ancient grammarians, it would appear that the /ʌ/ pronunciation as current in North India and in the South had already come into existence in the 5th century B. C. But the oldest pronunciation of this short अ /a/ was something different. As a matter of fact, two pronunciations of this short अ /a/ have been envisaged by the ancient Indian grammarians : one was a broad, open-mouthed short /a, ɑ/, which was the short form of the vowel which we have in the English word *father* /fɑ:ðə/, or the exact short form of the vowel in the Sanskrit word माता *mātā* /ma:ta:/. This open-mouth pronunciation /ɑ, a/ is known as the *vivṛta* or open or broad pronunciation, and the other pronunciation, known as the *samvṛta* or closed pronunciation, evidently was the one which obtains in present-day India as /ʌ/. The last *sūtra* or rule in Pāṇini's Sanskrit grammar makes it clear that Pāṇini knew this development in the Sanskrit language as he had described it. From Pāṇini's statement we can see that the open pronunciation, like the short form of the long vowel as in /ma:tɑ:/, was the older pronunciation, as it can be inferred from the historical development of Sanskrit; whereas the closed pronunciation, like the Modern Indian /ʌ/, was a later transformation which developed subsequently and became established in the time of Pāṇini. If we are to read Sanskrit as it was pronounced in the Vedic period, then we are to pronounce अमर *amara* as /ɑmɑrɑ/, and not as /ʌmʌrʌ/ or /ʌmərə/, as we do in both present-day North India and South India.

For a narrow transcription of Sanskrit in the various linguistic areas, we might use for अ /a, ʌ, ɔ, ʏ, ə/, according to the local pronunciation. But for practical purposes, in a broad transcription, to represent the pan-Indian standard of /ʌ/, we might be content to use just ordinary /a/, taking it for granted that this /a/ is to be pronounced like /ʌ/.

In Panjab, Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh, short अ /a = ʌ/ in final and unaccented positions is generally dropped, particularly at the end of words and syllables. This is the habit in the spoken languages like Panjabi, Western Hindi, Kosali, Bhojpuri, Maithili, Magahi, Rajasthani etc. This vernacular habit invades the pronunciation of Sanskrit also, so that a short /a/ (with other short vowels) is frequently dropped in reading or speaking Sanskrit—a dialectal habit which has got to be avoided in reading or speaking Sanskrit : e. g. *Bhārata-varṣa* is pronounced as /bɦa:rət-βʌrś(ə)/ *Rāma-candra* as /ra:m-cʌndr(ə)/, *Deva-sabhā* as /de:β-sʌbɦa:/, *Hara-Gaurī* as /hʌr-gʌuri:/, etc. This has a very ugly effect and makes Sanskrit sound

like a Modern Indian Language : *Svara-hantāra Uttara-deśīyāḥ* " the Northerners are vowel-killers," as I have heard this observation in South India.

2. /a:/—This is a back open sound which was always long, and its point of articulation was probably as far back as in the case of the English ɑ:/ in the word *father* or *half*. It is now pronounced in a more central position. It can be represented by /ɑ:/, or, as a simple device, by /a:/.

3. /i/—This is the high-front open sound, and probably approaching the cardinal /i/. It is possible that short /i/ was pronounced in a rather lax manner towards the end of the Vedic period when it preceded a group of two consonants. This is suggested by the fact that in Middle Indo-Aryan (Prakrit) the development of Old Indo-Aryan (Vedic and Sanskrit) /i/ was e/ before a consonant-cluster in a large number of words, e. g. *Viṣṇu* > *Veṇhu*.

4. /i:/—the long form of the preceding vowel—originally it was also very like the cardinal sound. Before two consonants, in late Old Indo-Aryan, it probably acquired a short quality as a vowel sound, and in Middle Indo-Aryan this shortened /i/ had a tendency also to be laxly pronounced and to be changed finally to /ĕ/.

5. /u/—This is the high-back sound, and it was probably very much like the cardinal /u/, just as in the case of the short /i/. This short /u/ was also probably laxly articulated before consonant-clusters, and that is why we find this short /u/ becoming short /ŏ/ in Middle Indo-Aryan (Prakrit).

6. /u:/—This is the long form of the short /u/, and as in the case of the long /i:/, this vowel was also pronounced short before two consonants.

7. /e:/—This vowel was always long in Sanskrit—a pure long vowel like the sound we hear in Scottish English *gate, raid* /ge:t, re:d/. It is described as a 'Diphthong' (*Sandhyakṣara*) by the ancient grammarians. It would appear that originally it was just a simple diphthong, consisting of a short /ă/ plus a short /ĭ/, = /ăĭ/. Then the two component vowels of original diphthong appear to have combined and given rise at first to a rather open ɛ:/ sound, a long form of the vowel we have in the French word *père* /pɛ:ʀ/. This low or open /ɛ:/ sound appears to have become later on modified to the closed /e:/ sound by Pāṇini's time : and this has continued down to our day in the pronunciation of Sanskrit.

Thus, Sanskrit देव, मेघ were originally, in early Vedic */dăĭwɑ, măĭgɦɑ, then */dɛ:wa, mɛ:gɦa/, and finally, in Pāṇini's time, /de:vʌ, me:gɦʌ/.

The original diphthongal character of /e:/ is borne out by the fact that while original /ăĭ/ became ए /e:/ before a consonant, it became अय् /aj/

before a vowel : e. g. root जि /ɟi/ 'to conquer'—/ɟai-tṛ, ɟai-ta: > *ɟɛ:ta:, ɟe:ta:/ = जेता 'conqueror'; but /ɟai-aḥ > ɟajah/ = जयः 'victory'; so root नी /ni:/ 'to lead', /nai-ta: > *nɛ:ta:, ne:ta:/ = नेता 'leader', but /nai-ah > najah/ = नयः 'leading'.

