JOURNAL OF THE ASIATIC SOCIETY

Vol. LXIV, No. 2, 2022

THE ASIATIC SOCIETY
1 PARK STREET ● KOLKATA 700 016

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JOURNAL OF THE ASIATIC SOCIETY

VOLUME LXIV No. 2 2022

THE ASIATIC SOCIETY
1 PARK STREET ❐ KOLKATA

ISSN 0368-3308

Edited and published by
Dr. Satyabrata Chakrabarti
General Secretary
The Asiatic Society
1 Park Street
Kolkata 700 016

Published in July 2022

Printed at
Desktop Printers
3A, Garstin Place, 4th Floor
Kolkata 700 001

Journal of the Asiatic Society is the quarterly peer reviewed international journal enlisted in UGC – CARE List

Price : ₹ 400 (Complete vol. of four nos.)

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Descriptions of Fauna in the Ṛgveda – A Treasure for Zoological Sciences

K. G. Sheshadri

Introduction

Ancient Indians had a harmonious view of living with Nature and their observations regarding Fauna are recorded in their literature. Several varieties of animals and birds have been observed by mankind through the ages. Domestication of certain animals was a significant feature of all civilizations. Human interaction with the animal kingdom goes far back in time that they were included in their myths, beliefs and rituals and so on. Glimpses of the descriptions of animals, their origins, use and properties of animal products for various rites and their behaviour are found in several Vedic texts, epics, kāvyas, purāṇas, tantras and Post-Vedic texts. Even as early as the *Ṛgveda*[1] (RV), there are rich descriptions of Fauna and Flora thus portraying the eco-aesthetics of our sages. The symbol RV will be used throughout the paper to refer to the *Ṛgveda*. The rich plant and animal diversity of the forests of *Daṇḍakāraṇya, Kiṣkiṇdha, Laṅka, Citrakūṭa* and *Sañjīvani Parvata* have been studied by scholars attempting to learn the Flora and Fauna described by Sage *Vālmīki* in his *Rāmāyaṇa*[2,3]. Sage *Vyāsa*'s immortal epic, the *Mahābhārata*[4] is no less in enlisting such ancient instances of animal behavior in the *Vanaparva* and other sections of the text. The portrayal of fauna is also found in the *Kāvyas*. *Āyurveda* and Tantric literature are also rich in mentioning several animal products of which many are yet to be researched. Several animals found in such texts are listed in recent dictionaries[5]. The *Mṛgapakṣiśāstra*[6] (MPS) of Haṁsadeva (13th c. A. D.) and the *Basantarāja*

Śakuna[7] also record observations of various Fauna. Zoological sciences includes a systematic study of the names of animals and their classification (Taxonomy), structural forms, characteristics, anatomy, physiology, developmental biology, geographical habitats, evolutionary history and their behaviour (Ethology).

Several animals are mentioned in *Ṛgvedic* literature some of which are domesticated and others wild. The sacrificial environment as well as hunting economy attached significance to certain animals. Several birds, reptiles, insects, amphibians are also mentioned in the hymns. All these creatures including man maintain the environmental equilibrium. The ancient sages due to their eternal love for nature had keen sense of observations of Fauna that are recorded in several hymns. A description of the fauna in *RV* is first presented giving their origin, classification, characteristics, religious beliefs followed by scientific discussions that highlight such observations and contributions pertaining to various branches comprising Zoological sciences.

Origin of Animals

Ancient Vedic literature offers various glimpses of the origin of various animals. The *Purāṇas* such as *Vāyupurāṇa*[8] also mention the origin of different animals and birds from the lineage of sage *Kāśyapa* and his wives. The *Smṛtis* also enshrine such views. Of these the *Manusmṛti*[9] (MSM) [I.4] broadly classifies world objects into Sthāvara (non-moving) and Jaṅgama (moving). Further while describing the origin of various species it adds that these creatures are born in accordance with their actions by force of austerities.

यथाकर्म तपोयोगात् सृष्टं स्थावरजङ्गमम् ।

yathākarma tapoyogāt sṛṣṭaṁ sthāvarajaṅgamam।

It further describes the creation of various insects, reptiles, amphibians, birds and animals as in MSM [I.39].

In Vedic literature we find mention of animals that are both regarded as divine as well as their terrestrial counterparts. The

association of several deities with various animals is found even as early as the *RV* and also mentioned by later Vedic texts. Although the origin of each species cannot be found in detail, there are glimpses of all beings as originating from the Supreme God *Prajāpati*. The origin of cow is mentioned in various hymns of the text such as *RV* [1.91.22] and *RV* [1.161.7]. The *Puruṣa Sūkta* of *Ṛgveda* [10.90.10] mentions that goats and sheep were born from the Supreme Person. Some of the animals regarded as divine in *RV* were *Dadhikrāvan* (celestial horse), *Ulūka* (owl), *Kāka* (crows), *Emuṣa* (the demonic boar), *Saramā* (the divine dog) and *Ṛkṣa* (the celestial bear).

Taxonomy and Classification

The scientific study of naming, describing and classifying animals is seen in the several names and features of animals recorded in the Vedic literature. Animals were grouped into those living in forests or being domesticated, based on their place of grazing or living habitat, number of limbs or hooves, feeding habitats and number of teeth, characteristics and so on. The names of several animals were derived from root words indicating their behaviour, characteristics, some religious taboos, habitats or based on grammatical rules. The significance of such names is further elaborated by later commentators of Vedic texts and lexicographers. Some examples of such animal names occuring in *RV* include *Vṛka* (wolf – derived from root meaning 'to tear'), *Ibhā* (elephant – from *Uṇādisūtra*), Go (cows – having several meanings in Vedic texts), *Rohita* (refers to red colored deer, mare or horse), *Kikidīvi* (probably a term for kingfisher bird based on its sounds), *Śyena* (derived from the root denoting its habit to bind or hold captive), *Gāndhārīnām Avika* (a term for sheep derived from its habitat in North-West regions in India famous for its wool). Similarly the cow or bull is referred in *RV* by terms like '*Aghnyā*', '*Ahī*' and '*Aditi*' meaning 'not to be killed or cut into pieces' (based on religious taboos).

The classification of different animal species is exhaustively treated in *Āyurvedic* literature like the *Suśruta Saṁhitā*[10] and *Caraka Saṁhitā*[11] and also in *Tattvārthādhigamasūtra*[12] of Jain author *Umāsvati*. Animals

are classified as rural or domestic (*Grāmya*) or wild (*Araṇya*). The *Smṛtis* classify beasts into four broad divisions like *Ekeśapha* (having one hoof), *Dvikhurī* (having two Hooves), *Pañcanakha* (having five nails) and *Ubhayatodanta* (having two rows of teeth). Birds are also classified as *Vikira* (or Viṣkira) (those that feed on insects or seeds after scratching the earth by their legs), Pratuda (those that peck with beaks), *Kravyāda* (carnivorous birds) and *Jālapāda* (those aquatic birds with webbed feet). Creatures are also classified in *Manusmṛti MSM* [I.43-46] as *Jarāyuja* (viviparous -humans and beasts), *Aṇḍaja* (oviparous -born from eggs), *Svedaja* (born out of sweat-like insects) and *Udbhija* (from water). Similarly in *RV* we find animals belonging to these various classes although they have not been explicitly mentioned.

Bio-Geography and distribution of animals

Several animals live in various habitats. Some of these animals have evolved during the times and thus their early ancestors may have gone extinct. However, those that existed during that ancient period would have been observed by early man if he co-existed with them and recorded these in myths or literature spread all over the world. The absence of these animals today in those areas can be known either by literary accounts or fossils. However the absence of their fossilized remains, leads one to come to a conclusion that they never existed or that the literary accounts may be mythical or imaginary in nature. Some of the animals mentioned in *Ṛgveda* had various geographical habitats. There are references to eastern animals that lived in the interior portions of ancient India such as the elephant, Indian bison, peacock, buffalo, spotted deer but not found in the North-West. Some of these animals are found in the early hymns while some in the later hymns of the *RV* text. The North-Western animals are found in later hymns of *RV* text and show unfamiliarity to the Vedic Aryans until they migrated to these areas from their original areas in the east. Some of these animals include the mountain goats, sheeps, lamb, Bactrian camel, north-west horses, ass, wild boar

and other such animals. There are other purely native Indo-Aryan names for many animals in the *Ṛgveda* such as lion, Gangetic or river dolphin, hyena, scorpion, tortoise, monkey, tiger, rhinoceros, crocodile, mongoose, hedgehog, porcupine and bat that appear in later Vedic literature also. There are some common Indo-Iranian (*Avesta*) words for North-Western fauna that appear in later hymns of *Ṛgvedic* text that are also peculiar. Some ritual taboos for various animals are also found in the hymns. Some species of animals that existed in the Steppes of South Russia, Europe, Anatolia and parts of India have words derived from Proto-Indo European (PIE) languages that are also found in the hymns. However, this has lead to some scholars claiming support for Aryan Invasion theories that are loosing ground based on recent studies in paleontology, genetic studies, fossil evidence and other research work. The details of geographical habitats of animals have been discussed in literature[13].

Migration of Vedic Aryans and introduction of certain species

The argument that animal names common to the Indo-European languages of India and Europe indicate a homeland in the steppes has long been discarded by serious scholars. The Western migration of Vedic Aryans is mentioned in some hymns pertaining to the crossing of rivers named Śutudri and Vipāśā under king Sudāsa in *RV* [3.33.4-5], some battles fought in the North-Western regions by the Ten kings (*Dāśarājña Yuddha*) and others on the banks of river *Yamunā*. Some of the discussions pertaining to such animals are mentioned briefly. The elephant is found in *Ṛgveda* with distinct names such as *Ibhā, Vāraṇa*, *Hastin* and *Sṛṇi*; the buffalo known as '*Mahiṣa*', the Indian bison as '*Gaura*', peacock as '*Mayūra*' and Chital or spotted deer as '*Pṛṣati*'. The sheep is known by terms like '*Meṣa*' (also having a cognate word in Iranian) and 'Avi' (an older Vedic word also found in other Indo-European languages), the lamb known as '*Urā*'. The sheep of North-Western regions known as '*Gāndhārīṇām avikā*' in *RV* [I.126.7] are missing in the older hymns of the text and thus represent the knowledge of these animals due to migration to West at a later stage.

RV [4.22.2] also mentions the PIE word for wool (*Urṇa* or *Ūrṇā*) with cognates in other languages. *RV* [1.138.2] and *RV* [8.4.7] mention the camel by the term '*Uṣṭra*'. Camel references occur more in the later hymns of the text suggesting an introduction of the animal to Vedic Aryans by the Iranians who had been familiar with it (as seen in references to camel in *Avesta*). Scholars hold the view that Bactrian camels were domesticated in Central Asia in the late 3rd millenium BCE. Camels were gifted to sages by royal patrons (whose names are similar to Iranian names according to some scholars) as mentioned in *RV* [8.5.37], *RV* [8.6.48] and *RV* [8.46.22]. The boar is known by the terms '*Sūkara*' and '*Varāha*' (also found in Avesta) in *RV* [1.61.7], *RV* [1.88.5], *RV* [8.77.10] and several other hymns. Donkeys, mules and asses are mentioned by several names in *Ṛgveda*. These include '*Gardabha*', '*Rāsabha*' indicating Central Asian influences. The term '*Khara*' is absent in *RV* but found in later Vedic texts. The tiger known as '*Vyāghra*' is not mentioned even once in *RV* but occurs as name of one of the composers of a hymn as in *RV* [9.97]. This term has cognates in other languages. However non-familiarity of the animal cannot be that it was not mentioned but may be due to ritual taboos or due to the effect of substituting lions for tigers. Later Vedic texts note the tigers with lions. Tigers and other animals are depicted in Harappan seals though their literary references are rare in Vedic texts suggesting an earlier existence or knowledge of these animals. Some species of bears are noted in American regions that are outer to the Indo-European contexts, while some species are noted in the steppes of Russia, China, Asian regions as well as India. The Vedic texts denote bears by term 'Ṛkṣa' which also has similar common words in other languages. Horses were known to the Proto-Indo European (PIE) languages as cognate words are found in these languages. Some scholars argue that horses were not native to India but native to large areas spread over Eurasia from Steppes of South Russia to Central Asia. The *RV* mentions horses by the term '*Aśva*'. *RV* [1.162.18] and *Śatapatha Brāhmaṇa*[14] (*SB*) [13.5] describe horses being sacrificed having 34 ribs (that actually represents an extinct Shivalik Mountain area

horse in Vedic times) while the true horse has 36 ribs. The lack of fossil evidence of horses is cited to support claims of the non-existence of horses in India and being introduced at a later stage. However, several archaeological remains of horses have been discovered in various sites across India belonging to different periods that discard the claim of horses being introduced into India. The cow is known by several terms in *RV* and is regarded as highly respectful. These include terms such as '*Gauḥ*', '*Dhenu*', '*Dughā*', '*Usrā*', '*Mahā*', '*Ṛṣabha*', '*Usrika*', '*Stāri*' and '*Ghṛṣṭi*'. Glimpses of Bio-geography are also found in later Vedic literature. The *Bṛhadāraṇyaka Upaniṣad*[15] [6.1.13] mentions about well trained big horses from the Indus region as *Mahāsuhayaḥ saindhavaḥ*. The *Kātyāyana Śrautasūtra*[16] [22.2.22] mentions that horses were reared in Western regions of the country, elephants in Eastern regions and mules in Northern regions. Discussions pertaining as to whether animals were first domesticated in India have been found in literature as noted by scholars[17].

Descriptions of animals

The different Fauna described in the *Ṛgveda* can be studied under the following classes –

[A] Animals without a Backbone

Modern Zoology classifies animals into those having a backbone and those without a backbone. Animals without a backbone include Annelids, Arachnids, Crustaceans, Arthropods, Molluscs, Echinoderms, Flat worms, Sponges and other marine creatures. The Conch is the empty shell of '*Turbinella rapa*' or '*Xanchus pyrum*', a marine gastropod. From tertiary formations of India, the following species of *Turbinella* are known –

1 *Turbinella episoma* [Sindh and Baluchistan].
2 *Turbinella affinis* [Kutch, Sindh, Kathiawar].
3 *Turbinella mekranica* [Makran beds]
4 *Turbinella pyrum* [Karikal]

Gastropods from tertiary beds of Burma and other parts of India have been described in literature[18]. Cowries are the name given to

small convolute glossy shells of variegated colors of oblong, oval shape varying in size. Conches occur in various forms. The term '*Śaṅkha*' is used in Sanskrit literature to denote conches. The *Ṛgveda* refers to *śaṅkha* in the hymns to *Aśvins*. The *Ṛgveda* also mentions about crabs. Apart from these, one does not come across descriptions of other crustaceans, arthropods, annelids, molluscs and so on.

[B] Insects

Entomological information has been recorded ever since the Vedic times. Insects have been mentioned in various Vedic and post-Vedic texts that have been discussed in recent literature[19]. These include bees, ants, grasshoppers, mosquitoes, flies, gnats, spiders, scorpions and so on. The *Manusmṛti* [I.40] sheds light on origin of insects as follows -

कृमिकीटपतङ्गश्चयूकामक्षिकमत्कुणम्। सर्व च दंशमशकं स्थावरं च पृथग्विधम्॥

kṛmikīṭapataṅgaścayūkāmakṣikamatkuṇam । sarva ca daṁśamaśakaṁ sthāvaraṁ ca pṛthagvidham ।।

"These include worms, winged insects like moths, lice, flies, bugs, gadflies and gnats that are born from heat (Svedaja)".

The *Ṛgveda* itself records various insects that are of various kinds. It speaks of ant species like *Upajihvika* (*RV* [8.102.21]), Pluṣi (*RV* [1.191.1]), grasshoppers – *Tṛṇaskandha* (*RV* [1.172.3]), *Kaṅkaṭa* -Scorpion (*RV* [1.191.1]) and stinging insects - *Sūcīkā* (*RV* [1.191.7]). The *Ṛgveda* mentions some types of bees like *Āraṅgara* (*RV* [10.106.10]), (*RV* [1.162.9]), *Saraḥ* (*RV* [1.112.21]). The bees are said to bring honey to as in *RV* [10.46.6]. Locusts are termed as '*Śalabha*' in Sanskrit literature. Fireflies are termed as '*Khadyota*' or '*Indragopa*' as early as in the *Ṛgveda* [1.172.3].

Pest-Control methods – Similar to the *Ṛgveda* [10.68.1] which advocates driving away of birds from fields by use of din and noise, the text *Atharvaveda Saṁhitā*[20] AV [6.50.1-3] has hymns known as '*Krimināśana Sūkta*' to drive away birds and pests such as *Tarda* [Borer insect or birds], *Samaṅka* (Hooked insects), *Upakvasa* (noxious insects),

Locusts (*Patańga*), rodents (*Vyadvaras*), Rats (*Ākhu*) and reptiles. The *Aśvins* are invoked to destroy rats that burrow into granaries stocking barley. It recognizes the sages *Atri, Kanva, Jamadagni* and *Agastya* to be the ancient entomologists whose hymns if chanted destroy bacteria. Other hymns such as the *'Kṣetriyaroganāśana Sūkta' AV* [2.8] of Sage *Bhṛgvaṅgirā* are for warding off diseases pertaining to fields invoking the deities of stars based on the meteorological conditions.

