

CONTRIBUTION OF THE AITAREYA ĀRANYAKA TO PHONETICS

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Abstract

The science of phonetics is very important from the scientific point of view. Phonetics is a gift by Indians to the world. Right from the āgveda, many concepts in phonetics were in making. However, the Aitareya Aranyaka could be said to be the first text to deal with them in a more systematic manner. The third chapter of the said text not only refers to the first generation of phoneticians, but also introduces many new terms in phonetics. A beautiful metaphor of divine lute is used to describe the phonetic apparatus. The description is not merely poetic, but scientific. The present paper tries to map contribution of this text in analytic manner.

1.0.0 Introduction:

Ancient Indian contribution to phonetics¹ is well recognized in the field of Indology, Modern phonetics owes a lot to ancient India not only in the context of terminology, but also in the context of analysis². The descriptive techniques of ancient Indian phoneticians were adopted in the modern phonetics. The germs of such thinking could be traced right from the Samhitā literature. Yet the Āranyakas and Upanishads show much progress in the science of phonetics³. The Aitareya Āranyaka (Ait Ār)⁴ is an āranyaka text belonging to the Rg-Veda. It has introduced many new concepts regarding phonetics and phonology. Therefore it is treated an important landmark in Indian phonetics. It discusses many phonetic and phonological concepts like अन्तस्थ, निर्भुज etc. It also refers to many phoneticians⁵ who have contributed to the science of phonetics and phonology. Besides the individual contribution of these scholars the text also describes human phonetic apparatus in a thorough scientific way. The present paper tries to analyze the description of the phonetic apparatus found in the Ait Ār since it is a mark of existence of a developed scientific discipline.

1.1.0: Human Phonetic Apparatus:

The Ait Ar and Śāṅkhāyana Āranyaka⁶ (Śāṅ Ar) are the two texts describing human phonetic apparatus in detail and in a poetic way. Both the texts

call it divine lute and emphasize that the lute designed by human being is based on the divine lute. A comparison of both the texts may lead us to know the mechanism of sound production known to ancient Indians. An attempt is made in the present paper to compare views of both the texts regarding sound mechanism.

2.0.0. A Brief Introduction to the Texts

2.1.0. The Aitareya Āranyaka is an Āranyaka text belonging to the Rg-Veda. It comprises five chapters also called āranyaka. These chapters are further divided into adhyāyas. Out of these five chapters first three are considered to be old and fourth and the fifth are considered to be later. By a careful and arduous study of the style, vocabulary etc Keith (R1995:25) has fixed the date of the text as 700 BCE in general and 550 BCE as that of the third adhyāya in particular.

2.1.1: Subject - matter of the Text

- 1) The first chapter discusses Mahāvratā ceremony allegorically.
- 2) The second āranyaka has further two divisions:
 - a) Adhyāyas 1-3 allegorically discuss uktha
 - b) whereas adhyāyas 4-5 comprise an Upanishad.
- 3) The third Āranyaka is very much important from the point of view of phonetics. Since the present

paper focuses on the third chapter of the text let us discuss its content in detail.

- i) It has two adhyāyas. The first adhyāya discusses nature of saṁhitā and forms of recitation.
- ii) The second adhyāya discusses nature of speech.
- iii) The discussion takes place among scholars like Sākalya⁷, Māṇḍūkeya⁸, Kauntharavya etc. These discussions throw light on various aspects of aspects of speech. Hence are important. While discussing nature of language a scholar exposes secret of speech (वाचः उपनिषद्). This is the place where we get comparison of human phonetic apparatus with lute.
- 4) The fourth āraṇyaka discusses Mahānāmni verses. The discussion forms a part of āraṇyaka since these verses are to be study in forest.
- 5) The fifth book discusses Niṣkevalya śāstra in a sūtra style. This śāstra is to be recited in the mahāvratā sacrifice, thus it seems as if an appendix to the first āraṇyaka. Since the style of composition is mismatched with the āraṇyaka text scholars like Keith (R1995:18) take it as an interpolation by Āśvalāyana to Āraṇyaka.