8. /ai/—In Classical Sanskrit as in Pāṇini's time this evidently was just a simple short diphthong—a short /a/ (or /ʌ/) followed by a short /i/. But there is evidence to show that originally it was a long diphthong, i. e. a diphthong with the first element long : it was /ɑ:i/, or perhaps /a:i/. Then the first element became shortened, and later on the value of this diphthong became /ăi/. The original long quantity of the first element of this diphthong is preserved if the diphthong occurred before a vowel in a word—e. g. नी /ni:/ 'to lead'—/na:i — na:i + aka = na:iaka, na:jaka/ = नायक 'a leader'; root गै /ga:i/ 'to sing'— /ga:i + aka > ga:jaka/ = गायक 'a singer'.

9. /o:/—The history of this sound was parallel to that of /e:/. In Classical Sanskrit it is always a long vowel, comparable to the sound we hear in Scottish English *bone, oak* = /bo:n, o:k/. Originally this was also a diphthong, and its value in Vedic Sanskrit was evidently that of short /a/ or /ɑ/ plus short /u/. This was first combined to give a low or open /ɔ:/ sound, and then it was changed to long /o:/ : e. g. द्रोह, घोष were originally /drɑŭɦɑ, gɦɑuṣɑ/, then probably */drɔ:ɦa, gɦɔ:ṣa/, and finally /dro:ɦʌ, gɦo:ṣʌ/. The occurrence of the short diphthongal /ăŭ/ pronunciation is clearly indicated by the fact that while before a consonant /ăŭ/ was contracted to /ɔ:/ and then /o:/, it became /aw, aṿ/ before a vowel : e. g. स्तु /stu/ 'to praise'—/stăŭta:, stăŭ-aḥ/ become /sto:-ta:/, staw-ah > stavah/ = स्तोता स्तवः 'one who praises, praise'; भू /bhu:/ 'to be'—/bhau-ah > bhaw-ah, bhavah/ = भवः 'being'; etc.

10. /au/—This also runs parallel to the diphthongal /ai/. In Pāṇini's grammar this was just short /a = ʌ/ + /u/. But in the older pronunciation, it was a long diphthong, with the first /a/ element long.

In words like गौः /ga:uh/ 'cow, ox', nom. sg., pl. /ga:u + as > ga:w-as, ga:vah/ = गावः 'cows, oxen'; नौः /na:uh/ 'boat', /na:u + ika > na:w-ika, na:vika/ = नाविक 'boatman', we see how the old value of the diphthong was /a:u/ or /ɑ:u/, and not /ău/.

These two diphthongs ऐ, औ /ai/, /au/, according to the present pan-Indian Sanskrit standard, are to be pronounced as /ʌi, ʌu/. But in most areas outside of South India and the Maratha country, these vowels have more or less been modified. In the Hindi area the sounds have become either /ɛ, æ/ and /ɔ/, respectively, or/æĕ/ and /ɔŏ/; in Bengali and Assamese they have become /oi/ and /ou/; in Oriya, /ɔi/ and /ɔu/.

In pronouncing Sanskrit, these vernacular habits are frequently introduced; and this should be avoided, particularly in North India and Eastern India, and the /ʌi, ʌu/ standard only should be attempted.

11. /ṛ/, 12. /ṛ:/, 13. /ḷ/—These vocalic liquids are peculiar to Sanskrit. /ṛ, ṛ:/ in the oldest Sanskrit were like the Scottish English sound of *–er* as in *thunder, chamber* = /θʌndṛ/, /tʃe:mbṛ/, with short trill and prolonged trill respectively. The vocalic liquid /ḷ/ was like the English syllabic *–le* as in *little, able* = /litḷ, eibḷ/, with the l-sound is a clear /l/, the dark /ɫ/ not being known to Sanskrit. There is not a single word in Sanskrit with a long /ḷ:/, although for the sake of symmetry it has been given a place in the alphabet by some grammarians.

The vocalic character of these liquid sounds is no longer present in India. Before the development of Middle Indo-Aryan from Old Indo-European, these vocalic liquids began to take up the prop of some other vowel, and these newly introduced vowels remained in Prakrit and the original liquid sound has been dropped. Thus Sanskrit मृत, कृत, कृष्ण, मृत्तिका /mṛta, kṛta, kṛṣṇa, mṛttika:/ first became /krita, krata; mrata, mruta; kraṣṇa; mrattika:/, and these later changed into the Middle Indo-Aryan words kita, kata; mata, muta; kaṇha; maṭṭika:/.

In the present-day pronunciation of Sanskrit, a vowel is universally added, except in some rare cases among very careful scholars with a special training in Sanskrit phonetics. Thus, in North India (Panjabi, Hindi, Bihari, and Rajasthani areas, Madhya Pradesh, Bengal and Assam), this /ṛ/ becomes /ri/; in Maharashtra, Gujarat and in Orissa as well as in South India, this normally becomes /ru/. Following the North Indian pronunciation, for Modern Sanskrit /ri/ has been the value which is generally recognised; thus अमृत, कृष्ण =/ʌmritʌ, kriṣṇʌ/, but note the Maharashtrian and Oriya transcriptions like *Amrutanjan* = अमृतांजन, *Harekrushna* = हरेकृष्ण.

For /ḷ/, in the Hindi area the modern substitute is /lri/; but for Bengal and Assam it is /li/, whereas in Orissa and in Maharashtra and in South India it is /lu/. This is indeed one of the rarest sounds in Sanskrit, being found only in one or two words.

14. *Anusvāra*, 15. *Visarga*— These are respectively the nasalised and the unvoiced extensions or continuations of vowels, and they find a place after the vowel letters, in the order of the letters of the Sanskrit alphabet.

The *Anusvāra* (literally "that which follows the vowel") appears to have been originally, and at the time of Pāṇini too, a nasalised prolongation

of a vowel in the middle or at the end of a word, before the sibilant sounds /ç (ʂ), ʂ, s/ and the aspirate /ɦ/, and before the semivowels and liquids /j, r, l, w(β, v)/.