Poisonous creatures -The venom of scorpions was known as early as in the *Ṛgveda* [1.191.16]

कुपुम्भकस्तदब्रवीद् गिरेः प्रवर्तमानकः। वृश्चिकस्यारसं विषमरसं वृश्चिक ते विषम्॥

kuṣumbhakastadabravīd gireḥ pravartamānakaḥ। vṛścikasyārasaṁ viṣamarasaṁ vṛścika te viṣam।।

Sage Śaunaka as well as Sage Agastya are of the opinion that anyone afflicted by poison of scorpions or any other creatures may repeat the hymn of *RV* [1.191.1]. Small poisonous creatures were crushed by stone as mentioned in one hymn *RV* [1.191.15] :

इयत्तकः कुपुम्भकस्तकं इंभनद्म्यश्मना। ततो विशं प्र वावृते पराचीरनु संवतः॥

iyattakaḥ kuṣumbhakastakaṁ iṁbhanadymaśmanā । tato viśaṁ pra vāvṛte parācīranu saṁvataḥ।।

[C] Fishes

A systematic body of knowledge of fishes and other aquatic creatures was known from ancient times as described in literature.[21] The *Suśruta Saṁhitā* classifies fishes into two types – *Nādeya* (fresh water fish) and *Samudra* (Marine fish). The *Purāṇas* also mention various types of fish. The *Smṛtis* also mention several species of fishes like *Rohita* (*Labeo rohita*), *Pāṭhīna* (*Wallago attu*), *Siṁhatuṇḍaka* (*Bagarius bagarius*), *Śaphara* (*Danio Barilius*), *Śakula* (*Heteropneustes Fossilis*), *Śaśalka*, *Rājīva* and so on. Several marine animals are also mentioned in Vedic Literature. Among these are fishes, conches, gastropods, crabs and other creatures. The *Ṛgveda* refers to a large fish terming it *Mahāmīna* [a whale probably].Vedic traditions held that *'Dhruva'* - the

Pole star was located in the Constellation of Dolphin termed generally as '*Śiśumāra*' in Vedic texts. The knowledge of '*Śiśumāra*' as a constellation in contrast to the word meaning an acquatic animal is widespread in Vedic Literature. The *Ṛgveda* [1.116.17-18] states that the Aśvins bring riches to Divodāsa in a chariot yoked with *Śiṁśumāra* (dolphins) and *Vṛṣabha* (bulls). Sāyaṇa's commentary identifies '*Śiṁśumāra*' as a variant of the word *Śiśumāra* stating that it was an act of the divine twins (Aśvins) exhibiting their powers. He also interprets it as a *Grāha* – a crocodile or a *Jalacarajantū* as follows :

तस्मै दिवोदासाय प्रापयामास। अपि च तस्मिन् रथे वृषभः अनद्वान्
शिंशुमारः ग्राह च परस्पर
विरुद्धावापि स्वसामर्थ्य प्रकटनाय युक्ता वाहनतया संयुक्तावास्तां ॥

tasmai divodāsya prāpayāmāsa। api ca tasmin rathe vṛṣabhaḥ anaḍhvān śiṁśumāraḥ grāha ca paraspara viruddhāvāpi svasāmarthya prakaṭanāya yuktā vāhanatayā saṁyuktāvāstāṁ।।

[Sāyaṇa's commentary on *RV* 1.116.18]

[D] Amphibians

Several amphibians have been reported in Vedic and *Āyurvedic* texts. Even since the *Ṛgvedic* times, frogs have been regarded with high respect. Frogs are described in *RV* [7.103.1-10] known as *Maṇḍūka Sūkta.* It states that just as Brahmins have gathered together at *Atirātra* sacrifice, similarly Frogs have gathered as if they have come for a sacrifice. One frog welcomed another frog as monsoon showers made them all happy. One frog seemed to talk to another. It was as if a disciple was conversing with his teacher. The *Sūkta* also glorifies the frog which croaks like a cow granting riches, that which croaks like a goat will grant riches, they will grant us 100 cows and so on. *RV* [7.103.1] also refers to frogs in clefts of earth (*Iriṇa*). Elsewhere a hymn in *RV* [10.16.14] invites the frogs to come to the spot where cremation has taken place after a dead body is burnt, in order to cool it down.

[E] Reptiles

Reptiles form a section of vast animal species of which more than 6000 species are known all over the world. These include snakes, lizards, tortoises, crocodiles and other such animals. Among reptiles, the *Squamata* group includes all kinds of lizards. Post-Vedic literature has extensive information on lizards and chameleons terming them as '*Palli*' or '*Godhā*'. Various types of snakes are reported in *Āyurvedic* texts of *Suśruta, Caraka* and *Vāgbhaṭa*. Rich information about snakes is also found in *Atharvaveda Saṁhitā* and *Kāśyapa Saṁhitā*[22] (a text on *Agada Tantra*). The demon Vṛtra is often associated with a snake termed as '*Ahi*' in *Ṛgvedic* literature as in *RV* [2.11.2]. Reptiles look like thieves at evening as mentioned in *RV* [1.191.4-5]. A crawling animal termed as '*Tsaru*' is mentioned in *RV* [7.50.1]. Among reptiles, the class of '*Chelonia*' deals with animals having their body in a shell. These include Turtles, Tortoises and others known generally as (*Kūrma*) in ancient Indian texts. There have been excellent descriptions of Tortoise in Vedic mythology and ritual by H. C. Patyal[23] as well as those in literature and archaeology by Mrs. Meera Arole[24]. Ancient Sanskrit texts use several terms to denote the Crocodile such as *Makara* and *Nakra*. Vedic texts extensively mention about *Makara*. The *Ṛgveda* does not mention about the crocodile. However the *Vājasaneyī* [*Yajurveda Saṁhitā*][25] *YV* [24.35] mentions that crocodiles are for *Varuṇa*. *Varuṇa* was the over Lord of oceans and is depicted as touring his realm on the *Makara*. One of his names is Makarāśva meaning one having the crocodile as a vehicle similar to the horse.

[F] Birds

Birds have been described in several ancient Sanskrit texts that they have been treated elaborately by eminent scholars[26]. Several birds have been recorded since the time of the Vedas. The Smṛtis also mention several birds and are quoted in different contexts. The birds mentioned belong to the categories of scavengers (crows, vultures, owls, falcons and eagles), peckers (like pigeons), acquatic birds (like

swans, geese, ducks, cranes, storks) and scratchers (that feed on insects and seeds by scratching with their legs such as cocks, fowls).

Scavenger birds RV [1.164.52] mentions about crows (*Vāyasa*). They are also known as '*Kāka*'. In *RV* [6.48.17], *Pūṣan* is known as Lord of crows. Black daws (*Kṛṣṇaśakuna*) are mentioned in one of the funeral hymns addressed to Agni as in *RV* [10.16.6]. In this hymn, Agni is requested to purify the body of the dead as it is pricked by crows thus showing their association with the dead and also highlighting its habit of eating flesh of dead. Owls have also been mentioned in Vedic texts. The *Ṛgveda* [10.165.4] terms the bird as *Ulūka* and states that the screeches of the bird were regarded as inauspicious. The word *Ulūka* signifies large hooting owls. *RV* [7.104.17] also mentions the common spotted owlet as *Khargalā* which wanders at night. The *Ṛgveda* [7.104.22] also mentions the Eagle owl (*Śuśūlūka* — an owlet *Śiśu Ulūka* according to commentator *Sāyaṇa*) seeking protection from it. The owl was considered to be Yama's messenger and its shriek is noted in *RV* [10.165.4] while its nocturnal habit is mentioned in *RV* [7.104.17].

Ancient Vedic literature offers glimpses of the mythical double headed eagle that was later termed in some texts as '*Gaṇḍabheruṇḍa*'. The relation of this figure with the Solar cult as in Egyptian and Assyrian cultures is also mentioned in these texts. The *Ṛgveda* [1.35.7] states –

विसुपर्णोऽन्त रिक्षाण्यख्यद् गभीरवेषा असुरः सुनीथः। क्वेदानीं सुर्यःकश्चिकेत कतमां द्यां रश्मिरस्याततान॥

visuparṇo'ntarikṣāṇyakhyad gabhīraveṣā asuraḥ sunīthaḥ।
kvedānīṁ sūryaḥ kaściketa katamāṁ dyāṁ raśmirasyātatāna।।

"Where is the Sun to which heaven do his beams extend? The Sun's path in heavens is compared to that of an eagle and also the three strides of Lord Viṣṇu. The raśmis control the worlds."

The *Trisuparṇa* hymn mentions the golden bird bringing ambrosia. Garuḍa as symbol of Gāyatri metre is also equated with *Suparṇa* as in *RV* [1.164.46]

इन्द्रं मित्रं वरुणमग्नि माहुरथो दिव्यः सुपर्णो गरुत्मान्। एकं सद्विप्रा बहुधावदन्ति अग्निं यमं मातरिश्वानामाहुः॥

indraṁ mitraṁ varuṇamagni māhuratho divyaḥ suparṇo garutmān।
ekaṁ sadviprā bahudhāvadanti agniṁ yamaṁ mātariśvānamāhuḥ।।

The *Ṛgveda* [1.164.20-22] also speaks of the transcending of duality and attaining unity based on the golden birds associated with the tree–

द्वासुपर्णा सयुजा सखाया समानं वृक्षं परिषस्वजाते। तयोरन्यः पिप्पलं स्वाद्वत्ति अनश्नन्नन्योऽभिचाकशीति॥

यत्रा सुपर्णा अमृतस्य भागनिमेषं विदथाऽभिस्वरन्ति। इनो विश्वस्य भुवनस्य गोपाः समाधीरः पाकमत्राविवेश।

यस्मिन्वृक्षेमध्वदः सुपर्णानिविशन्ते सुवतेचाधिविश्वे। तस्येदाहुः पिप्पलं स्वाद्वग्रे तन्नोराद्यः पितरं नवेद॥

dvāsuparṇā sayujā sakhāyā samānaṁ vṛkṣaṁ pariṣasvajāte। tayoranyaḥ pippalaṁ svādvatti anaśnannanyo'bhicākaśīti।। yatrā suparṇā amṛtasya bhāganimeṣaṁ vidathā'bhisvaranti। ino viśvasya bhuvanasya gopāḥ samādhīraḥ pākamatrāviveśa। yasminvṛkṣemadhvadaḥ suparṇāniviśante suvatecādhiviśve। tasyedāhuḥ pippalaṁ svādvagre tannonnārādyaḥ pitaraṁ naveda।।

In this context the golden birds referred to are probably the Golden Oriole pair sitting on a fig tree. Several preying birds like falcons, eagles, oriole and peregrines seem to have been mentioned in the hymns although differentiating between them is difficult. The terms used for such birds are *'Śyena'*, *'Śaśada'*, *'Kravyāda'*, *'Krūra'*, *'Khagantaka'*, *'Tārkṣyanāyaka'*, *'Suparṇa'* and *'Garutmān'*. *Śyena* is glorified in hymns like *RV* [1.32.14], *RV* [2.42.2], *RV* [1.33.2], *RV* [1.163.1] and *RV* [1.118.11]. It denotes one who is swift, mighty, fast, with strong feathers and supreme flight. The hunting habits are described

by *RV* [2.42.2] as in -

मा त्वा श्येन उद् वधीन्मा सुपर्णो मा त्वा विददिषुमान् वीरो अस्ता।
mā tvā śyena ud vadhīnmā suparṇo mā tvā vidadiṣumān vīro astā।

'Let not the falcon kill thee, nor the eagle; let not the arrow-bearing archer reach thee'.

In this hymn, the falcon and eagle are mentioned. The term '*Suparṇa*' is used to denote the eagle (*Garutmān*) as well as used as an epithet of the feathers of *Śyena* (falcon). The term '*Suparṇa*' is also mentioned in *RV* [10.149.3] while terms such as '*Garutmān*' are noted in *RV* [1.164.46] and *RV* [10.149.3]. The *RV* [10.144.4] mentions '*Suparṇa*' as a child of *Śyena* as in –

यं सुपर्णः परावतः श्येनस्य पुत्र आभरत।
yaṁ suparṇaḥ parāvataḥ śyenasya putra ābharata।

RV [1.118.11] invokes the *Nāsatyas* to come with the vigour of falcons. *RV* mentions that the *Śyena* brings Soma in various contexts. *RV* [4.26.7] mentions *Śyena* bought Soma bearing 1000 libations with him. When Soma was bought from the mountains by *Śyena*, the archer Kṛśānu shot at the bird cutting off its one feather that became a tree (*parṇa*) as noted in *RV* [4.27.3-4]. The *RV* [10.99.8] mentions that *Śyena* bought Soma for Indra. Vultures (*Gṛdhra*) are mentioned in *RV* [1.118.4] as well as in *RV* [2.39.1]. The term '*Gṛdhra*' is derived from the root word meaning 'to covet' or 'greedy'and the bird is mentioned in hymns like *RV* [1.190.7] and *RV* [10.123.8]. Vultures haunt towns and villages or cremation grounds and live largely on human flesh, excreta and dung.

Peckers Class Birds

Several such birds are also noted in the *RV*. The *Ṛgveda* [1.50.12] mentions about passing on a physical disease to a parrot (*Śuka*) termed by the commentator *Sāyaṇācārya* as *Sārikā*. In this context the disease is also transferred to another bird that may be probably a Mynah (*Ropaṇākā*) as well as to turmeric. The Hill Mynah has black plumage, fleshy yellow wattles on its head, bare yellow skin on side of its face with an orange yellow bill and legs. Pigeons are denoted by the term

'Kapota'. Pigeons are bluish black or grey with white colored neck. There are several varieties according to later literature. *Kapotas* have a short body and legs but wings and tail are large. They are of dark blue color with pure white neck and red or green beak. A hymn *RV* [1.30.4] addressed to Indra asks him to partake *Somarasa* just as a male pigeon takes a female pigeon seeking pregnancy (अयमुते समतसि कपोत इव गर्भधिम्। *ayamute samatasi kapota iva garbhadhim*।). The dove is said to be a messenger of Nirṛti in *RV* [10.165.1] (देवाः कपोत इषितो यदिच्छन् दूतो निर्ऋत्या इदमाजगाम। *devāḥ kapota iṣito yadicchan dūto nirṛtyā idamājagāma*।) and has been termed as *"Hetiḥ pakṣiṇī"* (a bird that brings in death). In this context the owl is also mentioned as well as evil effects of its call. The woodpecker (*Karkarī*) is mentioned in a hymn *RV* [2.43.3] that is known in later texts as *'Drumakuṭṭaka'*. The term *'Karkarī'* often denotes the Drumming woodpeckers which drum and peck at wood of trees in search of food and cause a musical rhythm by their pecking.

Acquatic Birds

Swans generally reside near lakes full of lotuses feeding on their stalks and stems or forest fruits. They are swift in flight, have a graceful gait and amorous in nature. They glide over water and have enchanting looks. *RV* [1.65.9] mentions that just as a swan sits in water, the fire resides in water and acquires strength (श्वसित्यप्सु हंसो न सीदन् क्रत्वा चेतिष्ठो विशामुषर्भुत्। *śvasityapsu haṁso na sīdan kratvā cetiṣṭho viśāmuṣarbhut*।). This refers to the hissing of a Mute swan when disturbed over water. The Aśvins are invited to the Soma sacrifice like a pair of swans hastening to the water as in RV [5.78.1]–

हंसाविव पततमा सुतां उप। *haṁsāviva patatamā sutāṁ upa*।

Whooping swans answering the sonorous call of their leader while flying in a line is noted in *RV* [3.53.10] as –

हंसा इव कृणुथ श्लोकम्। *haṁsā iva kṛṇutha ślokam*।

The Bar-headed goose is pale grey above with two black bars on its white head, brown in the neck with white streaks on its side, brown on the flanks, pale grey and white below with yellow or orange bill and feet. It is generally found in lakes in high mountainous regions of Leh, Ladakh in India as well as Tibet. A reference to this bird noted as '*Nīlapṛṣṭha Haṁsa*' is found in *RV* [7.59.7] that is known as '*Kādamba*' in later Indian literature.

सस्वश्चिद्धि तन्वः शुम्भमाना आ हंसासो नीलपृष्ठा अपप्तन्।
sasvaściddhi tanvaḥ śumbhamānā ā haṁsāso nīlapṛṣṭhā apaptan।

The Ruddy Sheldrake or Brahminy ducks are known as '*Chakravāka*' and are compared to be like inseparable *Aśvin* twins as in *RV* [2.39.3]-

चक्रवाकेव प्रतिवस्तोरुस्त्रा। *cakravākeva prativastorustrā*।

These birds are known for their marital bliss and keep calling out to their mate throughout the night. They are considered to be auspicious. Kingfishers are brilliantly colored birds colored in blue, green, chestnut and white that frequently hunt for fish by the sides of a river bank or stream. Some of these species have a screaming call sounding like '*Ke-Ke-Ke-Ke*' that resemble coughing. The Blue Jay or Roller bird (*Cāṣa*) and Brown-headed stork billed kingfisher (*Kikidīvi*) are mentioned in a hymn *RV* [10.97.13] while referring to the cough of a person suffering from Asthma is asked to quit and go away with the birds –

साकं यक्ष्म प्रपत चाषेण किकिदीविना । *sākaṁ yakṣma prapata cāṣeṇa kikidīvinā*।

Sāyaṇācārya refers to the bird '*Kikidīvi*' as *Tittira* (Partridge) incorrectly. Scarlet Minivets are small passerine birds with long tails, colourful plumage ranging from scarlet red, yellow or black wing patches with soft chirping notes. In a hymn which is a charm against snakes, scorpions and insects the Scarlet Minivet is referred to as '*Viṣpuliṅgaka*' in *RV* [1.191.12].