2.1.2: Commentaries

It has a chain of partial commentaries by Śaṅkara⁹, Ānandatīrtha¹⁰ and Viśveśvaratīrtha¹¹. It is also survived with the most important and complete commentary by Sāyaṇācārya¹²

2.2.0: The Sākhāyana Āraṇyaka: The text is very much important as it shares the same subject-matter as that of the Ait Ār, yet in a different wording and with more explanation. Therefore, it helps to a great extent to interpret the difficult passages of the Ait Ār. It has fifteen adhyāyas. The seventh and eight adhyāya are entitled as saṁhitopaniṣad and correspond to that of the Ait Ār.

3.0.0. Diagram of Human Phonetic Apparatus - Vide Appendix - 1

4.0.0. Human Phonetic apparatus described in the Aitareya Āraṇyaka

4.1.0. Text: अथ खल्वियं सर्वस्यै वाचउपनिषत् । सर्वा ह्येवेमाः सर्वस्यै वाच उपनिषद् इमां त्वेवाचक्षते। पृथिव्यां रूपं स्पर्शा अन्तरिक्षस्योष्माणो दिवः। अग्रे रूपं स्पर्शा वायेरुष्माण आदित्यस्य स्वराः ऋग्वेदस्य रूपं स्पर्शा यजुर्वेदस्योष्माणः सामवेदस्य स्वराः। चक्षुषो रूपं स्पर्शाः श्रोत्रस्योष्माणो मनसः स्वराः। प्राणस्य रूपं स्पर्शा अपानस्योष्माणो व्यानस्य स्वराः। अथ खल्वियं दैवी वीणा भवति तदनुकृतिरसौ मानुषी वीणा भवति। यथास्वराः शिरे यथास्या उदरमेवममुष्या अम्भणं यथास्यै जिह्वैवममुष्यै वादनं यथास्यास्तन्त्र्य एवममुष्या अङ्गुलयो यथास्याः स्वरा एवममुष्या स्वरा यथास्या स्पर्शा एवममुष्या स्पर्शा यथा ह्येवेयं शब्दवती तर्ह्यवत्येवमसौ शब्दवती तर्ह्यवती यथा ह्येवेयं लोमशेन चर्मणापिहिता भवत्येवमसौ लोमशेन चर्मणापिहिता। लोमशेन ह स्म वै चर्मणा पुरा वीणा अपिदधति। स यो हैतां दैवीवीणां वेद श्रुतवदनो भवति भूमिप्रास्य कीर्तिर्भवति यत्र क्व चार्या वाचो भाषन्ते विदुरेनं तत्र। अथातो वायसो यस्यां संसद्यधीयानो वा भाषमाणो वा न विरुरुचिषेत् तत्रैतामृचं जपेत्। “ओष्ठापिधना नकुली दन्तैः परिवृता पविः। सर्वस्यै वाच ईशाना चारु मामिह वादयेत्॥” इति वायसः॥

4.2.0: Translation

Indeed this is divine lute. This lute fashioned by human being has been modeled after it. As this divine lute has head in the same way the human lute has head. As this has belly similarly the other one has resonator. As it has tongue likewise the other has bow. As this has strings (vocal-folds) similarly the other one has fingers. As this produces vowels similarly the other one produces consonants. As this contains sound and has holes similarly the other one produces sound and has holes. As this is covered with hairy skin similarly the other one is covered with hairy skin. In ancient days indeed they used to cover a lute with hairy skin. One who knows this divine lute is certainly know by his mouth everywhere. His fame spreads all over the earth. People know him there wherever the Aryan languages are spoken. Here is a spell from Vāyasa. This verse should be recited in a place if person is not liked in an assembly while

either studying or speaking. "The Nakulī lute that is covered by lips surrounded by teeth and is swift and masters over all types of speeches. Let it make me speak splendid." This is Vāyasa.