In modern pronunciation, the original character of its being just a nasalised extension of a vowel has been wholly lost to the *Anusvāra*. It has acquired new values in the different parts of the country. In Bengal, Assam and Orissa, the *Visarga* has become just a guttural or velar nasal sound /ŋ/: in the Panjabi, in the Hindi, in the Kosali, in the Rajasthani and Bihari regions, it has become just the dental nasal, /n/; in Southern India among the speakers of Telugu, Kannada, Tamil and Malayalam, it has become the frank bi-labial nasal /m/; and in the Maratha country and Gujarat it has turned into a nasalised /w̃/. Thus the Sanskrit words हंस, संस्कृत, संयोग and संवाद, which were pronounced in the oldest period in India, respectively, as /ɦɑ̃sɑ, sɑ̃skr̥tɑ, sɑ̃jɑugɑ, sɑ̃wɑ:dɑ/, are now pronounced by Bengali speakers as /hɔŋʃɔ/, /ʃɔŋ(ɔ)ʃkritɔ/, /ʃɔŋɟʒog/, /ʃɔŋbad/; by Hindi and Panjabi and Bihari speakers as /ɦʌns/, /sʌnskrit/, /sʌnɟʒo:g/, /sʌnwa:d/; in Southern India as /hʌmsʌ/, /sʌmskrutʌ/, /sʌmjo:gʌ/, /sʌmva:dʌ/; and among Marathi and Gujarati speakers as /ɦʌw̃sə/, /sʌw̃skrut/, /sʌw̃jo:g/, /sʌw̃βa:d/ (with Marathi /ʋ/ for /ʌ/). So in this matter there is no agreement among the various linguistic areas and North India—and the various sounds /ŋ, n, m, w̃/, are equally tolerated as current renderings of *Anusvāra*. In my opinion it will be best to attempt to use a nasalised /w̃/, as being near enough to the proper nasalised prolongation of the vowel, which was its correct pronunciation in ancient times.

In the transcription of the *International Phonetic Association* for Sanskrit and Indian languages, a new letter, /ɳ/, has been suggested to stand for this *Anusvāra* where its proper value is accepted and where it does not modify itself by assimilation to /ŋ, ɲ, ɳ, n, m/, respectively the velar, palatal, retroflex, dental and labial nasals, following the nature of the pure stop or aspirated consonant coming after, whether it is a velar /k, kh, g, gɦ/, or a palatal /c, ch, ɟ, ɟɦ/, a retroflex /ʈ, ʈh, ɖ, ɖɦ/, a dental /t, th, d, dɦ/ or a labial /p, pɦ, b, bɦ/.

In Vedic chanting, it is customary to pronounce the *Anusvāra* in a peculiar manner, as a distinct syllable as /gwum/ or /gwəm/. Thus हंस ɦɑ̃sɑ/, or /ɦaãsa/, for instance, becomes /ɦʌgwəmsə/.

The *Visarga* (literally, "casting out", "breathing out") was, as it would sppear, just an unvoiced vowel in Sanskrit. It was the continuation of a preceding full vowel, and occurred normally at the end of words or syllables. This unvoiced vowel was acoustically a simple voiceless /h/, taking

a slight colouring in the direction of the spirants /x/, /ç/, /ɸ/, from the back, front and round vowels /a/, /i/, /u/ preceding it. Before the three sibilants /ç(ʂ), ʂ, s/, the *Visarga* would assimilate to them; and under certain conditions, e. g. when it occurred after the vowels /i, u/, it became a frank /r/ (from an earlier modification which was /z̧/). Examples of the *Visarga* are : रामः /ra:mah = ra:maa̯/, हरिः /ɦarih = ɦarii̯/, साधुः /sa:dɦuh = sa:dɦuu̯/; नमः शिवाय = /namaç çiva:ja/, वृद्धः षष्टिवर्षः /vr̥ddhaʂ ʂaʂṭivarʂaa̯/, सुमनः सन्तु sumanas santu/; ज्योतिः + एतु /ɟjo:tir e:tu/, गुरुः + उवाच /gurur uva:ca/.

In a practical transcription in the alphabet of the I. P. A., the *Visarga* may be rendered by /h/. Thus instead of /de:vaa̯, ɦarii̯, manuu̯, çri:i̯, mune:e̯, bɦoo̯:/, we might conveniently write /de:vah, ɦarih, manuh, çri:h, mune:h, bɦo:h/. It should be noted that only in Bengal and Assam the unvoiced /h/ value of the *Visarga* has been retained in pronouncing Sanskrit. Throughout the greater part of India, the *Visarga* has been altered to a fully voiced /h/, i.e./ɦ/, followed by a repetition of the preceding vowel: e. g. /de:vəɦə, ɦarɪɦi, manuɦu, ʂri:ɦi, mune:ɦe, bɦo:ɦo/. In my opinion, it is better to avoid this present-day pronunciation of extending the *Visarga* into an additional syllable with a voiced /ɦ/ followed by the preceding vowel. But the habit is so deeply ingrained amongst Sanskrit scholars throughout the greater part of India that it would be very difficult to change this modern pronunciation.

Further, *Visarga* before the consonants /k, kh/ becomes a voiceless velar spirant, /x/ : this sound is known to Sanskrit grammarians as *Jihvāmūlīya* or "Tongue-root Sound". Before the labial sounds of /p, ph/, *Visarga* becomes a bi-labial unvoiced spirant, /ɸ/; this bi-labial spirant pronunciation of *Visarga* is known as *Upadhmānīya* or the "Blown-upon Sound". Examples—ततः किम् /tatah kim = tataxkim/, पुनःपुनः /punah punah = punaɸ punah/.

CONSONANTS

We now come to the consonants of Sanskrit. These are dealt with below.

In the case of the Sanskrit aspirated stops, which are quite characteristic sounds of the language, it is to be noted that the aspiration after the voiceless stop is voiceless, and that after voiced stop is voiced : so that the broad notation /gh, ɟh, ɖh, dh, bh/ always stands for /gɦ, ɟɦ, ɖɦ, dɦ, bɦ/.