Scratcher class birds – These include fowls, cocks, pheasants, partridges and so on. Peacocks (*Mayūra*) are mentioned in *RV* [1.191.14],

RV [3.45.1] and *RV* [8.1.25]. A female peacock is mentioned in *RV* [I.191.14]. The partridges are game birds occuring in several species. Among these the black partridge (*Tittira*) is mentioned in later Vedic literature. The grey partridge is known as '*Kapiñjala*' in *RV* and is a bird associated with crops with a breeding season falling in spring. The *Kapiñjala* and its sounds as well as the omens portended by it are mentioned in *RV* [2.42.1-3]. Cuckoos are divided into two groups namely arboreal (parasitic) and terrestrial (non-parasitic). They are known by several names in later texts such as *Anvāpa, Kalakaṇṭha, Kākapuṣṭa, Puṁsakokila, Pika* and *Kokila*. The Hawk-cuckoo are grey-brown in color, very noisy, resembles a hawk and lays eggs in other bird's nests. They are termed as '*Vṛśākha*' or '*Vṛśārava*' in *RV* [10.146.2]. Some other type of cuckoo (or koel) are mentioned as in *RV* [10.86.7]). Quails are mid-size birds and are referred under class of game birds. The term is '*Vartika*' derived from a root word referring to their quick running movement of these plump little birds rolling over the ground. Quails (*Vartika*) are mentioned in *RV* [1.117.16] and *RV* [1.118.8]. Wagtails are passerine birds, short in size, feed on insects, laying their eggs in a nest made in the ground. They constantly wag their tails and this earns their name. The Water Wagtail (*Hāridrava*) is mentioned in *RV* [1.50.12] and *RV* [8.35.7]. The *RV* [7.104.18] mentions about Maruts being invoked to kill *Rākṣasas* who wander at night in the form of birds and spoil sacrifices.

Sounds of Birds

The *Ṛgveda* gives some interesting information regarding the sounds of birds as well as the omens (Śakuna) they forebode. Sage Gṛtsamada states in *RV* [2.42.2] :

मा त्वा श्येन उद् वधीन्मा सुपर्णो मा त्वा विददिषु मान् वीरो अस्ता।
पित्र्यामनु प्रदिशं कनिक्रदत् समुङ्गलो भद्रवाही वदेह।

mā tvā śyena ud vadhīnmā suparṇo mā tvā vidadiṣu mān vīro astā।
pitryāmanu pradiśaṁ kanikradat sumaṅgalo bhadravāhī vadeha।

"No predator bird may attack you while you are flying. May Suparṇa (*Garuḍa*) not kill you nor a hunter with arrows may do so.

You may move without fear in the South direction of the Manes (*Pitṛs*) and emit auspiciuous sounds for us".

The text *RV* [2.43.1] further states -

प्रदाक्षिणिदभि गृणन्ति कारवो वयो वदन्त ऋतुथा शकुन्तयः। उभे वाचो वदति सामगा इव गायत्र्यं च त्रैष्टुभं चानु राजति।

pradākṣiṇidabhi gṛṇanti kāravo vayo vadanta ṛtuthā śakuntayaḥ। ubhe vāco vadati sāmagā iva gāyatryaṁ ca traiṣṭubhaṁ cānu rājati।

"O' Śakunta, you may remain auspicious by your sound from south like the *Udgātṛ* (priest) your sound may make the surroundings good in both ways on earth by the *Gāyatrī sāman*, and in the space (*Antarikṣa*) by *Traiṣṭubha sāman*".

The text *RV* [2.43.3] also asks the bird to speak good words, bestow intellectual capacity while sitting, speak like a woodpecker (*Karkari*) while flying so that one remains efficient in life :

आवदंस्त्वं शकुने भद्रमा वद तूष्णीमासीनः सुमतिं चिकिद्धि नः। यदुत्पतन् वदसि कर्करिर्यथा बृहद् वदेम विदथे सुवीराः॥

āvadaṁstvaṁ śakune bhadramā vada tūṣṇīmāsīnaḥ sumatiṁ cikiddhi naḥ। yadutpatan vadasi karkariryathā bṛhad vadema vidathe suvīrāḥ।।

A hymn in *RV* [10.146.2] mentions the hawk-cuckoo (*Vṛṣāravā*) and crested tree swift (*Ciccikaḥ*) as playing music to the Goddess of the forest –

वृषारवाय वदते यदुपावति चिच्चिकः। आघाटिरिव धावयन्नरण्यानिर्महीयते॥

vṛṣāravāya vadate yadupāvati ciccikaḥ। āghāṭiriva dhāvayannaraṇyānirmahīyate।।

Such glimpses of sounds in birds are also found in later Vedic literature. The Vedic texts speak about speech in animals as in the *Taittirīya Brāhmaṇa*[27] (*TB*) [2.7.8]

वाचं देवा उपजीवन्ति विश्वे। वाचं गन्धर्वाः पशवो मनुष्याः॥ *vācaṁ devā upajīvanti viśve। vācaṁ gandharvāḥ paśavo manuṣyāḥ।।*

-TB [2.7.8]

[G] Animals (Mammals) –

Several animals are mentioned in Vedic texts. They are generally classified as Domestic and Wild animals. Some animals such as elephants, monkeys and bears though they live in the forests, they can be tamed by humans. There are various animals also mentioned in *Smṛti* texts. The descriptions of these various animals in *Ṛgveda* can be studied under the following categories –

Domestic Animals

Cows :Veterinary lore about cows are found in ancient texts beginning from Vedic period and have been documented in recent literature[28]. The use of urine, milk, ghee, curds and dung of cows has been mentioned in Vedic texts and their efficacies are elaborated in *Āyurvedic* texts. The *Mahābhārata* (*Anuśāsanika Parva*, Chap 79) enumerates different colours and varieties of cows. Since times of *Ṛgveda*, cow is held to be sacred and divine. Several terms are used to denote the cow such as '*Usrā*' (*RV* [1.3.8], *RV* [8.75.8], *RV* [8.96.8]), '*Usriyā*' (*RV* [1.153.4] and *RV* [1.180.3]), '*Dughā*' (*RV* [8.50.3] and *RV* [10.67.1]), 'Dhenu' (*RV* [3.34.3]), '*Ghṛṣṭi*' (A cow that has calved for first time as in *RV* [4.18.10]), '*Stāri*' (a barren cow – *RV* [1.101.3] and *RV* [1.116.22]), '*Vaśā*' (a barren cow that is sacrificed – *RV* [6.16.47]), '*Ṛṣabha*' (*RV* [6.16.47]), '*Vāha*' (an ox used to plough-*RV* [4.57.4]), '*Trayavi*' (a calf of 18 months age – *RV* [3.55.14]). These terms do not indicate any veterinary classification. Cows in *RV* are portrayed as most useful animal in various rituals as symbolising motherhood (hence termed as *Devī* – the mother Goddess or glorified as *Kāmadhenu* – that fulfills desires of all devotees). The origin of cow is also mentioned in various hymns of the text. *RV* [1.91.22] states Soma generated cows in the beginning whereas *RV* [1.161.7] mentions that sons of Sudhanvān created cows by their talents. *RV* [8.101.15] mentions lineage of cow as being sister of Ādityas, daughter of Vasus and mother of Rudras. Several portions of the text also mention gifts of cows. Svanaya gave 60000 cows to Kakṣīvān (*RV* [1.126.3]), Rāja Ṛṇancaya gifted 1000 cows to sage Babhṛ (*RV* [5.30.12-15]), Śrutaratha

gave 300 cows to Prabhuvasu of *Aṅgirasa* race (*RV* [5.36.6]), Aśvattha gave Pāyu ten chariots with horses and 100 cows (*RV* [6.47.24]), Sudāsa gave 200 cows to sage Vasiṣṭha (*RV* [7.18.22)], Plāyogi's son Asaṁga gave 10000 oxen to Indra (*RV* [8.1.33]), Chitraja donated many cows to sage Sobhari (*RV* [8.21.18]) while Tirindira and Pārśavya gave 10000 herds of cows to Pajra (*RV* [8.6.46-47]). The cow is extolled as '*Amṛtasya nābhiḥ*' (navel of nectar) in *RV* [8.101.15]. Glimpses of veterinary care for cows are also found in certain hymns. *RV* [6.53.9] mentions about designing of stalls in such a manner that cows are comfortable and have space to sleep. *RV* [1.114.8] states that veterinary care to be given to premature born cows and horses and sanitized by performing *Agnihotra* there –

मानस्तोके तनये मा न आयौ मा नो गोषु मा नो अश्वेषु रीरिषः।
वीरान्मानो रुद्र भामितो वधीर्हविष्मन्तः सद्मित्त्वा हवामहे॥

mānastoke tanaye mā na āyau mā no goṣu mā no aśveṣu rīriṣaḥ।
vīrānmāno rudra bhāmito vadhīrhaviṣmantaḥ sadmittvā havāmahe॥

RV [10.169.1] advocates that cows should enjoy salubrious pastures where pleasant breeze is flowing and peacocks are dancing. One must allow cows to feed themselves on rations that provide energy to body. It was presumed that Parjanya as a god of fecundity prepares the womb of cows for productivity. Sage Tvaṣṭā Garbhakartā in *RV* [10.184] is said to have caused pregnancy in animals according to the *Taittirīya Brāhmaṇa* suggesting that he was a veterinary physician. Some information on dairy farming related to cows are also related in *RV*. The *Ṛbhus* developed a cow which could give plenty of milk *RV* [1.20.3-4]. The Aśvins made a barren cow swell with milk for Sayu who had been dying with thirst RV [1.112.3]. The *Ṛbhus* also gave new mothers to orphaned calves and created a cow from skin of cow as in *RV* [1.161.7]. The *Ṛgveda* [I.114.8] has prayers to Lord Rudra for sparing people, domestic cows and horses. *RV* [10.4.6] says cattle were traced by following footprints. Sage *Vasiṣṭha* revered the divine Cow Kāmadhenu which was known for its rich gifts of desired things and food. Such a divine cow was offspring of sage Kaśyapa and Krodhāśva

as mentioned in later texts. Warriors sought to fight for cattle as stated in *RV* [9.87.7] and won them earning the title '*Go-jit*' as in *RV* [3.31.20]. Stud bulls were termed '*Ukṣan*' and sprinkler bulls as '*Ṛṣabha*'. They were strictly kept for impregnating cows and were associated with Rudra as mentioned in *RV* [2.33.6].

Buffaloes : Buffaloes existed since the Indus Valley Civilization and we do have the earliest references to buffaloes in the *Ṛgveda* itself. Several references to buffaloes occur in *RV* [6.17.11], *RV* [8.17.10], *RV* [9.87.7], *RV* [8.58.15] mentioning the term '*Mahiṣa*' [महिष] literally meaning that which gets pleasure in water. The term '*Mahiṣa*' is also used to denote greatness according to Sāyaṇācārya. Several deities like *Agni, Indra, Maruts, Soma, Viśvedeva, Varuṇa, Sūrya* and *Veṇa* bear the epithet of '*Mahiṣa*'. The term is also used to denote greatness of humans as in *RV* [1.141.3] and of sacrificers as in *RV* [10.5.2]. The *RV* [8.4.22] refers to a gift of 100 buffaloes. In *RV* [6.17.11], Indra is said to have devoured at a time the flesh of 100 to 300 buffaloes.

Goats : Goats are mentioned as early as in the Vedic texts. They are termed by the word '*Aja*', '*Chāga*' as in *RV* [1.162.3] or '*Lodha*' as in *RV* [3.53.23] which has special significance in some hymns. The 'Puruṣa Sūkta' of *Ṛgveda* [10.90.10] mentions that goats and sheep were born from the Supreme Person. *RV* [9.26.8] mentions that goats were harnessed to carts. Goat is employed as a draft animal for *Pūṣaṇ* in *RV* [6.55.4] –

पूषणंन्व अजाश्वमुपस्तोषामवाजिनम् ।

Likewise he is said to be drawn in a chariot harnessed by goats *RV* [6.55.6].

आजासः पूषणं रथे वहन्तु विभ्रतः।

The term 'Aja' also denotes the Sun that upholds heaven and earth *RV* [1.67.3] –

अजो न क्षां दाधार पृथिवीं तस्तम्भ द्यां मन्त्रेभिः सत्यैः।

In the *Ṛgveda* the term '*Aja*' is also regarded as the unmanifested source of all manifestation and equated with *Agni Prajāpati*. A minor

Vedic deity is a one-footed goat glorified along with *Ahirbudhnya*, and others in the hymns *RV* [2.31.6] :

अहिर्बुध्न्यो अज एकपादुत।

In the *Aśvamedha* sacrifice, goat is sacrificed to Lord *Pūṣaṇ* before the horse *RV* [1.163.12]. Several varieties of goats are mentioned in the hymns. *RV* [10.27.17] speaks of roasted ram (*meṣa*) as a fertility charm. The castrated variety or ram is called [*petva*] as in *RV* [7.18.17]. The hornless variety is called *basta RV* [1.161.13]. The *Maṇḍūka Sūkta* of *RV* [7.103.6] mentions a frog that has sounded similar to the bleating of a goat (*gomāyureko ajamāyurekaḥ*।)

Sheep : Several ancient authors refer to sheep domestication in India. Sheep are mentioned as early as in the Vedic texts. They are termed by the word '*Avi*', which has special significance in some hymns. The *Ṛgveda* also states that sheep were domesticated for flesh and wool and sacrificed in honour of Gods. *RV* [1.126.7] and *RV* [4.37.4] mention that sheep of *Gāndhāra* regions is famous for wool. *RV* [1.114.9] is a hymn stating shepherds returning their sheep to their owners. *RV* [9.78.1] mentions that a strainer for Soma juice is made of sheep wool. *RV* [8.67.3] has a *Dānastuti* of gifting hundred sheep. *RV* [10.26.6] states *Pūṣan* is said to weave raiment from wool of sheep. The term *urā* as a name for sheep occurs in the *Ṛgveda*. One occurrence is the epithet for wolf as *Urāmathin* (a killer of sheep). The Paruṣṇī country is famous for its wool.

Horses : Vedic literature has many synonyms for the horse such as '*Aśva*', '*Hayaḥ*', '*Arvā*' and '*Vājī*'. The earliest Vedic text namely the *Ṛgveda* has many hymns mentioning about the horse. The divine horse '*Dadhikrāvan*' has been glorified in *RV* [4.38 to 4.40] and is similar to Pegasus, a flying horse mentioned in Greek texts. Other words denoting divine horses are '*Peḍu*' as in *RV* [1.117.9] and '*Tārkṣya*' *RV* [10.178.1]. Other terms used for horse as found in the text include '*Praṣṭi*' (*RV* [1.39.6]), '*Maryā*' (stallion – *RV* [7.56.16]), '*Rohita*' (as in *RV* [1.94.10]) and '*Haya*' (as in *RV* [5.46.1]). The *Aśvins* also transplant a horse's head onto sage *Dadhyan's* (known as sage *Dadhīci* in later

literature) as in *RV* [1.117.22] and *RV* [1.116.12]. Several deities are also associated with the horse. The *Aśvins* and *Maruts* have a fleet of horses. *RV* [3.1.16] mentions *Uṣas* riding a horse chariot. *RV* [1.115.3] represents the seven rays of the Sun (*Sūrya*) symbolically as seven horses. *RV* [5.45.9] refers to the Sun as - आ सूर्यो चातुसप्ताश्वः। *ā sūryo cātusaptāśvaḥ*।). The horses of the Sun are said to speed like geese (*haṁsas*) as in *RV* [1.163.10]. In *RV* [4.2.8], *Agni* is described to be a horse bedecked with golden ornaments. Soma is imagined to be a horse in *RV* and the flow of Soma juice is glorified by epithets like '*Vājī*' (*RV* [9.86.11]), '*Āśu*' (*RV* [1.4.7]) and '*Sapti*' (*RV* [9.32]). *RV* [1.126.4] mentions royal horses decorated with pearls and gold ornaments. The horse was used for riding as in *RV* [1.66.2] and *RV* [1.162.17]. Indra first mounted the horse as in *RV* [1.163.2]. A cart with two horses was termed '*Asthūri*' and a cart with one horse was termed '*Sthūri*' as in *RV* [6.15.19]. War horses are mentioned in *RV* [7.72.5], *RV* [9.37.5] and *RV* [9.86.3]. Horsemen battling the enemy are mentioned in *RV* [6.47.31]. Horse was also used as beast of burden and for ploughing as in *RV* [10.101.7]. The *RV* [1.162 and 1.163] deals on the *Aśvamedha* sacrifice and thus describes the sacrificial horse. *RV* [1.162.12] mentions about people taking delight in aroma of cooked meat of the sacrificial horse. Interestingly the *Ṛgveda* [2.34.3] also sheds light on race course for horses during which horses were sprinkled with water. The race course was termed '*Āji*' or '*Kāṣṭhā*' as in *RV* [2.34.3], *RV* [8.45.7] and *RV* [8.53.6]. The finishing point of the race course was called '*Kārṣman*' in *RV* [9.36.1]. During chariot races, Indra was invoked by competitors to win the race as mentioned in *RV* [8.80.4]. Horse races were also held during the *Samana* festival as in *RV* [4.58.8] and *RV* [7.2.5]. Gifts of 60000 steeds are mentioned in *RV* [8.46.22]. Gifts of horses are also mentioned in *RV* [10.68.11].