5.0.0: Human phonetic apparatus Described in the Śāṅkhāyana Āraṇyaka

5.1.0: Text: अथ खल्वियं दैवी वीणा भवति तदनुकृतिरसौ मानुषी वीणा भवति तद्यथेयं शस्त्रवती तर्जवती भवत्येवमेवासौ शस्त्रवती तर्जवती भवति तद्यथाऽस्याः शिर एवममुष्याः शिरस्तद्यथाऽस्यै वंश एवममुष्या दण्डस्तद्यथाऽस्या उदरमेवममुष्या अम्भणं मुखनासिके अक्षिणी इत्येवममुष्याश्छिद्राणि तद्यथाऽस्या अङ्गुलिनिग्रहा उपस्तरणानीत्येवममुष्याः पर्वाणि तद्यथाऽस्या अङ्गुलय एवममुष्यास्तन्यस्तद्यथाऽस्यै जिह्वैवममुष्या वादनं तद्यथाऽस्याः स्वरा एवममुष्याः स्वरास्तद्यथा हैवेयं रोमशेन चर्मणा पिहिता भवत्येवमेवासौ रोमशेन चर्मणा पिहिता भवति रोमशेन ह स्म चर्मणा पुरा वीणा अपिदधति सैषा दैवी भवति सं य एवमेतां दैवीं वीणां वेद श्रुतवदनतमा भवति भूमौ प्रास्य कीर्तिर्भवति शुश्रूषन्ते हास्यपर्षत्सू भाष्यमाणस्येदमस्तु यदयमीहते यत्राऽऽर्या वाचं वदन्ति विदुरेनं तत्र॥

अथातस्ताण्डबिन्दस्य वचस्तद्यमेयमकुशलेन वादयित्रा वीणाऽऽरब्धा न तत्कृत्स्नं वीणार्थं साधयत्येवमेवाकुशलेन वक्रा वागारब्धा न तत्कृत्स्नं वागर्थं साधयति तद्यथा हैवेयं कुशलेन वादयित्रा वीणारब्धा कृत्स्नं वीणार्थं साधयत्येवमेव कुशलेन वक्रा वागारब्ध कृत्स्नं वागर्थं साधयति तस्यै वा एतस्यै वीणायै या त्विषिः सा संहितेति कात्यायनीपुत्रो जातूकर्ण्योऽथ ह स्मैतं कृत्स्नं हारीतो ब्राह्मणमेवोदाहरति॥

5.2.0. Translation

Indeed this is divine lute: the human lute is modeled after it. As this has sound board and holes similarly human lute has sound board and holes. As this has head similarly the other has head. As this has spine in the same way the other one has staff. As this one has belly likewise the other one has resonator. As this one has mouth, nose and eyes similarly the other one has holes. As this one has joints similarly that has finger - catches and covers. As this one has fingers similarly the other one has strings (vocal-folds). As this one has tongue likewise the other one has bow. As this one has sound similarly the other one has sound. As this is covered with a hairy skin

similarly that is covered with a hairy skin. Indeed in ancient days they used to cover lutes with hairy skin. This is divine lute. One who knows this divine lute becomes most famous because of his speech. His fame spreads all over the earth. People hear him often. While he is speaking in the assemblies. They say, "Let the things be as he likes." People know him wherever the Aryan languages are spoken.

Then says Tāndavinda. "The complete purpose of the lute is not fulfilled; if it is struck by an unskilled person. Similarly if an unskilled orator starts speaking, he cannot fulfill the completely the purpose of speech. When a skilled person strikes the lute, the complete purpose of the lute is fulfilled similarly a skilled orator starts speaking, the complete purpose of speech is fulfilled. "The grandeur of this lute is the samhitā" says Jātukarnya, son of Kātyāyanī."