In the arrangement of the consonants in the Sanskrit alphabet, the various points of articulation have been taken as the basis, and they have

been considered from the throat outwards. Thus we have first those consonants which are pronounced about the throat or velar region; then come the palatals, pronounced at the hard palate; then the cacuminals or retroflex sounds, which are made by the curled up tip of the tongue at the hard palate, as close to the dome of the mouth as is possible; and then the dentals (or alveolars); and finally the labials. The Stops (both simple and aspirated) and the nasalised sounds under each of these five groups are given first, and then come the Semi-vowels and Liquids, which again are followed by the Spirants (Sibilants and the Aspirate).

1. The Velar Sounds—/k, kh, g, gɦ/. These are known in Sanskrit as the *Kaṇṭhya* or the *Guttural* sounds. The fronting of these velars before front vowels is not at all marked in Sanskrit. The original Sanskrit velar sounds have generally remained unchanged throughout the greater part of India—only in some areas, e. g. in the Gujarati of the Surat area, they have become palatal stops and spirants /c, ch, ɟ, ɟɦ/. The velar nasal /ŋ/ occurs in Sanskrit only as a homo-organic nasal before the velar stops and aspirates /k, kh, g, gɦ/. In a few instances it may occur intervocally in Sanskrit as a double or long sound; e. g. प्रत्यङ्ङुषा /pratjaŋŋuṣa:/. In the grammatical terminology of Pāṇini and others, this velar nasal /ŋ/ can occur initially, medially as well as finally; e. g. ङीष् /ŋi:ṣ/, तिङ् /tiŋ/, तिङन्त /tiŋanta/, माङि लुङ् / ma:ŋi luŋ/, etc.

2. /c, ch, ɟ, ɟh, ɲ/—These palatal sounds (Sanskrit *Tālavya*) had in the oldest Sanskrit a pure palatal *stop* articulation which we find in many languages—like the sound of dialectal French /c/, as in a word like *tiens* =/cjɛ̃/. In the time of Pāṇini, the same pure stop value obtained for /c, ɟ/, and for the corresponding aspirates/ch, ɟɦ/. But by the beginning of the Christian era, or may be a little earlier even, the pronunciation of /c, ch, ɟ, ɟɦ/ was becoming modified into that of affricates. This conclusion we can draw from the observations of some Prakrit Grammarians, as well as from transcriptions of Indian names and words made by the Greeks and by the Chinese.

In modern India, these sounds are now definite *affricates* and not pure *stops* or *plosives*—that is, there is a continuant element, a sort of spirant prolongation after the stop elements in these sounds. They are either palatal or alveolo-palatal affricates—/cʃ, ɟʒ/ or /tʃ, dʒ/; or, in certain regions, e. g. South Orissa, East Bengal, Nepal, Rajasthan etc., these original palatal stops and aspirated stops have even finally become the *dental affricates* /ts, tsh, dz, dzɦ/. A further development is noted in Assamese, where /c, ch, ɟ, ɟh/ have become just /s, z/. These dental affricate pronunciations are natually made in reading Sanskrit by those who have these sounds in

their own languages as the equivalents or substitutes of the old stops, but it should not be tolerated in reading Sanskrit. But palatal or alveolo-palatal *affricate* sounds for these letters have been unequivocally accepted as the standard for the whole of India; and as this accords with similar sounds in most of the languages of the world, these palatal or alveolo-palatal affricates are quite acceptable as modern substitutes for the ancient Indian pure palatal stops and aspirates.

The palatal /ɲ/ is like the French and Italian sound of *gn*. In Sanskrit, it occurs normally before the corresponding palatal stops and aspirates. But in some grammatical terms, it can occur initially, medially and finally also, e. g. ञि /ɲi/, नञ् तत्पुरुष /naɲ-tat-puruṣa/, घञ् /gʱaɲ/.

3. /ʈ, ʈh, ɖ, ɖʱ, ɳ/—These retroflex sounds are made by curling up the tip of the tongue—*jihvāgram prativeṣṭitam*, "the tongue-tip curled up" as the Sanskrit grammarians say—and touching the highest point of the palate, the *mūrdhan* or "dome of the palate" with the under-side of the tongue. Hence they are known as the *Mūrdhanya* or "Head-of-the-mouth Sounds". Except in the Dravidian-speaking South India, in Rajasthan and the Panjab, these sounds are now pronounced at a more forward position on the palate, and are almost like alveolar sounds, in most of the speeches of North India. They are rather difficult sounds for most non-Indians to acquire—they are basically different from the English alveoral /t, d/. If we remember that it is the tip of the tongue which is to be curled up and the under-side of the tongue is to be used for the contact, then these sounds can easily be acquired.

Sanskrit intervocalic /ɖ, ɖʱ/ have normally become in modern India the so-called retroflex or cerebral /ɽ, ɽh/ : e. g. words like पीडा /pi:ɖa:/ दृढ dṛɖha/ are pronounced as पीड़ा /pi:ɽa:, दृढ़ /driɽʱʌ/ or /druɽʱə/. Normally in pronouncing Sanskrit this habit, which is fairly old and perhaps goes back to the centuries round about Christ, is followed, and the pure stop sounds are never made, throughout the whole of India.

In Vedic Sanskrit, the inter-vocalic /ɖ, ɖʱ/ became /ɭ, ɭʱ/ :—thus मीडे /mi:ɖe:/, दृढः /dṛɖʱah/ became /mi:ɭe:/, /dṛɭʱah/. The retroflex /ɭ, ɭʱ/ are otherwise unknown in Vedic Sanskrit, and they are absent in Classical Sanskrit. But in many parts of India at the present day, the normal alveolar or dental /l/ is pronounced as retroflex /ɭ/ intervocally and finally, e. g. in Oriya, in Marathi, in Rajasthani, and in the South Indian speeches; and at times they are written with the special letter for it, ळ /ɭ/, as opposed to ल /l/ : thus, मिलन, सरला, गोपाल, लीला, बालक etc. become in writing and pronunciation मिळन, सरळा, गोपाळ, लीळा, बाळक etc.