Camels : Since Vedic literature, camels have been mentioned. *Ṛgveda* [8.6.48] states that camels were yoked to chariots and laden with loads of Gold. The camel is also mentioned as a beast of burden in *RV* [1.138.2] wherein it states :

प्रहि त्वा पूषन्नजिरं न यामनि स्तोमेभिःकृण्व ऋणवो यथा मृध उष्ट्रो न पीपरो मृधः।

prahi tvā pūṣannajiram na yāmani stomebhiḥ kṛṇva ṛṇavo yathā mṛdha uṣṭro na pīparo mṛdhaḥ।

'I exalt you O' *Pūśan* with praises that you may hasten to the sacrifice like a rapid courser to the battle that you may bear us across the combat like a camel'.

Dogs and Cats : Dogs are referred in Vedic texts by the term '*Śvā*'. The *Ṛgveda* mentions that *Saramā* was the divine bitch. She is described by two words namely '*Supadī*' (fair footed or quick) and '*Subhaga*' (fortunate one). Saramā was a celestial dog and belonged to Indra. She was also termed as the beloved of the Gods (*Devaśunī*). The *Ṛgveda RV* [7.55.2-5] mentions praises about Saramā. The dog is said to sleep peacefully and not bite in the same verse. *RV* [8.46.28] mentions dog as beast of burden. A gift of 100 dogs is mentioned in *RV* [8.55.3]. The supernatural four eyed dogs were regarded as envoys of Yama, the God of death roaming with their distended nostrils among the people (*RV* [10.14.10-11]). These are termed as '*Chaturākṣa śvā*'. The *Ṛgveda* [10.86.4] also speaks of boar hunting with the help of dogs. Sāyaṇācārya commenting on the verse states that wild dogs were used to kill boars. The *Ṛgveda* also mentions the legend of Saramā stating that she is the mother of two dogs of Yama as in *RV* [10.14.10]. The legend of Saramā begins with the *Pāṇis* (who were aggressive, staying in huge walled mud forts pillaging other lands) stealing the cattle of Aṅgirasas. The Aṅgirasas appealed to Indra seeking his help to retrieve their lost cattle. Saramā was steadfast, loyal and dependable. The text mentions that she set off on a long and perilous journey to recover the lost cattle. Saramā stopped in front of an ancient cave called '*Vala*' where the *Pāṇis* often rested and started barking loudly. Saramā did not fall prey to the words of bribery by the *Pāṇis* and growled at them threatening that Indra would find and destroy them. Saramā reported that she had found the place where the cattle were hidden. Indra fought the Pāṇis destroying the gigantic cave and

retrieved the cattle. Saramā's descendants were called the *Sārameyas. RV* [7.55.2-5] has praises to the *Sārameyas*. The first such descendants were the heavenly dogs named Śyāmā and Śabala. They were two special dogs with four eyes and streaked golden coats. The *RV* [7.55.3] mentions about dogs used to track thieves or robbers. The epithet 'Devaśunī' given to Saramā is not found in the *Ṛgveda* though being mentioned by Sāyanācārya and Yāska. Saramā is stated in *Ṛgveda* only to be a messenger of Indra [*indrasya dūtiḥ*]. Saramā expresses a desire of milk of cows to be given to her young ones as in *RV* [1.62.3].

Vedic texts mention the names '*Vṛṣadaṁśa*' and '*Mārjāra*' for cats. However it does not refer to the wild cat or domesticated cat. Cats are denoted by the term '*Mārjāra*' meaning one that cleans by rubbing or licking. However several other animals also like civets and polecats share this habit and the term could be applied to them also. Civets and Polecats were indigenous and may have been noted by this term earlier. Cats are not mentioned in the *Ṛgveda*. The Polecat is known by the term '*Jahakā*' and is mentioned in the context of the *Aśvamedha Yajña* in the *Yajurveda Saṁhitā* [24.36] as an offering to Lord *Viṣṇu*.

Donkeys and Asses : Donkeys, Mules and Asses are also mentioned in Vedic texts. They are mentioned by terms such as '*Gardabha*', '*Rāsabha*' and '*Khara*'. The Indian donkey may derive from the Asiatic wild ass or Onager (*Equus hemionus Pallas*) that still survives in the deserts of Rann of Kutch in Gujarat, North West India, Baluchistan or from donkey species (*Equus asinus)*, a descendant of *Asinus taeniopus Heuglin* – a native of Ethiopia and Sudan in Africa. Mules were first bred in parts of Asia Minor according to Greek traditions. The *Atharvaveda Pariśiṣṭa*[29] (AVP) [71.7.5-6] mentions *Gardabha* and *Khara* in the same verse indicating a difference between the two animals. The colour of donkey is said to resemble that of ashes. Allusions to a long eared ass as in the term '*Āśrutakarṇa*' (or ear which does not listen) is mentioned by *RV* [1.10.9]. The ass is said to have a disagreeable cry and *RV* [1.29.5] mentions that one must kill the ass who sings in terrible voice. *RV* [1.34.9] and *RV* [8.85.7] states that donkeys were used to pull carts, for riding and also used as beast of burden. The

mythical ass is likened to be like the Gandharvas attached as lovers of women. The *Ṛgveda* mentions that swift asses were yoked to chariot of *Aśvins*. *RV* [3.53.5] also mentions the term '*Rāsabha*' which are mules yoked to chariots.

यत्र रथस्य बृहतो निधानं विमोचनं वामिनो रासभस्य।

yatra rathasya bṛhato nidhānaṁ vimocanaṁ vāmino rāsabhasya।

RV [3.53.23] mentions Sage Viśvāmitra pointing to Sage Vasiṣṭha that the ass is inferior to horse as people never carry a donkey in front of horse.

नावाजिनं वाजिना हासयन्ति न गर्दभं पुरो अश्वान् नयन्ति।

nāvājinaṁ vājinā hāsayanti na gardabhaṁ puro aśvān nayanti।

RV [8.56.3] mentions about a gift of 100 asses to a singer in *Vālakhilya* hymn. *RV* [8.85.7] also mentions about *Rāsabhas* yoked to chariots of *Aśvins*. Indra was invoked to kill an enemy resembling a donkey. He is also portrayed as driving a donkey chariot in *RV* [3.53.5]. *RV* [1.34.9] and *RV* [1.116.2] mention about the Aśvins driving a donkey cart and won a race of the Gods in it but ruined the nimbleness of the animal. The donkey also plays a role in *Agnicayana* rituals in later texts and serves as sacrificial fees in *RV* [8.56.3].

Wild Animals

Lions : Among the various animals mentioned in Vedic texts, Lion is rarely referred to in them. The lion is regarded as a king of beasts. In the Puranas, the lion is regarded to be the vehicle of Devī Durgā. Lions are termed as '*Siṁha*' and the word is derived from the root word meaning '*hiṁsa*' (to kill). Some other synonyms include *Mṛgendra, Mṛgādhipa,* all meaning 'king of beasts'. The lion is called '*Kesarin*' as its face is covered by mane (*keśara*). The *Ṛgveda* [10.28.10] states that lion used to be trapped and caught alive. It used to be kept in cages probably for show. During the early period, as the forests of *Sapta Sindhu* were destroyed, lions moved to deserts of *Rajputana* region. Lions are also mentioned in *RV* [1.95.5], *RV* [1.64.8] and *RV* [1.174.3]. *RV* [4.16.4] states that Indra fights like a terrible lion. The celestial

blacksmith Tvaṣṭra, who makes weapons for the Gods is compared to a lion in RV [1.95.5]. Elsewhere the voices of the Maruts are compared to that of a lion as in *RV* [3.26.5]. *RV* [5.83.3] compares the thunder of God Parjanya to roars of lions.

Tigers, Leopards and Panthers : Since the Vedic times the tiger was known. Although the *Ṛgveda* does not mention about tigers, later Vedic texts refer to the majestic animal. The term '*Vyāghra*' is used to denote a tiger and its cognate forms are found in other languages. *RV* [9.97] has the name of a seer as Vyāghrapāda Vasiṣṭha. The absence of tiger in ancient *Sapta Sindhu* points to its complete severance from Deccan. The Northern regions were devoid of leopards (known as *Pṛdāku*) and a term used to describe it is rarely found in the text although *RV* [8.17.15] mentions '*Pṛdāku sānu*'.

Hyenas : The hyenas have been known since Vedic times. *RV* [10.73.3] mentions hyenas. In one context Urvaśī admits that women have the heart of hyenas as in *RV* [10.95.15]. The term used to denote hyenas is *Śālavṛka*. Some translate it as being a jackal or wolf like animal. Sāyaṇācārya interprets it to be a wild dog or tiger.

Bears : In Sanskrit, the oldest word for bear is *Ṛkṣa* meaning one who hurts or is injurious. It has many synonyms such as *Bhalla, Bhallūka, Bhālu, Hari* [which is also used for a monkey] and *Bhāluka*. The word *Haryakṣa* is taken to mean both apes and bears. Bears are also denoted by the terms [अच्छभल्ल - *Acchabhalla*] in later Sanskrit, *Pāli* and *Ardhamāgadhi* languages. The *Ṛgveda* has several references to bears. RV [5.56.3] states :

ऋक्षो न वो मरुतः शिमीवा। *ṛkṣo na vo marutaḥ śimīvā*।

"The hordes of *Maruts* [Wind gods] are fierce and injurious like bears". RV [8.68.15] states :

ऋज्राविन्द्रोत आ ददे हरी ऋक्षस्य सूनवि। *ṛjrāvindrota ā dade harī ṛkṣasya sūnavi*।

"*Indrota* donated yellow horses to *ṛjrā*, son of *ṛkṣa*".

This indicates an epithet. The celestial bear among the asterisms is also referred in the *Ṛgveda* [1.24.10]. Here the word *Ṛkṣā* means

'star' and were identified in later texts as the *Saptaṛṣis* of the Great Bear constellation.

Boars : In Sanskrit language, the oldest word for boar is *Varāha*. The *Ṛgveda* [1.61.7] mentions about the boar. *Emuṣa* is the name of the demonic boar, the guardian of the *Asura* gods. Indra kills the boar piercing the mountain on the other side of which the enemy was hiding. The term '*Varāha*' is mentioned in *RV* [10.28.4]. In some cases the word is used in the sense of clouds or sacrificial rites as in *RV* [1.61.7], *RV* [8.77.10] or *RV* [9.97.7]. The text *RV* [8.77.10] adds that the boar *Emuṣa* was a guardian of 100 buffaloes and guarded them on the other side of the mountain. The synonym for *Varāha* namely '*Sūkara*' is also used in *RV* [7.55.4]. Clouds called '*Varāhava*' are referred along with the Maruts in *RV* [1.88.5]. *RV* [1.114.5] praises Rudra who also represents thunder and storms as :

दिवोवराहमरुषं कपर्दिनं त्वेषं रूपं नमसा निहव्यामहे।

divovarāhamaruṣaṁ kapardinaṁ tveṣaṁ rūpaṁ namasāa nihavyāmahe।

"Bowing down we constantly invoke the brilliant shining form of Rudra who is crowned with braided hair who brings forth from heaven the best means of livelihood".

Yāska derives the term from the form '*bṛhatī mūlāni*' (one who tears up roots). *RV* [9.97.7] praises Soma as a progenitor of rain and termed as *Varāha*. Sāyaṇācārya on *RV* [10.86.4] refers to wild dogs that kill boars.

Rhinoceros : There are several Classical authors who compared the Rhinoceros with the Mythical Unicorn. The Great One-horned Indian rhinoceros is known as '*Khaḍga*' in ancient Indian texts. Other names used are '*Parasvat*' and '*Gaṇḍa*'. The *Ṛgveda* [10.86.18] mentions the name 'Parasvat'.

Elephant : Elephants are mentioned extensively in Post-Vedic literature such as *Purāṇas*, Kauṭilya's *Arthaśāstra*, *Gajaśāstram* and *Hastyāyurveda* of sage *Pālakāpya, Gajaśikṣā* of sage Nārada and other encyclopedic texts. Elephants are mentioned by terms such as '*Ibhā*' (*RV* [4.4.1], *RV* [6.20.8], *RV* [1.84.17] and *RV* [9.57.3]), *Hastin* as in *RV*

[1.64.7], *RV* [4.16.14] and *Vāraṇa* as in *RV* [8.33.8], *RV* [1.140.2] and *RV* [10.40.4]. Sāyaṇācārya, Yāska, Mahīdhara and later grammarians as well as lexicographers mention '*Ibhā*' to be an elephant. The word is found in the older as well as later hymns of the text. Some scholars hold *Ibhā* to mean servants or attendants based on wrong translations of *RV* [4.4.1] or *RV* [9.57.3]. The terms '*Apsaḥ*' (*RV* [8.45.56]) and '*Sṛṇī*' (*RV* [10.106.6]) referring to elephants are also found in the text. *RV* [1.64.7], *RV* [1.140.2] and *RV* [8.33.8] refer to wild elephant crashing its way through the forest and bushes. *RV* [10.40.4] refers to two wild elephants tracked by hunters. A household elephant as part of a wealthy householder is mentioned in *RV* [1.84.17]. *RV* [9.57.3] mentions about an elephant decked with ornaments. Tugra is mentioned as a sea faring merchant carrying on trade with distant lands and is probably an elephant breeder also as *RV* [4.20.8] mentions Indra forcing Tugra with his *Ibhās* into submission. A mighty king with his retinue of elephants is mentioned in *RV* [4.4.1]. Tugra is mentioned with garrisons of battle elephants in *RV* [6.20.8]. However no detailed description of elephant behaviour, training or diseases is found in *Ṛgveda*.

Deer and Yak : From Vedic times, the deer and antelopes were held to be sacred. The Vedic texts since the *Ṛgveda* speak of the efficacy of the hide of black antelope (*Kṛṣṇājina*). *RV* [10.39.8] mentions antelopes were prized for their skins and trapped in pits. *RV* [1.163.1] and *RV* [5.78.2] mention about *Hariṇa* (a gazelle). Spotted deer or Chital are known by the term *Pṛṣati*. Other terms used for deer as found in later Vedic texts include *Ruru*, *Eṇī*, *Piśa* (RV 1.64.8) and *Ṛṣyadā* (a stag – *RV* [8.4.10]). There are descriptions of Indra's horses in the *Ṛgveda* [8.1.25] having tails with long hairs described by the epithets *mayūraśepya* and *mayūraromabhiḥ* indicating they resemble peacock's tails. Some authors claim that these are not horses but Chamarīs having such long tails. However such references cannot be totally taken into account.

Monkeys and Apes : Though there may have been several monkeys since Vedic times, references to these *Vānaras* are less. The only references of monkeys that occur are the *Vṛśākapi* hymns in *Ṛgveda* [10.86]. This refers to a lost symbolic ritual of monkey sacrifice as it

required yearly catching of monkey and its mate. *RV* [10.86.3-4] mentions that monkey was engaged in a fertility ritual and hence the term *Vṛśākapi* (Virile Ape). There are indications that it was wild beast and was tamed.

Jackals and Foxes : The Jackals or Foxes are known by several synonyms in literature such as *Śivā, Śṛgāla, Jambūka, Gomāyu, Kroṣṭraḥ, Bhallūkaḥ, Mṛgadhūrtaḥ, Śālāvṛkaḥ, Pheravaḥ, Vyāghrasevakaḥ, Lopāśaḥ, Lopākaḥ, Lomaśaḥ*. The *Ṛgveda* [10.28.4] states that the Jackal drives the wild boar from his lair. Another species of the same namely the Lopāśaḥ confronts the lion.

लोपाशः सिंहं प्रत्यञ्चमत्साः क्रोष्टा वराहं निरतक्त कक्षात्॥

lopāśaḥ siṁhaṁ pratyañcamatsāḥ kroṣṭā varāhaṁ niratakta kakṣāt॥

Indra is spoken of holding 1000 jackals in his mouth symbolically in *RV* [10.73.3].

त्वमिन्द्र सालावृकान्त्सहस्रमासन् दधिषे अश्विना ववृत्याः॥

tvamindra sālāvṛkāntsahasramāsan dadhiṣe aśvinā vavṛtyāḥ॥

Female friendships are compared to be the hearts of jackals as they are believed to not exist as in *RV* [10.95.15].

न वै स्त्रैणानि सख्यानि सन्ति सालावृकाणां हृदयान्येता॥

na vai straiṇāni sakhyāni santi sālāvṛkāṇāṁ hṛdayānyetā॥

The Female jackal termed as *śivā* is mentioned in *RV* [4.10.8].

Wolf : Wolves are mentioned in various Vedic texts. These are animals associated with the northern cold regions. They are known by several synonyms such as *Vṛkaḥ, Kokaḥ, Vatsadanaḥ, Avibhuk, Ihāmṛgaḥ, Vatsabhakṣakaḥ*. The term '*Vṛkaḥ*' is derived from the root meaning 'to tear'. The term is also used to qualify the Sun and Moon according to Yāska as in hymns *RV* [1.105.18] and *RV* [1.116.14]. *Ṛgveda* mentions about wolves in several instances. Its behavior to hunt sheep or deer as well as cross rivers is well noted in some hymns. *Ṛgveda* [2.29.6] mentions a hymn seeking protection of Gods from rapacity of

wolf :

त्राध्वं नो देवा निजुरो वृकस्य। *trādhvaṁ no devā nijuro vṛkasya*।

Lord *Varuṇa* is also sought for protection from a wolf that attempts to destroy *RV* [2.28.10]. Vedic texts speak of how a wolf swam across a river to kill Trita who was abandoned by his brothers in the forest. *RV* [1.105.11] seeks to drive back the wolf crossing great waters.