6.0.0: Analysis

Both the texts compare human phonetic apparatus with lute. Lute was a popular musical instrument in Vedic times. The comparison may look very ordinary since humans speak i.e. make sound and even any lute makes sound. However, the comparison is based on certain principles of sound mechanism of sound. For sound production three major elements are necessary.

1) Source of Energy: In case of human beings sound is produced in larynx. Larynx is made of vocal folds. The vocal folds are set to vibration because of air stream that comes out of lungs. Thus, in case of human sound production pulmonic air is source of energy. In the passage quoted above though no specific mention of air stream mechanism is made still in many other passages we get such a references.

2) Oscillation: Oscillation means to and fro movement. Such a movement is caused by fingers in case of a lute and by vocal chords in the context of human phonetic apparatus. The Ait Ār rightly observes the fact. This particular sentence bears a testimony of knowledge of vocal cords to ancient

Indians. Scholars like Allen had doubted its knowledge on part of Indians. To quote Allen (1953:33). “...in a recent paper however. Dr. A.A. Bake has pointed out that this interpretation is unfounded and that ‘strange to say, there is no trace of the knowledge of the existence of the vocal cords in the texts on the theory of music.’” The sentence of the Ait Ār runs as follows यथा अस्याः तन्त्र्यः एवं अमुष्याः अङ्गुलयः।

In the text the word 'asyāḥ' refers to human phonetic apparatus and word 'amusyāḥ' refers to lute designed by humans. Here the word 'tantryaḥ' is uttered along with asyāḥ. Thus, the author of the text intends the strings of divine lute. The strings in human phonetic apparatus are certainly the vocal folds.

Like vocal folds, tongue is also an important organ that carries out oscillation. Therefore, the Śāṅ Ār say तद्यथास्यै जिह्वा एवममुष्या वादनम्. Tongue is referred to as an important organ in sound production even in the Ait Ār. The description therein is very vivid. To quote:

ओष्ठपिधना नकुली दन्तैः परिवृता पविः।

सर्वस्या वाच ईशाना चारु मामिह वादयेत्॥

The verse describes tongue as covered with lips. Therefore it is called ओष्ठपिधना. Since it is an important organ of sound production it is called nakulī is a name of lute quite popular in the Vedic times. The third adjective of tongue is दन्तैः परिवृता i.e. surrounded with teeth. The word 'paviḥ' has two meanings. It means 'having blades' i.e. sides of the tongue are very much important in producing certain sounds. Another meaning of the word 'paviḥ' is 'swift'. The tongue is considered as active articulator in phonetics. It moves in the oral cavity and various sounds are produced. It approaches towards places of articulation. Further it is called 'mistress of all speech' since no speech is produced because of tongue. This is how the vocal folds and tongue

produce oscillation which is very much essential in sound production.

3) Resonance: The sound produced resonates in the air column. Both the texts use the word 'ambhaṇa' for cavity. The word is retained in regional languages with slight change. It is called 'ambhavā'¹³ in old Marathi. Keith derives the Sanskrit word from the root anu + bhana to mean 'to speak after'. The sound produced resonates in the cavities. According to the Taittirīya Prātiśākhya resonance takes place in five places. To quote: tasya prāṭisrūtāni bhavantyuraḥ, kaṇṭhaḥ, śiraḥ, mukham, nāsike iti 2.3.

(Tr) The chest, throat, head, oral cavity, nasal cavity are the resonators of the sound. Mark the word 'prāṭis' used in the text. It is derived from rukta the root 'prati + śru to hear immediately after.

7.0.0: Conclusion

Thus with the help of the beautiful metaphor of lute the speech has shown deep insight in mechanism of sound production. The comparison of lute with organs of speech is not at all at random, but based on thorough scientific principles. The principle of oscillation and resonance are directly uttered in the passage whereas air as source of energy is mentioned elsewhere.

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