The retroflex nasal /ɳ/ is a very characteristic sound, and it is found in the South Indian Dravidian languages, and in Oriya, in Rajasthani, in Panjabi, in Sindhi, and in Marathi. In the Upper Gangetic Valley, in the Hindi, Nepali and Bihari areas, and in Bengali-Assamese, it is lost. Careful students of Sanskrit always try to bring it back again in the Hindi, Kosali and Bihari areas. But they generally fail to acquire the correct sound of this retroflex or cerebral /ɳ/, and they substitute for it cerebral /ɽ/, with the connected vowels nasalised—रण = /rə̃ɽ/, गणना = /gə̃ɽə̃na:/, वीणा = /βĩɽã:/.

4. /t, th, d, dɦ, n/—In modern India these sounds are pure dentals (*Dantya*), like the Italian /t, d, n/, and they are made everywhere by touching the bones of the lower teeth with the tip of the tongue which is spread out like a fan. This possibly was also the pronunciation of Pāṇini. But according to some of the *Prātiśākhyas* (which go back to several centuries before Christ), they were *Danta-mūlīya* or "tooth-root" i. e. alveolar sounds. Probably in the oldest Vedic period, the present-day pure dentals of Sanskrit had an alveolar rather than pure dental pronunciation;—and so the oldest Sanskrit /t, th, d, dɦ/ were rather like the English alveolar /t, d/. In modern India, in some areas of the country as in Assam and some Himalayan tracts, and in parts of Gujarat (among most Parsis), the pure retroflex /ʈ, ʈh, ɖ, ɖɦ/ and the pure dental /t, th, d, dɦ/ have both been lost, and they have both merged into a single set of pure alveolar sounds.

The nasal sound in this group is normally pronounced as an alveolar sound. But it is classed as a pure dental. As a matter of fact, this so-called dental न /n/ is really alveolar. When it is followed by dental stops and aspirates, it becomes a pure dental : e. g. as in अन्त, बन्धु. To differentiate the alveolar dentals from retroflex and pure dental sounds, the alveolars may be written as /t, d, n/ etc.

N. B. It is to be observed that in the generally accepted *transliteration* of Sanskrit (the Nagari and other Indian scripts) into the Roman script, the cerebral or retroflex sounds are indicated by a dot below *t, d, n, r, l, s* = *ṭ, ḍ, ṇ, ṛ, ḷ, ṣ*. But the International Phonetic Script has been using for some time past a new set of characters, /ʈ, ɖ, ɳ, ɽ, ɭ, ʂ/, which is very convenient, and they indicate the retroflex character of these by means of the hook facing right at the bottom; and as such these are being used in the present paper.

In South India, Malayalis and Tamilians frequently substitute the voiced dental spirant /ð/, the sound of *th* in English *this, that,* for /t, th, d, dɦ/ intervocally; and /th, dɦ/ are interchanged in Telugu pronunciation. These of course are avoided by careful speakers or reciters of Sanskrit.

5. /p, ph, b, bɦ, m/—These are the ordinary bi-labial stops and aspirates and the bi-labial nasal—*Oṣṭhya* sounds—which do not call for any

special comment. It should be noted, however, that in many parts of North India /ph/, which is really /p+h/, has become the bi-labial fricative /ɸ/, which is the sound made in blowing out a candle, or has become even the labio-dental /f/. Among Bengali speakers, in addition, the voiced aspirate /bɦ/ is generally modified to the voiced bi-labial fricative /β/ : in fact except initially, the proper aspirated /b+ɦ, bɦ/ sound is not heard among Bengali-speakers. (For this reason, Bengalis commonly use *v* in transcribing it.) These substitutions should be avoided in pronouncing Sanskrit.

6. /j, r, l, v(w)/—These four are known as the *Antaḥstha* sounds or "Sounds standing at the End", i. e. after the plosives and aspirates as well as nasals, as given in the above order.

/j/ is as in the English word *yard* /jard, jɑ:d/. Initially, in parts of Northern India—in Bihar and in U. P. particularly, as well as in Bengal, Orissa and Assam, this semi-vowel /j/ becomes the voiced bi-labial palatal affricate or the alveolo-palatal affricate, /ʄʒ, dʒ/. In Assam, East Bengal and elsewhere, where the bi-labial affricate changes to the dental affricate or spirant, to /dz, z/, these modified dental sounds are equally heard. This is generally sought to be avoided in reading or speaking Sanskrit, and the proper semi-vowel sound is attempted to be made. In Bengal, Orissa and Assam, intervocal /j/, which is really a consonantal /i/, becomes a consonantal /e/: thus दया, माया /dʌja:, ma:ja:/ become /dɔĕa, maĕa/.

/r/ of Sanskrit appears to have been always a tongue-tip trill. In modern Indian languages it is generally pronounced with 2 to 3 taps of the tongue only. A *kaṇṭhya* i. e. velar or uvular /r/—i. e. /ʀ/—appears to have occurred in dialectal pronunciation of Sanskrit as early as the middle of the first millennium B. C., judging from the evidence of the *Prātiśākhyas* This sound of course is now not known in India.

/l/ is described as a "dental" (*Dantya*) sound by Sanskrit phoneticians. But it has always had an alveolar articulation. It has been a "clear" sound all through, no "dark" /ɫ/, as in English *milk, well* /miɫk, weɫ/, has probably never been used either in ancient or in modern India. But the ordinary Sanskrit or Indian /l/ takes its colouring from the consonant which follows it. Thus, when it occurs before a dental sound like /t, d/, this /l/ becomes purely dental; when it occurs before a retroflex sound like /ʈ, ɖ/ it obtains a retroflex character, /ɭ/.