ते सेधन्ति पथो वृकं तरन्तं यह्वतीरपो वित्तं मे अस्य रोदसी

te sedhanti patho vṛkaṁ tarantaṁ yahvatīrapo vittaṁ me asya rodasī।

RV [8.34.3] mentions the wolf as a sheep lifter as –

अत्रा वि नेमिरेषामुरां न धूनुते वृकः।

atrā vi nemireṣāmurāṁ na dhūnute vṛkaḥ।

'The circumference of these (grinding stones) shakes Soma at this rite as a wolf terrifies a sheep.' *RV* [1.105.7] mentions that wolf also attacks thirsty deer :

तं मा व्यन्त्याध्यो वृको न तृष्णजं मृगं वित्तं मे अस्य रोदसी॥

taṁ mā vyantyādhyo vṛko na tṛṣṇajaṁ mṛgaṁ vittaṁ me asya rodasī।।

Rodents : Rodents are extensively mentioned in Vedic texts. They are termed as *Ākhu, Mūṣika* and so on. The *Ṛgveda* [1.105.8] has a seer mentioning to Indra that mice tear their tails by gnawing at them.

मूषो न शिश्ना व्यदन्ति माध्यः स्तातारं ते शतक्रतो।

mūṣo na śiśnā vyadanti mādhyaḥ stātāraṁ te śatakrato।

This has reference to rats which enjoy the honey or other sacrificial offerings with their tails being full of them and thus licking them. Other rodents like marmots, squirrels and moles are not mentioned in *Ṛgveda* but described in later texts.

Gavaya, Gayals and Gaurs : The *Gavaya* is a wild Ox [*Bos gavaeus*]. The wild Ox has horns that rise from sides of the *occiput*, first outward and then forward. The hump is slightly reduced than the domestic ox with females being smaller than male. The males have black hair all

over body except legs that are white from knee downwards. Tails terminate in large tuft of hair. Color of female is not deep black but grey on top of neck and shoulders. The Gaur or *Gauramṛga* [*Bos Gaurus*] has both wild and domestic aspects especially occurring in several mountainous parts of India. It is deep brownish black except a tuft of curling dirty white hair between the horns and rings of same colour just above the hoof. It is misnamed as the bison. The Gayal [*Bos Frontalis*] is a species of bull that is peculiar to the mountains and wild woods. It feeds on tender leaves, shoots. Since Vedic times there has been mention of the *Gavaya, Gaura* and *Gayals*. The *Ṛgveda* [4.21.8] states 'He finds the *Gavaya* and *Gaura*'. This refers to both the *Gavaya* and *Gauramṛga*. The *Yajurveda Saṁhitā* [24.28] in context of *Aśvamedha Yajña* mentions that the *Gavaya* is for guardian of the virtuous [Bṛhaspati]. The same text states that *Gauramṛga* is to be offered to Mitra as in *YV* [24.28] elsewhere stating that the animal had to be offered to Indra as in *YV* [24.32]. The *Gayal* (*Gomṛga*) had to be offered to Vāyu and Prajāpati. *RV* [1.16.5], *RV* [4.58.2], *RV* [5.78.2] and *RV* [7.69.6] also mention about the *Gauramṛga*. The female Gaur known as *Gaurī* is mentioned in *RV* [1.84.10], *RV* [4.12.6] and *RV* [9.12.3]. Hunting of wild cattle with arrows is mentioned in *RV* [10.51.6].

Bats : Although bats existed from ancient times, not much about them is reflected in ancient Vedic texts. Very stray references occur regarding bats. They are termed as *Śuśulūka* in the *Ṛgveda* [7.104.22] in a hymn asking Indra to protect them from owls, bats, dogs, wolf, great eagle and vultures. Some interpret the word *Śuśulūka*' to mean a small owlet.

उलूकयातुं शुशुलूकयातुं जहि श्वातुमुत कोकयातुं।

ulūkayātuṁ śuśulūkayātuṁ jahi śvātumuta kokayātuṁ।

The term '*Jatū*' is used in Vedic texts while referring to a bat.

Mongoose : The *Ṛgveda* [1.191.15-16] describes the Mongoose by the term *Kuṣumbhaka*. Sāyaṇācārya interprets *Kuṣumbhaka* as Mongoose while some scholars like Griffith interpret it as a 'venomous insect'.

Otters : Since Vedic times otters existed but not much is mentioned about them except some stray references. The *Ṛgveda* does not mention them but the *Yajurveda Saṁhitā* [24.37] mentions the otter by the term 'Udra'. In the context of mentioning the animals to be offered during *Aśvamedha Yajña,* the *Taittirīya Saṁhitā*[30] [5.5.11-5.5.24] mentions that the otter is to be offered to the waters as in *TS* [5.5.20.1]. It calls it as a water cat. *Sāyaṇācārya* terms it as '*Jalabiḍāla*' while the commentators Uvaṭa and Mahīdara on the *Yajurveda Saṁhitā* states that it is a crab (*karkaṭaka*). *RV* [1.126.5] mentions about the weasel termed as *Kaśīka*.

Mythical Animals

Among the various animals mentioned in Vedic texts, the *Śarabha* is one of them. *Ṛgveda* has a mention of lions in *RV* [10.28.10], *RV* [1.95.5] and so on. However, the *Śarabha* is not mentioned as an animal but probably as a person. This is found in a queer description of Indra helping *Śarabha* as in *RV* [10.102.7] as –

वसु अपावृणोः शरभाय ऋषिबान्धवे। *vasu apāvṛṇoḥ śarabhāya ṛṣibāndhave।*

Porcupines and Hedgehogs : Porcupines also were known from ancient Vedic period that several later texts offer many details about this small mammal. The porcupine is termed as *Śalyāka* (*Hystrix Indica*) or *Śvāvit* in Indian literature. However some differ and translate the *Śvāvit* as porcupine and the *Śalyāka* as hedgehog. Some say they refer to two varieties of the same Genera.

Rabbit and Hares : Ancient Indian literature uses the term '*śaśa*' to denote rabbits (and hares). The scientific name is *Lepus nigricollis*. Vedic literature also refers to hares in various contexts. The *Ṛgveda* [10.28.9] also mentions about the hare stating that it swallowed a razor. The term '*śaśada*' given to falcons or eagles in *RV* indicates that it was hunted by these birds.

Human, Flora and Fauna interactions as well as Hunting in Ṛgveda

Some glimpses of hunting are also found in *RV*. One desirous of hunting is termed '*Mṛgaṇyu*' in *RV* [8.2.6] and *RV* [10.40.4]. Hunts usually involved in searching the animal and stalking it as in *RV*

[8.2.6]. Lions were trapped in pits, surrounded and then killed as stated in *RV* [10.28.10] and *RV* [5.15.3]. *RV* [10.39.8] mentions antelopes (*Ṛṣyadā*) being trapped in pits. *RV* [2.42.2] states that birds were killed by arrows or caught in nets. These nets were called *Pāśas* or *Nidha* as in *RV* [3.45.1], *RV* [9.83.4] and *RV* [10.73.11].

With regard to interactions we can group these into the classes of human-animal, animal-plant, deity-animal interactions. They are discussed as below :

A. Human-Animal Interactions :

There are interactions of animals with humans in different ways such as related to agricultural activities, political (being used in races or symbols of royalty), social (use in sacrificial rituals, tracking thieves, healing diseases, given away as gifts and so on). Agricultural fields were protected by driving away birds by use of din and noise as in *RV* [10.68.1]. Persons were afflicted by poison of several creatures that hymns of *RV* were recited to cure indicating the efficacy of *Mantra* cures as stated in later *Viṣaśāstra* texts. One finds that several animals were domesticated and used to drive chariots or for ploughing as in the case of bulls, camels, horses, donkeys. Tracking of stolen cows or lost animals is also portrayed in some sections. Cattle were tracked by their footprints as in *RV* [10.4.6], elephants tracked by hunters as in *RV* [10.40.4], antelopes being trapped in pits as in *RV* [10.39.8]. Dogs used to track thieves as in *RV* [7.55.3]. Several hymns in *RV* speak of rich gifts of cattle, bulls, buffaloes, camels, horses in various contexts as described in the sections of each animal earlier in the paper. The use of animal products or parts for sacrificial purposes is also highlighted as in strainers for Soma juice from sheep wool (*RV* [9.78.1]), antelope skin and cow products. There are also comparisons of human voice to lions as in *RV* [3.26.5], friendships to jackals as in *RV* [10.95.15], recitation of hymns to croaking of frogs as in *RV* [7.103.1-10] respectively. The relation of certain animals like crows, frogs to the dead is found in hymns like *RV* [10.16.6] and *RV* [10.16.14]. The curing of certain diseases by mantras and transfer of its characteristics

to certain birds is noted in *RV* [1.50.12] and *RV* [10.97.13]. There are also certain hymns seeking protection from certain animals and birds such as owls, bats as in *RV* [7.104.22] or poison as in *RV* [1.191.1]. The *Ṛgveda* also mentions about the knowledge of wetting of hide and art of tanning as there is a reference to tanner in *RV* [8.5.38]. The bow string was made of some part of the cow probably being either the gut or sinews as stated in *RV* [6.67.11] or *RV* [10.27.22]. The goad used to drive animals was made of cow's hide or tail as in *RV* [6.53.9]. Glorification of cow products occurs in various sections of the text. There are references to war horses in *RV* [7.72.5] and *RV* [9.37.5].

B. Deity-Animal Interactions :

Several animals are associated with deities in *RV.* We also get some glimpses of celestial symbolism in these accounts as in the case of Asvins bringing riches in a chariot yoked with *Śimśumāra* (dolphins) and bulls *RV* [1.116.17-18], Indra and Uṣas driving horse chariots (*RV* [3.1.16] and *RV* [1.163.2]), Asvins driving a chariot drawn by asses (*RV* [8.85.7], Maruts and Sūrya riding horse chariots, Pūṣan riding a chariot drawn by goats *RV* [6.55.6].

C. Fauna-Flora Interactions :

Interactions of Fauna with flora are also described in certain hymns. Wild elephants crashing through forests and bushes are mentioned in *RV* [1.140.2] and *RV* [8.33.8], two golden birds sitting on a fig tree and feeding on its fruits as in *RV* [1.164.20-22], the hawk-cuckoo and crested swift playing music to Goddess of forest as in *RV* [10.146.2], *Śyena* bringing Soma for the sacrifices or deities are examples of such interactions. The *Oṣadhi Sūkta* of *RV* [10.97.2] addresses the plants and vegetables as Mother.

Sacrificial aspects of animals

Vedas prohibit the slaughter of all kinds of animals. There do occur several hymns and words that may denote animal sacrifice, slaughter, consumption of flesh or meat to a lay reader. Some of these

hymns and words have been misinterpreted by Western Scholars to mean that animal sacrifice and these associated acts were mentioned in scriptures. But these are to be understood on the basis of later texts, Vedic grammatical usages, later lexicons, commentaries, contextual setting of those hymns and the actual traditional practice followed until recently based on Vedic texts. Scholars mis-interpret certain passages of later Vedic texts on *Madhuparka* stating meat being an essential part of it. They cite passages of the *Āśvalāyaṇa Gṛhyasūtra*[31] [1.24.26] and *Pāraskara Gṛhyasūtra*[32] [1.3.29] in support of this view. The use of cow-hide and other animal products is mentioned in *RV* [6.75.11] –

सुपर्णं वस्ते मृगो अस्या दन्तो गोभिः सन्नद्धा पतति प्रसूता।

suparṇaṁ vaste mṛgo asyā danto gobhiḥ sannaddhā patati prasūtā।

"This arrow is dressed in fine feathers, its tip is made out of deer bone, it is strongly fastened with fine threads of cow-hide and when launched it strikes the enemy". However the term '*Go-Charma*' (cow-hide) has various meanings as in later *Smṛti* texts as the '*Mitākṣara*' commentary on *Yājñavalkya Smṛti* mentions *Go-Charma* to be a measure of land area. Some texts interpret it to be an area in which 100 bulls and cows can sit with their calves. The mention of cow-hide or antelope skin or other skins also in certain passages need to be studied as there is no mention of an animal being killed in the context and only it may have been derived from a dead animal or any such manner. Even in the *Paśubandha Yajñas*, the sacrificer says "You do not really die here, you are not hurt. You are going to the Gods along paths easy to traverse". In the *Aśvamedha* rite a hymn as in *RV* [1.162.21] forms part of the recitation of the Hotṛ priest before the sacrificial horse is bought to the place where it is killed echoing the same views.

न वा उ एतान् म्रियसे न रिष्यसि देवाँ इदेषि पथिभिः सुगेभिः।

na vā u etān mriyase na riṣyasi devāṁ ideṣi pathibhiḥ sugebhiḥ।

The Vedanta philosopher Mādhava (13th CE) ascribes the introduction of '*Piṣṭa Paśu*' (animal made of dough) as a general

substitute for real sacrificial animal.[33] It was made by placing thin flour omentum (*vapā*) over the dough organs, pasting them onto a specially prepared wooden mache frame and binding it to the sacrificial post. It was then suffocated in a mock manner.

Scientific Discussions

The description of Fauna in *RV* also has some features that are scientifically treated in some later texts. These features include the classification, physical features, colour of body, limbs, eyes, ears, mating habits, behaviour attributes, religious beliefs and qualities of their products for various purposes. Interestingly one finds some aspects of Zoological sciences that can be studied further. As mentioned in the introduction, there are several branches of Zoological sciences and contributions to these fields as gleaned from *RV* are discussed further.

Discussions pertaining to Bio-geography of certain animals are explained earlier that need to be researched based on Harappan seals, existing fossil evidences in India as well as other countries that once formed a part of it in the ancient past as well as linguistic exchanges that will throw more light on such early habitats of Fauna, their migration or introduction into certain areas. The study of animal names has to be investigated further based on *Nirukta* of *Yāska*, *Nighaṇṭus, Uṇādisūtras*, various Vedic and later *Koṣas* (dictionaries) and commentaries (*Bhāṣyas*). Economy of various animals in *RV* period is also to be noted in the various sacrificial uses of animal products in the various rituals. These will give a deeper knowledge of protection measures and reverence for such animals that were cherished by our ancient sages. The false myths that surround animal sacrifices will vanish by a deeper understanding of the rituals in their true context and literary descriptions as given in certain hymns. Even hymns such as *RV* [10.87.16] advocate severe punishment against those addicted to meat and those who kill cows. Such stringent punishment rules and expiations are elaborated further in *Smṛti* texts regarding several animals. The *Mīmāṁsā* texts also advocate various rules as well as

explanations for use of certain animals in sacrificial rituals that are to be well studied.

Glimpses of Entomology can also be found in descriptions of various insects, their behaviour and some hymns related to pest control. The knowledge of Developmental Biology or pregnancy in animals is also noted in certain hymns as there is mention of barren cows, terms for such cows or animals of various stages such as '*Ghṛṣṭi*' (A cow that has calved for first time), '*Stāri*' (a barren cow), '*Vaśā*' (a barren cow that is sacrificed), '*Trayavi*' (a calf of 18 months age) and so on. It was presumed that Parjanya as a god of fecundity prepares the womb of cows for productivity. The Aśvins are said to have made a barren cow swell with milk (*RV* [1.112.3]), the *Ṛbhus* also give new mothers to orphaned calves and created a cow from the skin of cow as stated in *RV* [1.161.7]. Sage Tvaṣṭā Garbhakartā in *RV* [10.184] is said to have caused pregnancy in animals according to the *Taittirīya Brāhmaṇa*. However we do not find explicitly any descriptions of foetus of animals, their diseases or treatment that are mentioned in later veterinary texts. The response of certain animals like frogs to climate, seasonal changes are noted in some hymns as in *RV* [7.103.1-10].

The power of speech has been manifested in various living beings by the creator himself and blessed by Goddess Sarasvatī (*Vāk*) the deity of speech. Language has been an evolving aspect of all living beings that is seldom understood among creatures other than human beings. However, ancient civilization traditions have recognized the capabilities of speech among birds, animals, insects and so on in their various myths and folklore. Glimpses of such Bio-acoustics associated with their behavior among animals and birds are noted in *RV*. Some examples in this regard include croaking of frogs among themselves as well as sounding like a goat or cow in *RV* [7.103.1-10], screeches of owl as in *RV* [10.165.6], whooping swans answering calls to their leader as in *RV* [3.53.10], sounds of '*Kapiñjala*' in *RV* [2.42.1-3], the woodpecker sounds earning its name as in *RV* [2.43.3] as '*Karkarī*', musical calls of the Hawk-cuckoo and Crested tree swift in *RV* [10.146.2], the barking of celestial dog *Saramā*, the calls of crows, disagreeable voices of asses as

in *RV* [1.29.5] and the roars of lions as mentioned in *RV* [8.56.3]. But still we do lack in understanding what they seem to talk or even understand their speech. In such a context, a research into how ancient experts could interpret animal language would be marvelous. Only recent studies into the cognitive faculties of birds and animals by biologists are opening our views into these innate emotions shared by other species with humans. However details of various sounds are not elaborated in *RV* but discussed in later texts like the '*Basantarāja Śakuna*' that also interpret the omens arising from such sounds.

Contributions to the field of Anatomy are also found in certain hymns of *RV*. In context of describing animal sacrifices there is information about the sacrifice and rituals, details of slaughter of victim, hymns seeking protection and so on. The victims included cows, bulls, goats, rams, buffaloes. Hymns mentioning the killing of the victim, parts of the animal, oblations offered and prayers to deities, the binding noose or other cutting items are described in later literature such as the *Śatapatha Brāhmaṇa* [3.7.3-4], *SB* [3.8.3.17-36] and *Taittirīya Saṁhitā* [5.5.11-24] giving a list of animals sacrificed to other deities. Most of these are symbolic and actual slaughter was not advocated. These hymns need to be studied based on various commentaries and other grammatical usages that support the view of non-violence. However, they do flourish us a wealth of information regarding some glimpses of anatomy. The earliest references to horse sacrifice is found in *RV* [5.27.4-6], *RV* [1.162 and 1.163]. The *RV* [1.162.18-20] has a hymn asking for the limbs of victim to be unharmed, to be cut joint by joint reciting aloud (their names). A list of words dealing on horse's anatomy was preserved and transmitted through the texts as found in sections of the *Vājasaneyī Saṁhitā* [25.1-9] and *YV* [39.8-10]. The parts are grouped into three divisions – head, trunk and limbs. Some anatomical terms are accompanied by words such as '*Svāhā*', names of deities, elements, sacrificial implements while others have no relation to the part. Some of the anatomical terms need to be studied and identified by later medieval commentaries or veterinary texts. The list of parts of a man as for *Puruṣamedha* sacrifices also appears in *AV* [10.2.1-33] and *YV*

[19.80-93]. The *RV* [10.163] lists the body parts in three groups from head, trunk and limbs. However these do not derive from ritual sacrifice context but have a medical purpose to cure certain diseases from every part of the body. Chance observations like the healing of wounds of warriors or funeral rituals of corpses also contributed to anatomical knowledge that were codified and systematized in later medical texts. *RV* [1.162.18] specifies the 34 ribs of the sacrificial horse.

Animal locomotion is also highlighted in some hymns such as crawling of an animal '*Tsaru*' in *RV* [7.50.1], swift motion of the falcon or eagle, the long distance travel in mountainous regions to find the cave of *Pāṇis* by *Saramā*, the crossing of river streams by wolves as in RV [1.105.11] and the swift speed of horses of Sun like geese in *RV* [1.163.10]. Glimpses of Ethology (science of animal behaviour) is also found in several contexts of the text as noted by the croaking of frogs in different voices as in *RV* [7.103.1-10], the nocturnal habits of owl as in *RV* [7.104.17], hunting habits of the falcon as in *RV* [2.42.2], the flying habits of some birds like whooping swans, marital love of pigeons mentioned in *RV* [1.30.4], hunting habits of the falcon, wolf and other animals. Animal behaviour observations are found elaborately in later Sanskrit literature that need to be compared with the observations made in *RV*. The emotions of animals in various contexts also can be judged from such descriptions that allow research into animal psychology and cognition faculties.

Although one may not find specific information detailing some other animals like boars, bears, rabbits, rodents and other such creatures as there are rarely mentioned in some hymns, later texts give us interesting observations regarding these animals also. There are also some hymns seeking protection against poison of certain creatures indicating knowledge of Animal Toxicology as seen in *RV* [1.191.16]. The study of several other hymns in *RV* along with later commentaries as well grammatical usages may shed light on some untapped features contributing to Zoological sciences that can be researched on an inter-disciplinary basis with other Vedic and Post-Vedic texts.

Conclusions

The importance of animals and animal products are available from ancient times as evident in Vedic texts, epics, *Kāvyas*, *Tantra* literature and so on. *Smṛti* literature also reflects several aspects of fauna. Several texts mention the use of flesh of animals and birds as a dietary article in *Śrāddha* rites that give satisfaction to the manes (*Pitṛs*). These views need to be studied with regard to earlier texts of the Vedic period such as the *Taittirīya Saṁhitā* wherein a large number of animals and birds are mentioned in the sacrificial rites such as *Aśvamedha Yajña*. This will give us an insight regarding to the origins of some animals and views shared by our ancestors. The *Smṛtis* also share views of *Garuḍa Purāṇa* and other *Purāṇic* texts regarding the law of transmigration to several faunal species based on their actions. They advocate various expiatory rites for killing of certain animals. It may be interesting to note that even though hunting was practiced from ancient times, there were strict rules codified in the *Dharmaśāstras* regarding expiations that need to be done to minimize the sin caused by killing an animal. Such views are expressed by the *Yājñavalkyasmṛti*. Even the sins of stealing, killing and other such actions made one to get reborn as various species.

Ṛgveda is the earliest Vedic text and glimpses of Fauna in it provide us a picture of the environment of those days, the observations made by our ancestors regarding animals. The text also sheds light on pest control methods, poisonous creatures, sounds of various birds and animals, omens of certain fauna, their use in sacrificial and magical rites, measures to take care of animals, aspects of hunting animals, their use in domestic purposes and also chariot races. The above discussions enlighten us about the contributions made in fields of entomology, bio-geography, locomotion of animals, bio-acoustics, toxicology, interactions of fauna and ethology. These aspects need to be studied and compared with similar descriptions in Post-Vedic literature. It will be interesting to note that certain animals mentioned in *RV* are not found in later texts while some fauna not mentioned in *RV* are discussed in Post-Vedic literature. Some examples of such

animals include the otter, bats, weasel, porcupines, monkeys or apes and certain birds. Some of these fauna appear in the *Yajurveda Saṁhitā, Atharvaveda Saṁhitā*, *Brāhmaṇa* and *Sūtra* texts. However many details are not flourished by the commentators also posing difficulties in the identification of certain animals. The lack of early fossil evidences also adds to some confusion as to whether these animals were introduced into the continent as part of migration of animals or whether they were existent and rarely mentioned in the texts due to ritualistic constraints or taboos. Even the naming of some species has various grammatical usages and needs to be understood with respect to the context. Several fauna are mentioned in the *Ṛgveda* that need to be studied more in detail with regard to their characteristics, behaviour, pregnancy, products that are used, treatment of their diseases and so on. Even modern day biologists and animal behavior experts have much to study about the behavior, parental instincts, mating rituals, psychology, old age symptoms, diseases and their treatment, emotions including their grief of the vast number of species of animals, birds and insects that share our planet. Interdisciplinary research of fauna in *Ṛgveda* with other later texts such as the *Mṛgapakṣiśāstra* (MPS) of Haṁsadeva as well modern animal research studies may allow one to ascertain the history of such observations and date them probably based on modern sciences. This will provide a complete Zoological Knowledge possessed by ancient Indians.

Acknowledgements

I would like to thank the *Secretary*, Mythic Society, Bangalore and *Hon. Secretary*, Kannada Sahitya Parishat, Bangalore for providing the necessary references.

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Western Philosophy
To the context of "Infidel Zero" and the dilemma of "Infinity"

Kanta Prasad Sinha

Abstract

This paper is written with a view to describe how the prevailing number system had a difficult phase for its acceptability in Europe. Ancient Greece was considered a pioneer of Western Civilisations. Ahead of that, Egypt and Babylonian Civilisations impacted major civilisations including Greece. During the period of 600 BCE-300 CE, City-States of Greece, in the later period, Greece annexation of part of Egypt and then in the Greco-Roman Empire had given birth numbers of prodigious philosophers. Pythagoras, Socrates, Plato, Aristotle, Archimedes, Ptolemy, Diophantus and many others who had contributed in all the fields of Philosophy. For 2000 years, Aristotle's concept on infinity, void and the Universe, as well, reined the Science of Western world. Western Europe's connection with Greek civilisation happened through ancient Roman civilisation and subsequently by Arab since the eleventh century.

Though, Abrahamic religions believed that creation was from chaotic void, Christianity embraced Aristotelianism where the concept of void and infinity was made non- existent. Every ancient Civilisation had made and improved its numerical and reckoning system over the passage of time. Western Europe embraced Roman Numbers and reckoning systems with the aid of Abacus.

Digits and their properties in the number system were developed in India and got its full-fledged shape by the sixth century. With so much of experiments during the eighth to twelfth century, the Arab had accepted it for its easiest form. Spain was under Moorish influence. The new number system reached there. In the first half of the thirteenth century, the effort of introducing the decimal number system started, but it took more than 400 years to replace the tradition of Roman number system

and Abacus. Sporadically, traders bankers, learned academicians tried for its entry and assimilation at different phases at several places, but failed.

During the fifteenth-sixteenth century, Copernicus opposed the geocentric Universe. Bruno and Galileo followed him. Catholic Church pounced on them. Descarte, Newton and Leibnitz made major contributions in Mathematics. Either, their Christian belief made them uneasy for their great discoveries or they were opposed. From the mid-eighteenth century onwards, Christianity succumbed to pressure from all sections of the community. Thereby embracing the easiest method of number system was facilitated.

1. Introduction

We may consider the beginning of the Greek Philosophy with Thales (623BCE-548 BCE), Anaximander (610-546 BCE), and Anaximenes (586-526 BCE) of the Milesian school. Thales and Anaximander were teachers of legendary Pythagoras (550 BCE-495 BCE). Thales had influenced Pythagoras for his higher learning, especially mysticism in Egypt. Pythagoras had spent 23 years in Egypt learning astronomy, mathematics, herbal medicines, mysticism, occult science. When Egypt was invaded by Persia, sometime in 525 BCE, Pythagoras was taken away as a prisoner of war. Scholars of Persia recognized his high-end scholastic ability. He spent 10 years in Persia when cultural reform had taken place there. He learnt about Magi and Chaldean Mysteries He became a great scholar imbibed with knowledge and wisdom of ancient Babylonian and Egyptian Civilisations. Mysticism in the Philosophy of Pythagoras was the basis of divine nature of each and every number and the Universe as well.

Pythagoras, Anaximander, Parmenides (b.515 BCE), Zeno (495-430 BCE), Socrates (470-399 BCE), Plato (428-348 BCE), Aristotle (384-322BCE), Archimedes (277 B-212 BCE), Ptolemy (100-170 CE), Diophantus (201-285 CE) and other philosophers had advanced the Grecian Civilisation in the field of astronomy, geometry, physics, architect, medicinal science, literature, social sciences, logic and mathematics during the late archaic, classical, Hellenistic and Roman period 600 BCE-300 CE.

Western Europe carried the legacy of cumbersome system of Roman numerals . Such were evolved with its Etruscan lineage and Latin alphabets in the early period of Roman Empire. This number-system and Abacus prevailed till the early sixteenth century. The West got its modern science and translations of Greek classics from Arab since the eleventh century. Islamic Arab was enriched with astronomy, mathematics and sciences from India and Greek.

Great astronomers like Nicholas Copernicus, Giordano Bruno and Galileo Galilee challenged the existing Christian belief of a geostationary universe. Influence of overbearing Christian faith on European polity prevailed till the late medieval period. Moreover, European war of religion for almost two hundred years from the early sixteenth century to the early eighteenth century had instilled fear in philosophers in reforming the Aristotelian view on numbers. With the adoption of the decimal number system with zero, science witnessed exponential growth in Western Europe.

2. Pythagoras – Aristotle tradition

Pythagoras was believed in inventing the word "Philosophy", i.e., love for wisdom. His teaching influenced his Pythagorean brotherhood and great philosophers down the line Socrates, Plato and Aristotle.

To him and his followers, things are numbers and a system of principles existed behind numbers. [This expression has some specific connotation. Because, numbers were expressed with things only. 2 ships + 2 ships = 4 ships, it was abstracted to 2+2=4]. He used to express numbers by words and symbols; with a centre (point), in a circle representing monad (one), [the essence, the foundation], used different shapes for numbers with names and specific divinity, symbolism and beauty attached to each number.

To him, every number carries a meaning or innate character. The one was number of generator of numbers reason, the two is first even or female number, the two was the number of opinion, the three was the true first male number, the number of harmony, the number four is the number of justice or retribution, the number five is marriage,

the number six is creation and so on …….[1]. Pythagoreans belief on numbers is summarized : i) Nothing exists without a Venter around. The monad is the seed of tree, good and god; it keeps his identity on all mathematical operations, diad (two-ness) is audacity, the first one separating from God, one uniqueness of three is first number is series is the addition of first three numbers and again, 1x2x3=1+2+3, first perfect number, later also described as God's number ii) all subsequent numbers have geometric shapes, uniqueness in character; it reaches to decad, i.e. 10. It is 1+2+3+4=10. The number ten is also called tretad as the tetractys which was considered divine space. 10 dots could be shaped as an equilateral triangle. Greeks and barbarians count up to decad (ten),[2] iii) every number has positive and negative qualities, vi) numbers are classified as female and male characters, introvert and extrovert, beautiful and ugly.

Further, for his preaching on mysticism, number with unique characteristics like destiny number, life path number, soul urge number, personality number, maturity number, challenge number, perfect number indicating friendship etc were evolved in the tradition of Greek Astrology and culture.

"For Pythagoras, mathematics was a bridge between the visible and invisible worlds".[3] The connection between shapes and numbers was deep and mystical. Every number-shape had a hidden meaning, and the most beautiful number-shapes were sacred. Pythagoras was a musician and was believed to heal mental disorders through music. He claimed that he was able to listen to the sound of rotation of planets. Divine geometry helped rotate the planets.[4] The Pythagoreans recognized nine heavenly bodies with the Sun, the moon and so – called central fire. For their harmonious movement, music emanated from heavens.[5] Pythagoreans had no concept of void for its lacking geometrical shape.

Mysticism was shrouded on 1 as it was considered generators of all numbers. Aristotle observed, "the measure is not measures but the measure." 'One' was not a number but a Number with a capital

"N". It was considered to contain within itself, layer by layer like an onion, all the other numbers. Aristotle believed that 1 alone can create infinite sets of numbers by continuous addition 1 ad infinitum, for such divine nature of exclusivity; his suggestion was to start the number system from 2. Even Aristotle was quite aware infinity (here, he thought of finitely infinite), he discouraged concept of infinity.[6]

Parmenides and his followers held that motion is only perceived but cannot actually exist. Zeno of Elea, a disciple of Parmenides, formulated the "Arguments" against non-existence of motion. His rigorous denial of existence of motion or its possibility was proved through establishing logic, i.e. it was a proof by contradiction, the contrary view was assumed to be true.

Greeks Philosophers were puzzled with a paradox which was put forward by Zeno of Elea. He wanted to prove that nothing in the Universe could move. To substantiate his proposition, he constructed the "Achilles and the tortoise" puzzle. According to the riddle, the faster Achilles cannot catch a lumbering tortoise, being ahead during the start half of the way and with smaller speed. Zeno showed that the time with Achilles moved faster to catch tortoise, he would also move; as a result, in every step in a number of infinite sequences, the gap will be less to lesser; but Achilles never reaches the tortoise. Philosophers of his time knew that conclusion was wrong. But their logical deduction would not match the mathematical deduction of Zeno. The race will never be finished in finite time. Zeno conceived continuous motion and divided it into an infinite number of steps.

Aristotle in his Physics commented that "In a race, the quickest runner can never overtake the slowest, since the pursuer must first reach the point whence the pursued started, so that the slower must always hold a lead".[7]

In a similar form of riddle in the name of "Dichotomy Paradox", one has to travel a distance through a similar manner; half-way stage. Aristotle wrote in his Physics "That which is in locomotion must arrive at the half-way stage before it arrives at the goal". These require an infinite number of tasks; therefore Zeno concluded its impossibility.

Secondly, when one has to become aware of the first finite distance and then proceed to make it half. If such distance is not known, travel either cannot be completed or it cannot begin. So all motion must be illusion and beginning-less.[8] Zeno considered the problem of summing an infinite series to achieve a finite result, but rejected it as an impossibility.

On the one hand, philosophers of the time could not think the inherent concept of infinity was involved in Zeno's interpretation of the puzzle, on the other hand, it seems, they were unaware of the limit of the distance for the race. If there is a definite destination, with the race continuing, distance gradually would become shorter and shorter and nothing would be left. Modern day mathematicians know that summation process and can easily calculate the time taken to go ahead of tortoise by Achilles**.** Neither The Greeks had zero nor did they put effort in summing infinite terms resulting in a finite result.[9]

Concepts for zero and infinity were inherent in Zeno's puzzle. Philosophers including Aristotle witnessed this riddle that the gap had been reduced to infinitesimally small which tended towards void on taking infinite number of steps.

Aristotle simply ruled "do not need infinite, or use it." Achilles runs smoothly past the tortoise because the infinite points are simply a figment of Zeno's imagination, rather than a real-world construct.[10]

Metaphysical Philosophy of Aristotle was deeply influenced by Pythagoras's thought and teachings. He subscribed to Pythagoreans' view: "principles of numbers are principles of all things". Numbers resembled the things that existed with nature of material like fire, earth, water, and abstract qualities like soul, justice, opportunity etc while furthering mathematics. Pythagoreans believed that elements in numbers were to be elements of all things and whole heaven to be a musical scale.

Pythagoreans' teaching was not confined to use of numbers in mathematical operations only that we are used to. Quantitative expression of numbers was not only to be used, its living and

qualitative reality and nature were to be discovered. Numbers' idea for its qualitative reality was to be experienced in discovering the nature of numbers. Aristotle cited an example; decad was to be balanced with a numerical system with its whole essential nature. Whole essential nature of the numerical system in decad was matched with nine revolving heavenly bodies adding one antichthon.[11]

Philolaos of Tarentum (475 BCE) listed known things in the Universe which were identified with numbers. Nothing, either thought or known was without numbers. Iamblichus (biographer of Pythagoras, 245-325 CE) reinforced the Pythagorean belief stating what was possible in mathematics was possible in the structure of nature. He added that nothing could exist that implied a mathematical impossibility.

Pythagorean saw numbers as Universal principles, such as light, sound and electro-magnetism. Some modern-day physicists try to compare the logic and state that everything in the universe has a particular manifestation with its vibrational frequency.

Aristotle opined that the Pythagoreans believed the elements of numbers are the even and the odd, or the limited and the unlimited; this is because numbers derive from the One, and the One from the even (unlimited) and the odd (limited).[12]

In the article "An Early Reference to Division by Zero", author C. B. Boyer described that Aristotle in his "laws of motion"[12] discussed that, if with an impulse, the body starts moving in a medium, the speed will be inversely proportional to the density of the medium through which the object moved. Then he questioned if the density of medium is void; i.e., if it passes through vacuum, speed, then, will be unquantifiable; Aristotle interpreted its impossibility of division of zero.