/v/ or /w/ : According to Pāṇini this sound, which was originally a bi-labial semi-vowel, i. e. the vowel /u/ pronounced very short before or after another vowel, became a labio-dental (*Dantauṣṭhya*) sound. This labio-dental sound was undoubtedly a fricative, and this was the value with

which Pāṇini became acquainted in his native district (round about the present-day city of Attock by the Indus in the N.-W. F. Province, now forming part of West Pakistan) in the 5th century B. C. Other pronunciations of this bi-labial semi-vowel were known in ancient India. There was the pure semi-vowel, which can be represented by /ŭ/ or /w/—the sound which we have in English. There was also a bi-labial fricative value, which is represented in the alphabet of the I. P. A. by the symbol /β/. And then there was the labio-dental spirant sound as of the English /v/. In modern India, wherever an attempt is made to pronounce the bi-labial semi-vowel, Indians throughout the greater part of the country pronounce a bi-labial fricative /β/, when initial or standing by itself. But when this sound occurs after a consonant, it is commonly pronounced as /w/. This is the situation in the Panjabi, Hindi, Sindhi, Gujarati, Marathi, Kannada, Telugu, Tamil, and Malayalam areas. In both Western and Eastern U. P. and Bihar, as well as in Bengal, Assam and Orissa, the bi-labial semi-vowel normally becomes the labial stop /b/ initially, and also frequently medially and finally. There is a half-hearted attempt to pronounce the old sound of a semi-vowel in the 'Hindi' area, but generally this is neglected. In Marathi, the bi-labial fricative sound /β/ is usually differentiated from the labio-dental fricative /v/ : the former is the normal value of the Balabodh or Devanagari letter व, and the letter, /v/, is sought to be rendered in Marathi by a new kind of digraph, व्ह, i. e. /w/ or /β/ plus /ɦ/—/wɦ, βh = v/.

In reading Sanskrit, a good compromise for practical purposes is to pronounce the labio-dental /v/ when the sound stands alone, before or between vowels, and /w/ when it occurs after a consonant.

7. /ç, ʂ, s/—the three Sibilants of Sanskrit : they were sharply differentiated in ancient times, and even down to early medieval times, because the Chinese in their early transcription of Sanskrit words sought to indicate difference between श = /ç/ and ष = /ʂ/.

/ç/ : This is the palatal sibilant, and in the oldest period, it was unquestionably like the German *ch* as in a word like *Ich*. But quite early it became a sort of palatalised /ʂ/ sound, which can be represented as /ʂ, or ʃ/.

/ʂ/ : This was the retroflex sibilant—and it was pronounced like a kind of /ʃ/, with the tip of the tongue upturned and brought close to the top of the hard palate. In modern India, excepting among Vedic scholars in South India and Maharashtra, no differentiation is sought to be made between /ç/ and /ʂ/, and both are pronounced as a kind of /ʃ/ sound. In the mediaeval tradition of Sanskrit pronunciation which obtained in the

Panjabi, the Hindi, the Kosali and Bihari areas as well as in Rajasthan and Madhya Pradesh, the श /ç/ became a frank dental /s/, while ष /ʂ/ became mostly the unvoiced velar aspirated ख /kh/. This latter change of /ʂ/ to /kh/ is a characteristic of the Brahmans of the Yajurveda School, and at the present moment it is exceedingly characteristic of the Sanskrit pronunciation of Brahmans from Mithila.

/s/—this is the dental sibilant, and excepting in Eastern India its sound has generally remained unchanged. In Bengal and in Orissa as well as in parts of Bihar it normally becomes a kind *sh* /ʃ/ sound, and can be represented by /ʃ/. In Assam, all the three sibilants of Sanskrit, when they stand by themselves without being combined with any other consonant, are pronounced like the unvoiced velar affricate /x/ : thus Sanskrit वासुदेव, केशव, महिष /va:sude:va, ke:çava, mahiʂa/ became /baxudew, kexɔw, mɔɦix/.

The modern practice generally is to use some kind of *sh*, i.e. /ʃ/ sound for both /ç, ʂ/, and simple dental /s/ for the third sibilant. This is the common practice in the present-day Sanskrit pronunciation. Thus, Sanskrit सविशेष becomes in the mouths of Assamese speakers/xɔbixɛx/or/xɔwixɛx/, in the mouths or Bengali speakers /ʃɔbiʃeʃ/, and in North India (Upper Ganges Valley, Bihar) /sʌbise:kh/ in the old pronounciation, and /sʌβiʃe:ʃ/ in the new or current one. Hindi speakers would make शिक्षक-शिक्षण into /ʃikʃʌk-ʃikʃâʈ/. But, as has been observed, scholars who have specialised in Veda chanting, and careful Sanskritists generally, are trying to bring out the original distinction between /ç/ and /ʂ/.

In Sanskrit, the voiced equivalents of these sounds were not known, at least in the historical periods of Sanskrit, although they occurred in pre-historic Sanskrit—/ʐ(ʒ), ɻ, z/. In Middle Indo-Aryan or Prakrit, in some cases the voiced sounds developed intervocally, but that is past history. In modern India, only in two Dravidian languages, namely Tamil and Malayalam, we find a voiced retroflex or cerebral /ɻ/, in words like /tamiɻ/, /koɻi/, /vaɖamoɻi/, /jeɻavan/, and there are special letters in Tamil and Malayalam for this voiced retroflex /ɻ/.

8. /ɦ/—the Sanskrit aspirate is a voiced sound, and as such should be differentiated from the unvoiced /h/ by the special symbol in the I. P. A. alphabet, an /h/ with a hook, /ɦ/. This is in striking contrast with the ordinary /h/ of English, which is normally an unvoiced /h/, although the voiced /ɦ/ is heard in English in the pronunciation of some people in words like *perhaps, behind* /pəɦæps, bəɦaind/, beside /pəhæps, bəhaind/. In speaking English, most Indians introduce the voiced /ɦ/ in place of the proper unvoiced /h/ of English.

The aspirated forms of the stops, /kh, ch, ʈh, th, ph/ and /gɦ, ɟɦ, ɖɦ, dɦ, bɦ/ : in the case of the unvoiced aspirates, the /h/ element is equally unvoiced, while in the case of the second group of the voiced aspirates it is a voiced one. Normally, the unvoiced and voiced-sounds are uttered in their proper places. But most Indians are not conscious of the existence of an unvoiced /h/. The *Visarga,* as it has been discussed above, is really an unvoiced /h/.