If division by void were possible, then the result would exceed every integer. Boyer, proudly, inferred how historical evidence proved non-divisibility by zero. Such an original idea was propounded by Aristotle thousand years' ago than that of Brahmagupta and Bhāskara-II. Boyer extended his views by writing that Aristotle had arithmetical

zero in his mind. He wrote "The argument by which Aristotle excluded division by zero is based largely on the traditional meanings of words, and hence it differs from the modern point of view". He further added the philosophical position of Aristotle. "It was this obvious contradiction which led Aristotle to deny the existence of the void. This fact indicates that the Peripatetic doctrine, 'Nature abhors a vacuum,' was not based on animistic or even teleological notions, but was instead a logical consequence of a physical principle which science ultimately found cause to reject".[13]

Boyer's conclusion of rejection of zero by Aristotle was for its incapacity to act as divisor. Boyer could provide logic if mathematical operations other than division could be possible with zero.

Aristotle's aversion of void was described by many philosophers. Bertrand Russell wrote "Aristotle rejects void, as maintained by Leucippus and Democritus".[14]

Early Greek atomists, Leucippus and Democritus (fifth to fourth century BCE) postulated that all matters in the Universe consisted of very small *invisible*, *indivisible* and *indestructible* particles. These building blocks of particles are known as atoms (non-cuttable). Atomists asserted that physical objects are created through different arrangements of eternal atoms and infinite voids. The void is infinite and provides the space in which the atoms can pack or scatter differently. This atheist principle challenged the concept of God for its logical conclusion of denying existence of composite objects.[15]

Parmenides rejected "non-being" by equating it with void. He denied the existence of motion, change and void. He believed all existence to be a single, all-encompassing and unchanging mass (a concept known as monism). According to his theory, motion is impossible, because there is no void to move into. Aristotle asserted that the elements of fire, air, earth, and water were not made of atoms, but were continuous. He explained signs of having their own innate sources of motion, change, and rest. He speculated that change took place by transformation of matter to a new actuality and not by the rearrangement of atoms to make new structures.[16]

Atomism was associated with atheism. Questioning Aristotle was similar to the questioning God's. Similarly, Greek philosophers including Aristotle had thought over infinite; but did not provide the concept of infinitely large or infinitesimally small. Aristotle considered infinity is simply a construct of the human mind. His hatred for void had a long lasting effect up to sixteenth century Europe, because his ideology supported the existence of Christian definition of God.[17] Universe/cosmos contained spherical earth at the central position and motionless. Aristotle argued that humans could not inhabit a moving and rotating earth. Celestial bodies in the finite cosmos consisted of a ring of air and fire surrounding stationary earth and then moving moon, mercury, venus, sun, mars, jupiter, saturn and then firmament. Such constellations are eternal. According to his physics "movement is endowed with bodies". Aristotle then proclaimed that the heavenly moving bodies as they are made of a more exalted and perfect substance than all earthly objects. He also believed that Nature, the prime mover, always exists. Catholicism imbibed the theory of the Universe with a centrally positioned stationary earth. The Aristotle construct of the Universe was unchanged still sixteenth centuries, if not more as it was ingrained with the principle adopted by Christianity.[18]

Catholicism embraced the Aristotle-centred concept of no-beginning Universe which is eternal. Concept of divine or semi-divine Unmoved Mover, without any physical body, was the cause. It did not interact with the physical world. With earth at the centre surrounded by orb, the moon and other heavenly planets are moving in a specific circular path. The structure of the Aristotelian Universe is following:

Sub-lunar Sphere: Earth occupies centre. Earth is enveloped first by water, then air, and fire with inter-related ability to transform without loss and add anything. At this sphere, there was no motion. Everything in the earth is natural; they are subject to ageing, decaying and dying.

Lunar Sphere: Moon acts as a bridge between the earth and other heavenly bodies. It is composed with least pure materials for its closeness to earth.

Heavenly spheres: These bodies are composed of aether, first element. Their circular movement is important for theological and practical reasons. Therefore, the Universe is not infinite; abruptly ends with the outermost sphere of midnight blue globe, i.e. heaven. Sub-lunar Sphere.[19]

Aristotle and later philosophers would insist that there could not be an infinite number of nested spheres. With the adoption of this Philosophy, the West had no room for infinity or the infinite. They rejected it outright. Cosmos was entirely full with matter. There was no void either. His system proved the existence of God.[20]

If we sum up philosophical ideas of being, non-being, becoming, emptiness and void from different schools of pre-Christian Greece, it is as follows:

Thales : all things came from water. He perceived reality in water.

Pythagoreans and subsequently Plato : explained that their Universe had a purpose. That was divine, prime mover or final cause.

Anaximander: Infinite matter was to be basic principles. Air is the basic principle.

Parmenides: He emphasized on being. He believed that existence must be absolute. Concept of becoming from non-being or came into being is absurd. He rejected the existence of void on the basis of his sharp interpretation of *being*.

Zeno: He countered the atomist theory through demonstrating division of space till infinite, motion is impossible. If an atom is to move, it requires empty space to move. As there is no space, i.e. no void, there is no motion. He claimed that reality is one, indivisible, unchangeable and motionless.

Atomists: Democritus believed that atoms are too small to conceive with human senses to detect; they exist with infinitely many with many varieties. They float in vacuum. They vary in different shapes. They are constantly moving and colliding into each other and through random collisions, they are composed. He opposed Parmenides that change is an illusion. Motion was due to the movement of these little particles. Thereby empty space was required. When they were unable

to move, they were compressed against one another for eternity. Thereby atomic theory required acceptance of void.

Aristotle: To him, motion needs mover and force needs movement. The density of the medium through which thing moves determines the speed. Moving through void causes unlimited speed without any resistance at any point of time. It is illogical and hence there is no void.[21]

3. Archimedes at the threshold of zero and infinity

Archimedes (c 287-212 BCE) applied method of exhaustion principles to derive area of circle, parabola, surface area and volume of circle including value of π. He anticipated form of Calculus through applying infinitesimals. He was equally fascinated with large number and tried to calculate number of sand particles required to cover Aristotelian finite Universe. Highest Greek number was *'my'trioi'* (myriad, 10,000). Archimedes used a unit, myriad myriad (100000000,$^{10^8}$).

According to him, the Universe would be covered with myriad myriad to the power myriad myriad to the power myriad myriad with sand units. Algebraically, it is 10^8 to the power raised to 10^8 to the power raised to 10^8. Simplifying, a= 10^8, p= a^a. = $(10^8)^{10^8}$, i.e. one following by 800 million zeroes. Now, Archimedes thought the numbers: p^a. It means a^{a^a}. He calculated the number of sand grains required with the volume of the sphere of the Universe and dividing it with the volume of a sand grain. Archimedes told King Zelon that the inconceivably large number of sand grains required for covering the Universe was smaller than the sand grains formulated in p^a. When number was expressed in Greek alphabetic letters and limit was myriad (10^4), this kind of inconceivable exercise of large numbers represented the pinnacle of arithmetical excellence by an all-time genius.[22] Whatever the largest number conceived, it was finite.

Similarly, whatever the area of infinitesimally small triangle was conceived for determining area of a parabola was not absolute zero. Archimedes almost reached the threshold of zero and infinity. It might be, he was drawn backward for overbearing Pythagorean-Parmenides-Aristotelian tradition.

4. Inhibition with zero and infinity in Early Greek and thereafter

Robert K Logan viewed in 'the Mystery of discovery of zero' that Greeks were the most logical thinkers of their time. Logical arguments were spread over all subjects of human knowledge; arts, science and philosophy and humanistic thinking. Rational analytical thinking based on logical rigor made Greek thinkers captive to their strict path of reasoning. They rejected empirically achievable phenomena in the name of illusion, appearance, perceived observation etc. Divinity of numbers theorised by Pythagoras and definition of the Universe and void with philosophers down the line shaped the idea in rejecting infinity, infinitesimal, atom, vacuum. Such traditions continued till about the fifteenth century CE. Too much emphasis on Geometry (Plato's Academy displayed the notice "Let *him not enter who knows not Geometry*")[23] might be a stumbling block for development of an improved number system or rudimentary Algebra. They looked at the numbers through the lens of geometry, and this may be one reason that the idea of zero as a number escaped them. Zero has no geometric shape and therefore its impossibility.

A poem by Lucretius De Rerum Natura, first century roman poet was "Nothing can be created from nothing".[24] Stalwarts of Greek Civilisation conceived the nut-shelled finite Universe and no-void reality. Interesting feature was that it survived 1000 (+) years even after the collapse of Grecko- Roman civilisation.

The Medieval Period West continued indulging in "past Roman glory" for centuries instead looking at the east or any other peer. Christianity speaks 'God is omnipotent'. God represents ultimate goodness and God cannot do evil. 'Nothing' is evil. Concept of void comes out of 'nothing'. So void is evil, Satan, infidel and fearful. Stalwarts who propounded rational analytical techniques of reasons got stuck with religious dogma of themselves. Christianity believed that creation was out of chaotic void (a nothing something), but, preferred the Bible to fit in Aristotle.[25]

5. Zero-like concept of ancient Civilisations

Greek civilisations were much influenced by Egyptian and Babylonian civilisation. Egypt and Babylonian Civilisations developed their number system much ahead other Civilisations.

Egyptian hieroglyphic number system was based on additive principles with just eight glyphs for 1,10,100,1000…….. 1,00,10000. No zero was required in number system. Egyptian Zero meant perfection in balance sheet of accounts or perfect balance in layers during construction of Pyramid symbolizing standalone () zero-like nullity.

Babylonian number in its sexagesimal system had two basic symbols, (𒁹 𒌋). It followed positional number system like 1, 60, 3600…. as in our present number system unit, tenth, hundredth. As a result, position of two glyphs like 𒁹𒁹 could represent 61 or 3601. and : 𒁹 represented 1 or 60 3600. To then, 70 was represented by 𒁹 𒌋. Babylonian astronomers and mathematicians devised a symbol for a separator around 300 BCE almost at the end of the civilisation to indicate the absence of units of a given order of magnitude. They put it in a blank space, an actual sign wherever there was a missing order of the powers of 60. Babylonian 'separator" symbol (𒑚) represented absence equivalent to zero. It was used mostly in the medial position of the number system and iniitial position before fractions.

Mayan civilisation (Classic and post-classic period (c250 CE to 1550 CE) had its own zero () as a marker of twenty in 360 days in a calendar year. The vigesimal system with compulsion of inclusion of the concept of calendar-days failed. Like the Babylonian 0, Mayan 0 was also a dead end.

In Chinese traditional system, it did not feel like a 0-like symbol. It had glyphs for every multiple of ten units in the decimal system. If anyone wanted to write 2001, he would write in its hybrid system with ideographs for two, thousand and one. In Chinese Rod, numerals, all the signs of the numbers were created with the rods. In its decimal system, blank space was kept to represent absence. Chinese traditional systems are still taught in schools, besides our own system.

Few astronomers including "Ptolemy's (100-170 CE) of Alexandria" used Grecian embellished zero (Õ) represented absence in Almagest while writing function trigonometrically. He also used a symbol of degree (°). But in subsequent mathematics, use of such symbol was not found. Diophantus (c. 250 CE) separated myriad from thousand by a single point for its higher power, δτοβ΄ηϡζ was for 43728097. Here "O" in Greek letters is called omicron and represents 70 in Greek alphabetical numbers. Diophantus did not follow Ptolemy in writing numbers, even he lived 100 years after Ptolemy in the same city.

O'Creat wrote his teacher at Adelhard of Bath in 1130 CE. He was found using *teca* for zero while writing Greek numerals. He was found rarely using symbol Õ for 0. Frater Sigboto (1150 CE) also used *teca* (τ) symbol.[26]

6. Abrahamic Religion and Void

Among the Abrahamic Religions, Islam was in the forefront in embracing number system with nine digits and zero including adopting the properties of zero. The expansion of Islam on being established in early seventh century was very fast. It reached India's West coast by the middle of the seventh century first by traders. Islam invaded Spain by early eighth century, China and Western part of India in middle of Eighth century. Muslim started embracing culture and wisdom of the conquered. They learnt Indian numeral system.

At the beginning of Caliphate, it started translations of books in Greek, Sanskrit and Persi into Arabic language and Greek alphabetical numbers. In 706 CE, Caliph Walid I replaced Greek with Arabic for administrative (financial) work. But alphabetical numerals of Greek with its word equivalent expression in Arabic, fingering and later, *abjad* system continued for centuries until new Indian numerals took over.

Besides movement through trade by merchants, a new number system officially entered in Arab. During the reign of Khalif (Caliph) Al Mansur (753-774 CE), embassies from Sind came to Baghdad and among them were scholars, who brought along with them several

works of Mathematics and Astronomy (Brāhmasphutasiddhānta Khaṇḍa-Khadyaka of Brahmagupta and few others).[27] Brāhmaṇas, as representatives of Indian culture demonstrated at the court of Al Mansur the importance of original and ingenious in their science. Al Fazārī, with Yakub Ibn tariq, collaborated with Indian astronomer for translation from Sanskrit to Arabic, Zīj al Sindhind al kabīr (Great astronomical tables of the Sindhind; from Sanskrit Siddhānta, "system" or "treatise").[28]

Texts contained the principle of the decimal place-value system, the zero, calculation methods and the basics of Indian algebra apart from *Siddhāntas*. By 796 CE, Arabic Astronomers were found in using subjects and methods of Brahmagupta. Caliph Al Mumin established 'The House of Wisdom' – a great library at Bagdad at the end of eighth century. It became centre of expansion of knowledge, culture and translations of Sanskrit and Greek Texts.[29]

Al Mohammed ibn-Musa al-Khwarizmi (780-850 C E), famous scholar of that time, had written *Al jabr wa'l muqabala* (The first book on Algebra). Original Book on Astronomy based on *Zīj al-Sindhind* was lost. Most influential work on arithmetic, the original text *kitāb al-ḥisāb al-hindī* along with, perhaps a more elementary text, *kitab al-jam' wa'l-tafriq al-ḥisāb al-hindī* as part of extension of Hindu numeral system written in 825 C E in Arabic was also lost. Later the second one was translated in Latin in the name of 'Liber Algorisme de numero Indorum' ('Book of Indian computation, Addition and subtraction of Indian mathematics).[30]

Gupta, R. C, quoting Menninger. K, stated that the Latin version was translated by Adelard of Bath (c 1120) or by Robert of Chester at the beginning of the twelfth century. He added further adaptation and off-shoots of similar text were done by John of Seville (c1135), John of Sacrobosco (thirteenth century) and the twelfth century work of Ysasagogarum Alchorizmi. Other 12th century Latin manuscripts were preserved at Royal Library, Vienna.[31]

L C Karpinski had detailed historiography of Algorimus of Al-Khwarizmi along with the a Latin text by John Dee of twelfth or

early thirteenth Century, now kept in British Museum ("Royal Manuscript").Translation by author had shown that Al- Khwarizmi's intention was to present the Hindu way of teaching of numeration, addition, subtraction, duplication and mediation, multiplication and division by the ten characters of the Hindus. Applications were also shown for various operation with 9 digits and 0, right to left writing of numbers.[32]

In Carmen de Algorismo "Song of Algorismus" by the French Monk Alexendre De Valle Due wrote in 1240 CE 'Here begin the Algorismus. This new art is called the algorismus in which out of these two five figures 0 9 8 7 6 5 4 3 2 1 of the Indians we derive such benefit'.[33]

Abu Yūsuf Ya'qūb ibn 'Isḥāq aṣ-Ṣabbāḥ al-Kindī (Latin : *Alkindus*; c. 801–873 AD), a scholar of excellence wrote four volume on Indian Numerals, Ketab fiIsti 'mal al-'Adad al-Hindi during 830 CE.[34]

Abu Mansur ibn Tahir Al-Baghdadi (980-1037 AD) in his book *al-Takmila fi'l-Hisab* recorded prominence of Hindu reckoning system over finger counting, sexagesimal system**.** It took almost four centuries for Arabic Mathematicians, traders, common people to finally recognize that 0-based 10 digited decimal number system was superior to Greek alphabetical and Arabic *abjad* and finger counting number system.[35]

With 9 digits and Sifr (Zero) over prevailing number system, Islamic scholars, reached every nook and corner of Islam-dominated regions winning over Aristotlenism. Abu Hamid Al-Ghazali (1058-1111 C E), Persian influential Muslim philosopher, declared clinging to Aristotelian doctrine should be punishable by death.[36]

The Muslims, with their Semitic, Eastern background, believed that God created the universe out of the void. Such view was never accepted where people shared Aristotle's hatred of the void and of the infinite. Zero spread through the Arab lands rejecting Aristotle. The Jews were the next in line.[37]

Jews, like their Christian counterpart vehemently opposed zero and infinity. Even being acquainted with very act of creation was out

of chaotic void, Judio-chritianity with its Semitic origin had nothing to fear zero. But, they continued without zero.[38]

Maimonides, the twelfth-century rabbi, debated within himself whether the existence of void conflicted the existence of God. Maimonides accepted void opposing Aristotelian ban on vacuum. Now, Jews opened the door for zero and infinity from thirteenth century.[39]

But, Christianity had to wait a few centuries more for fall of the Aristotelian fortress which was guarded with irrationality of the church.