9. Conjunct Consonants or Consonant Clusters. Combination of two consonants have in some cases acquired, in the present-day tradition of Sanskrit pronunciation, some new values. Thus the combination /k+ʂ/ is sounded in present-day standard pronunciation of Sanskrit as /k+ʃ/. But there are certain modifications of this conjunct consonant. In North India right up from Panjab to Bengal, /kʂ/ may be heard as palatal or alveolo-palatal (aspirated) affricates—initially, /cʃh, tʃh/, and medially as /ccʃh, ttʃh/. In Bengal, Orissa and Assam, /kʂ/ is commonly pronounced as /khj/ initially and /kkhj/ medially with certain vernacular modifications. The /khj/ pronunciation for /kʂ/ is heard even as far west as the Panjab. This leads to a curious result. The Sanskrit /kʂ/ being transformed into /khj/, the original combination of /kh+j/ sometimes is wrongly "corrected" to /kʂ=khj/. Thus, for example, Sanskrit /a:khja:na/ and /mukhja/ may occasionally be heard by careless and non-observant speakers of Sanskrit in Northern India as /a:kʃa:n/, /mukʃə/. These modifications of /kʂ/ are not permissible in the present-day standard pronunciation of Sanskrit.

The consonant conjunct /j+ɲ/ : its proper value in ancient times was the palatal stop /ɟ/ plus the nasal palatal /ɲ/. But in the modern Indian tradition, it has, like the group /kʂ/, got some peculiar modifications in various local pronunciations. Throughout the greater part of India /ɟɲ/ is pronounced as /gj/ initially or /ggj/ in the interior of words; it has become /g/ or /gg/ followed by a nasal vowel in Bengali; and it is the palatal affricate /ɟʒ, dʒ/ followed by /j/ in Orissa and elsewhere; and in the Maratha country it becomes /dnj/ or /dɲ/. The standard pronunciation of Sanskrit would be content with /gj/ or /ggj/. Note, e. g. the Tamil transcription (and pronunciation) of ज्ञान /ɟɲa:na/ as /kina:nam/ or /gna:nam/.

The Sanskrit consonant sequences of /ɦ/+a nasal or liquid, i. e. /ɦɳ, ɦn, ɦm, ɦl, ɦr, ɦv/ generally transpose the place of /ɦ/, and have become /ɳɦ, nɦ, mɦ, lɦ, rɦ, wɦ/ in the modern Indian pronunciation of Sanskrit. This is very strongly rooted, but careful speakers tried to restore /ɦ/ in its proper place *before* the consonant following, as it was unquestionably the articulation in ancient Sanskrit : cf. ब्राह्मण /bra:ɦmaɳa/ in ancient times,

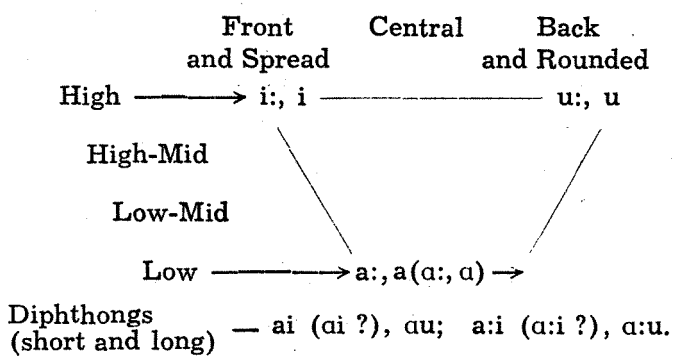
as attested by the Greek transcription *Brakhmanēs,* and/also by the Sinhalese tradition of Sanskrit pronounciation, is almost throughout the whole of India now pronounced as /bra:mɦiʌɳə/, with /ɦm/ changed to /mɦ/. The consonantal cluster /ɦj/ becomes frequently /xj/ or /çj/ in South India, and it is frankly altered to /ʄʄɦj, ʄʄʒɦj/ (i. e. palatal affricate, voiced, followed by the palatal semi-vowel) in Bengal : सह्य = /saɦja/ becomes in Bengali pronunciation /ʃoʄʄʒɦo/. This is to be avoided in the pronunciation of Sanskrit.

In Andhra and Tamil countries, when a word ends in a stop sound (and the *unvoiced stop sounds* excepting /c/ are the only stops which are permitted in Sanskrit as final consonants), there is a tendency to bring in the prop of a vowel, generally /i/, at the end; e. g. तस्मात् /tasma:t/ is pronounced like /tʌsma:ti/, and this /i/ is frequently lengthened at the end of a sentence. This is a local peculiarity which speakers of Sanskrit in the modern standard try to avoid.

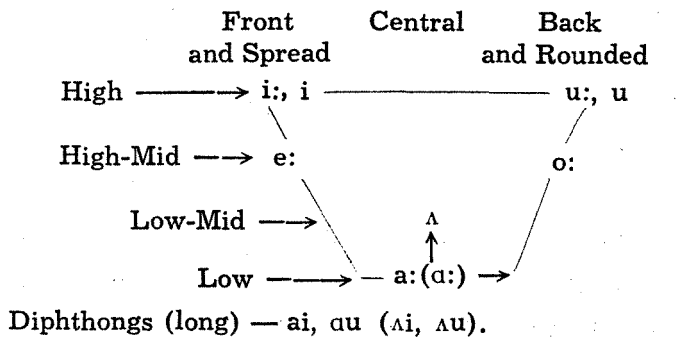
TABULAR REPRESENTATION OF THE SOUNDS

(A) *THE VOWELS*

(i) In the oldest Sanskrit (Vedic), c. 1000 B. C.



(ii) In later Sanskrit, c. 500 B. C.



(B) *THE CONSONANTS*

(i) In the oldest Sanskrit (Vedic), c. 1000 B. C.

Places of Articulation	Bi-labial	Dental	Alveo-lar	Palatal	Retro-flex	Velar	Glottal
Occlusives, Pure and Aspirated	p, b ph, bɦ	(? t, d th, dɦ)	*t, d* *th, dɦ*	c, ɟ ch, ɟɦ	ʈ, ɖ ʈh, ɖɦ	k, g kh, gɦ	
Nasals	m		n	ɲ	ɳ	ŋ	
Laterals			l		ɭ (ɭɦ)		
Trilled			r				(ʀ)
Spirants	(ɸ)		s	ç (ʂ)	ʂ (ʃ)	(x)	h, ɦ
Semivowels	ŭ (w)			ĭ (j)			

(ii) In later Sanskrit, from B. C. 500

It is to be noted that —

(i) The bi-labial semi-vowel /ŭ(w)/ became a denti-labial spirant in the pronunciation of Pāṇini, /v/; probably in other pronunciations it became a bi-labial spirant, voiced, /β/.

(ii) In some areas, probably in the extreme North-West, the Palatal Semivowel became, by 300 B. C., a strong Palatal Fricative, voiced, /ʝ/ or even /ʒ/.

(iii) The Alveolar Stops /*t, d, th, dɦ*/ became pure Dentals, generally.

(iv) The Palatal Stops became, probably by the Christian era, Palatal Affricates, i. e. sounds like /cʃ, ɟʒ/ or /tʃ, dʒ/, which were also aspirated.

(v) Round about the Christian era, intervocal /ɖ, ɖɦ/, which regularly in the Vedic speech used to change to /ɭ, ɭɦ/, appear to have become the 'flapped' retroflex /ɽ, ɽɦ/.

(vi) The Palatal Spirant /ç/ or /ʂ/ became a sound approaching [ʃ].

(vii) The Spirants /ɸ/, /χ/ became confined to the learned pronunciation only.

UNEXPLODED STOP PRONUNCIATION

Some time before the establishment of the Middle Indo-Aryan (Prakrit) stage, it would appear that in a final stop-sound and in the first ele-

ment in the nexus of a stop+stop (pure or aspirated), there was no explosion, only a long occlusion. The final consonants permissible in Sanskrit are only the unvoiced stops /k, ṭ, t, p/, and the nasals /n, m/, and the unvoiced /h/. The final stops were not fully articulated—they were unexploded: /k˺, ṭ˺, t˺, p˺/; and so, too, was the first stop element in groups like /kt, pt, tk, bd, dbh, gd, gḍh/ etc. This linguistic phenomenon was known as *Apinidhāna* or "closing up", and unexploded stop sounds were described as *Sannatara* "longer seated" or *Nipīḍita* "pressed down".

THE SOUND ATTRIBUTES

(A) LENGTH

Vowels and Consonants have both significant length in Sanskrit. There are special letters for the long vowels, and the distinction between a long vowel and a short vowel is generally very well kept up in Sanskrit. But there are areas where the distinction between a long and a short vowel has virtually been lost; e. g. in Bengali, in Marathi. Sometimes, this vernacular laxity is introduced even in reading Sanskrit. But careful speakers and writers avoid it, and give to the long vowels their proper length in articulation.

For consonants, there is also length, and this length generally is known as *doubling*. As a matter of fact, the so-called *double consonant is really a long consonant*, and words changed their meaning according as the consonant, just like the vowel, is short, or doubled i. e. long. Thus we can have आयत /a:jata/ 'extended' besides आयत्त /a:jatta/ or /a:jat:a/ 'controlled'.

Before the semi-vowels and liquids /j, r, l, v (w)/ in the interior of a word, a single written consonant is normally pronounced as double or long : thus the written forms सत्य /satja/, नम्र /namra/, अम्ल /amla/, द्वित्व /dvitva/ are normally pronounced as /sattja/, /nammra/, /ammla/, /dwittwa/, which in the phonetic script may be represented as /sat:ja. nam:ra, am:la, dwit:wa/.

(B) STRESS

In modern India the stress system, as applied to Sanskrit, is based on that of Middle Indo-Aryan (Prakrit), and this is the one which generally obtains throughout the whole of India. There are certain areas where this (which could be described as Modern pan-Indian Stress of Sanskrit) is not followed. Stress in Sanskrit generally falls on a long syllable in the Middle or towards the end of the word : and this syllable is frequently the root-

syllable. Sanskrit stress in any case is never very strong : it is generally the vowel length which gives prominence to syllables in Sanskrit. In Bengal, we have a strong initial stress, and this is quite contrary to the non-initial stress which obtains in the Hindi and other areas.

(C) INTONATION

In Classical Sanskrit, Intonation has no special significance. But in the oldest form of Sanskrit, namely, in Vedic, we have the case of a tone language in which certain syllables were uttered at a high pitch. This high pitch was not a fixed one, determined only by the place of the syllable in the word. It could sometimes be on the root syllable, and sometimes on the affix : e. g. एमि 'I go'/ = /'e:mi < *'aimi/, but इमः /i'mah/ = /i'maa̤, i'mas/ 'we go'. This emphatically high pitch or tone died out in Classical Sanskrit, and, as in the Prakrit, a more or less fixed stress was substituted for it.

In present-day Vedic chanting (*Veda-pāṭha* or *Svādhyāya*), the intonation or high pitch on certain vowels is carefully sought to be indicated, and very great attention is paid to this matter. But it would seem that the old tradition regarding the correct placing of the pitch has long been changed in Veda-chanting. According to Pāṇini's Grammar, when a syllable bore a high pitch (*Udātta-svara*), it was to be pronounced with the voice raised high, and when the syllable was *Anudātta* or at a low pitch, it was pronounced with the voice lowered. But in practice, the *Udātta* is pronounced at a middle pitch, but readers are only a little more careful about the *Anudātta* (for which the voice is lowered), and they raise the voice only in case of the syllable which immediately follows one which properly has the high pitch, i. e. on which is the *Svarita* symbol in the word. This matter should be properly investigated.

Sanskrit had its own system of Sentence Intonation : but in reading or speaking Sanskrit at the present day, the speaker's mother-tongue has a predominating influence in the matter of Sentence Intonation, as much as in matters of Length and Stress.