Leonardo da pisa, Fibonacci (1170-1250 CE) born and died in Pisa, Italy, educated in Bugia, a port city in North Africa. He informed, at his early childhood, his father introduced him with high level custom official, to merchants and traders who were proficient in Indian reckoning system. In 1202 CE, he published book of calculations, *Liber Abaci* at Pisa. He wrote many other scholastic books. Frederik II became emperor of German and subsequently was crowned Holy Roman emperor by the Pope in St Peter's Church in Rome 1220. Later he consolidated power in Italy. Fibonacci was a familiar name at the Court of Fredrik II. He was held at high esteem by the Emperor. He was awarded State honour with salary from Republic of Pisa in 1240, *... the serious and learned Master Leonardo Gigolo ...*[40].

In spite of Liber Abaci's closeness to the Emperor, effort of Sacrobosco, a celebrated scholar and teacher of University of Paris and Alexendre De Valle Due of Paris in introducing the number system in the mid-thirteenth century CE failed. Bankers and traders started engaged in a new counting system with inclusion of 0 setting aside Tally sticks and Abacus. In spite of businessmen's fascination over the new system, local government hated it and banned its use in Florence banks in 1299 CE with an alibi these digits could be easily forged.[41] Christianity with the Roman number system could not withstand the easiest Arabic numerical expression with zero for long.

If the Universe is infinite instead of a nut-shell, how could they posit earth at its centre. There was no centre. It was zero. Christianity

with Roman number system could not withstand the easiest Arabic numerical expression with zero for long.

How the growth of science suffered could be understood from an extract from Dantzig, Tobias in his "Number of Science".

"A German merchant, sometime around fifteenth century, met a prominent Professor of a University to get advice for his son's training in advanced commercial Mathematics. Professor suggested if his son wanted to learn addition and subtraction, he could obtain those from German University; but he wanted further improvement in learning multiplication and division, he should go to developed Italy."[42] Otherwise, persons skilled in the area of computation were regarded as endowed with supernatural power.

7. Christianity's Conflict with Copernicus, Bruno and Galileo

The Bible mentions that creation was from void. Aristotle believed opposite. Christianity being overpowered by Greek Philosophy accepted "Aristotle over Bible".[43] Aristotelian theory of planetary movement went on till Polish monk and physician Nicholas. Copernicus (1473-1543) propounded theory of planetary movement with the Sun at its centre.

Copernicus's astronomical inventions were on heliocentric planetary positions, the earth's eccentricity, observation of movements of planets, solar apogee against fixed stars etc during 1512-15 CE. The new theory explained the earth's two type of movements and relative motions of celestial bodies. He got a conducive environment of publishing his invention when the then Pope Clement VII expressed his satisfaction for new concept of the Universe in 1533 CE. He did not publish it out of fear in spite of his holding high administrative positions. The prevailing situation was the period when Protestants started capturing power from Roman Catholics. He dedicated the masterpiece of astronomy to Pope Paul III before his death in 1543. It challenged the concept of i) one centre of all celestial bodies ii) earth at the centre, iii) the Sun's position and its apparent motion visible

from earth, iv) the earth's stationery motion.[44] After his death, Copernicus was caricatured and abused more by the Protestants.

Giordano Bruno (1548-1600), an Italian philosopher and mathematician, was best known for his belief that the Universe was infinite. His cosmological theories were based on the improved Copernicans model. Bruno thought there were independently more moving heavenly bodies like the Sun. He was the first man to have thought the stars in the infinite Universe which we see at night are identical in nature to the Sun. Bruno challenged the-then religious dogma inhibiting the progress of Science. He extended the cosmological theories of Copernicus. Apart from that, he was much influenced by Abū l-Walīd Muhammad Ibn Aḥmad Ibn Rušd (1126-1198), Islamic philosopher. Bruno was declared heretic by the inquisition of the Roman Catholic Church. He was burnt to death in 1600 CE. Holy Scriptures of Christianity embedded with the Aristotelian geocentric Universe could not shrug off pseudo-science. Barbaric act, thrived on utter fanaticism of organized papacy was perpetrated on a great astronomer. He reiterated confirming heliocentric model of Copernicus, made his invention on the Universe and Infinity.[45]

Meanwhile, Tycho Brahe (1546-1601 CE) refuted Aristotelian model of Universe and also disproved the model given by Copernicus (1573) and placed a blended model where the moon and the Sun revolved around the earth and other planets revolve around the Sun.

Galileo (1564-1642) studied deeply all parameters of celestial movement and substantiated the heliocentric model of Copernicus. He mathematically proved the model first proposed by 3rd century BCE by Aristarchus of Samos. Galileo studied the sky with motion of stars, Galaxies and Milky Way, Jupiter with its moon, supernova, and comets and broadened the facets of Astronomy and many new areas of Physics and Engineering. Galileo was subjected to Roman Inquisition. He apprehends the fate of Bruno and was forced to withdraw the most developed refined heliocentric theory of planets. Refutation of stationery geocentric model of the Universe was a great

challenge to Christianity. He was put into house arrest as a heretic since 1632 to his death in 1642.[46]

Even that did not deter him to usher new area in mathematics. He was considered first person to truly come to grips with the concept of infinity in Europe during his tenure of house arrest. Anaximander, Anaxagoras (500-428 BCE) and the atomists (5th century BCE) defined metaphysics of infinity in ancient Greece. However, Aristotle's idea of actual infinity or no-infinity theory had prevailed.[47]

8. Mathematicians' conflict within

Mysticism out of Aristotelian belief and Christian faith continued to engulf even in the later part of the sixteenth century. Mathematicians suffered to reconcile centuries-old faith with its own invention and sometimes, became victims of their own success.

One of the great philosophers, mathematicians and scientists was Reneṅ Descartes (1596-1650) of new Europe. Mathematical World is much indebted for his invention of Cartesian geometry. He was being torn within by his invention. The two perpendicular axes cut each other at the origin [a two dimensional point of origin 0, 0 and similarly three perpendiculars at three dimensional (origin, 0, 0, 0) in his Cartesian concept]. 0-coordinate was the foundation of the Cartesian geometry. His great work was able to explain the straight line, circle, parabola and other curves with equations with reference point of 0-0 coordinates. It is also a new dimension of explaining zero when positive and negative numbers with same magnitude meet on a line. In spite of that, his Jesuit belief combined with Aristotelian aversion on void remained until his death. Descartes used to say "I am in a sense something intermediate between God and nought."[48]

Zero-based number system got gaining ground through many avenues like trade, travel and literature. Champions of carrying out the ideals of Christianity was losing its last battle in rejecting zero in one hand and on the other hand it became shattered to witness its dying holy 'no-infinite nutshell' Universe.

Rene´ Descartes did not accept negative numbers as roots of equations. It might be the legacy of Arabian scholars. Al Khwarizmi, even though being respectful to Brahmagupta's works, did not accept negative value of square-root. Descartes called such negative values "false roots". He never extended his coordinate system to the negative numbers. Descartes was a victim of his success in marrying algebra to geometry. Properties of negative numbers as debts were formulated by Brahmagupta (598-668 CE) in computational algorithm. In chapter XVIII, verse 35 of Brāhmasputasiddhānta, wrote (in a part of the verse) is "The square of a positive or a negative number is positive……The (sign of the root) is the same, as was that from which the square was derived." It means that square of $\pm x$ is x^2.[49]

On finding complex number, "Descartes thought that these numbers were even worse than negative numbers". He named the square roots of negatives as imaginary numbers. The name itself led to the symbol for the imaginary number i (square root of –1). Mathematicians saw complex numbers as convenient fiction or others saw as God. Imaginary number surfaced in the sixteenth century helped solve cubic and quadratic polynomials. Leibniz, G W (1646-1716 CE) thought that it was a bizarre mix between existence and nonexistence, something like a cross between 1 (God) and 0 (Void) in his binary scheme.[50]

Leibniz, invented binary numbers with non-being (0) and being (1). Today's digital age shaped with binary code as the language of computers and electronic devices is much indebted to him (as long as World body recognizes Piṇgalā for his Chandasūtra of second century BCE for his binary works)

Leibniz further told "The Divine Spirit found a sublime outlet in that wonder of analysis, that portent of the ideal world, that amphibian between being and not-being, which we call the imaginary root of negative unity"[51]

When he invented the binary mathematics, he was completely absorbed with his faith and consequent mysticism. On his discovery

of the binary system, he exclaimed with mystic elegance: *Omnibus ex nihil ducendis sufficit unum*. (One suffices to derive all out of nothing). Simon De Laplace noted….. "Leibnitz saw in his binary arithmetic the image of Creation … He imagined that Unity represented God, and Zero the void; that the Supreme Being drew all beings from the void, just as unity and zero express all numbers in his system of numeration. This conception was so pleasing to Leibnitz that he communicated it to the Jesuit, Grimaldi, president of the Chinese tribunal for mathematics, in the hope that this emblem of creation would convert the Emperor of China, who was very fond of the sciences. I mention this merely to show how the prejudices of childhood may cloud the vision even of the greatest men!"[52] "Leibnitz was dreaming of number schemes which would make the world safe for Christianity"[53] within early seventeenth century both infidel zero and infinity entered in Europe.

9. Debate on the concept of zero when it started flourishing

Burgeoning European mathematical community started vigorous investigation on properties of zero and mostly its use as divisor during seventeenth to early nineteenth centuries. Isaac Newton (1643-1727 CE) and G. W Leibnitz ushered a new era, a great leap forward in bringing concept of infinitesimally small tending towards zero and redefining the issues involving zero as divisor. Various manifestation of infinity in spite of huge hue and cry from Mathematicians evolved. Newton' fluxions, $\dot{x}$ and $\dot{y}$ where, x and y are fluent, their infinitesimal changes are $\dot{x}$ and $\dot{y}$ are fluxions and $o\dot{y}/o\dot{x}$ is the rate of change at a momentary time 'o' and Leibnitz expression for the same was $\frac{dy}{dx}$.[54]

Apart from plagiarism charges between the two great mathematicians, protectors of Christianity were fighting last battle. In 1734 CE Bishop George Berkeley, in Analyst wrote "If we lift the veil and look underneath…we shall discover much emptiness, darkness, and confusion; nay, if I mistake not, direct impossibilities and contradictions…. They are neither finite quantities, nor quantities infinitely small or yet nothing.

May we not call them the ghosts of departed quantities?"[55] If any interested reader likes to see the format of the book essayed by Bishop George Berkeley, it is almost like a penal code. Thank God, the book was published in 1734 CE after the death of two stalwarts of human Civilisation. Christianity's authority of imposing Inquisition diminished in next hundred years. Otherwise Newton and Leibnitz would face similar humiliation like G. Bruno or Galileo G. The first page of the 'Analyst" by Bishop G Berkeley is following.

THE
ANALYST;
OR, A
DISCOURSE
Addressed to an
Infidel MATHEMATICIAN.
WHEREIN
it is examined whether the Object, Principles, and Inferences of the modern Analysis are more distinctly conceived, or more evidently deduced, than Religious Mysteries and Points of Faith.
George Berkeley (1734)

'The Methodus Incrementorum' of B.Taylor (1685-1731 CE) and subsequent 'Treatise of Fluxions' of Colin Maclaurin (1698-1746 CE) established Newton theory on fluxions.

10. Continuing debate during Seventeenth to Nineteenth Century

Brahmagupta while theorizing properties of 0 in *Brahmasphūṭasiddhānta* (Chapter XVIII: 30-35), he did not put value of 0 as a divisor for something as numerator; but he stated 0/0 was 0.. In the first case, he defined it *tachcheda* (तच्छेद), Bhāskara-II conceptualized it Khahara (खहर), meaning denominator is 0) was *Ananta* rashi (infinitude numbers or quantities). Kṛṣṇa's (1600 C E) commentary on Bijaganita [found in Tanjore edition (1958) of

Bhāskara II stated "as much as divisor (b) in (a/b) is diminished, so much the quotient (a/b) is increased.[56] Within digits of 9 and 0, enigmatic manifestation of 0 puzzled many mathematicians. 0 as multiplicand raised limited or no questions, but 0 as divisor continued to perplex many over the ages.

$\frac{1}{0}$ was considered difficult proposition; supposing, there is a quotient for $\frac{1}{0}$, then such quotient, if multiplied by divisor would result dividend. Can we get dividend (1) if quotient multiplied by 0 (Divisor)? In this particular case, 1 x 0 is always 0, we cannot get 1, so 1 / 0 is considered as meaningless expression.[57]

Symbol of Infinity was first discovered by John Walis in 1657. But he was more confused when he got infinity's value was less than. $\frac{1}{-1}$, ($\frac{1}{3} < \frac{1}{2} < \frac{1}{1} < \frac{1}{0} < \frac{1}{-1}$).[58]

Bishop Berkeley (1685-1753) states that "zero is no number. John Landen (1719-1790), an English mathematician "'calls it a mere Blank or Absolute Nothing. 'Leibnitz owns them [infinites and infinitesimals] to be no more than fictions.' …. as stated by Colin Maclaurin (1698-1746).[59]

In 1832 Wolfgang Bolyai de Bolya of Hungary stated that "$\frac{1}{0}$' is an impossible quantity" but that "if z tends towards 0, then 1/z tends towards infinity".[60]

De Morgan accepted the concept of '$\frac{1}{0}$' equals to infinity, but in 1864 he questioned the division by zero and stated that the lack of proper symbols was the main cause of various interpretations of '$\frac{1}{0}$'. A "terminal order of infinity" exists which x approaches in 1/x in order to be 0^{-1}, which is the infinity of algebra, but if 0 means the total absence of quantity, it is not expected it to obey all ordinary laws.[61]

In 1864 William Walton of Trinity College, Cambridge described the modern conception regarding the use of zero as a divisor when he leaves an absolute blank in the denominator 1/ when considering

"nonentity" or absolute zero, and uses the symbol 0 for an infinitesimal.[62]

Axel Harnack of Dresden in 1881, who used rational numbers in his calculus, said that the use of zero as a divisor is impossible. Four years later, Stolz elaborates upon this definition of number class and excluded zero as a divisor.[62] 0 was excluded from elementary mathematics till early period of twentieth century. In 1950, Oliver, Winter and Campbell presented a discussion of angles of 90° and indicated tan 90° = ∝, where infinity means a number infinitely great.[64]

The evolution of word Śūnya to Zero as shown by Menninger, Karl is following

Śūnya in Sanskrit (400-800 CE) turned to *As- sifr* in Arabic (9 CE) *Cifra Zefirum* in Latin (13CE) *Chiffre* in French; *Zefiro-Zevero-Zero* in Italian (14 CE) *Ziffer* in German/*Zero* in French and English (15 CE)[65].

Conclusion

Counting system was felt necessitated by major civilsations. It had passed through scratching of mark on bone or bamboo, finger counting and gradual developments of respective number system with glyphs. At the same time, astronomy of most of the civilisations was flavoured with mathematics, mysticism and faith. Number system developed in India became a silent conqueror over the World. Had this easiest form number system been adopted by Europe and others as early as possible, progress of science could have been different. Tremendous phenomenal growth of Science and Technology since 1700 CE in Europe could not happen without 0 and infinity. Zero within digits got the driver's seat at the hands of Newton and Leibnitz in ushering a new era.

Notes

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Decoding Honour
Mukhtar Mai : The Voice of Dissent

Ajanta Biswas and Kamalika Majumder

Abstract

Mukhtar Mai was the victim of an honour revenge and through her resistance to the accepted patriarchal norm of her clan she wanted to bring home the message to the society that an erasure of all socially constructed discriminatory effects between the female and the male, it is possible to forge a culture where human attributes are not compartmentalised as 'feminine' or 'masculine'; that is to say, when strength, firmness of mind, aggressiveness, agility are not described as 'masculine' and tenderness, docility, weakness are not described as 'feminine' attributes, rather as *asexual* human attributes that can be applicable to both the sexes. If that is made possible, it would be possible for the society at large to transcend sexism in its discourse on such abstract ideas as **honour** and **shame**. Society would cease to consider **honour** and **shame** separately for men and women, instead would realize that *human honour lies in an individual subject's sense of self-respect and dignity and that which violates it, is the shame to humanity*.

(Key Words: *Honour, Shame, revenge, virginity, thingification, symbolic capital, symbolic violence*.**]**

Introduction

In her book *In the Name of Honour* (2007)[1], Mukhtar Mai has woven a complex web of significances with the word '**honour**'. The word has been used several times in her book and with multifoliated meanings. By doing so Mukhtar has actually structured, re-structured and ultimately de-constructed the traditional concept of 'honour'. Before analysing how she decodes the term 'honour' itself, a close analysis of 'honour' as a system should be carried out. Fundamentally,

'honour' can be denoted as the public recognition of one's social standing. Dr. Samuel Johnson in his *A Dictionary of the English Language*[2] (1755) defines 'honour' as bearing a couple of aspects. 'Honour' is, in one sense, the "nobility of soul, magnanimity and a scorn of meanness"; in another sense, 'honour' is "privileges of rank and birth" and "respect" of the kind which places an individual socially and determines his right to precedence. On the basis of these definitions 'honour' thus can be categorized in two ways — the first one can be termed as 'acquired honour', i.e. conferred on a person on the basis of the virtuous deeds while the latter can be termed as 'ascribed honour', i.e. inherited from the family at birth.

'Honour' and 'shame' were discovered as an integral part of culture in the 1960s with the seminal works of Julian Pitt-Rivers, eminent anthropologist. Since then much scholarly deliberations over 'honour' and 'shame' have been continuing. While doing so, different other social realities like gender relations and other power relations are found to be invariably involved in the social construction of 'honour' and 'shame' as part of our social culture. In fact, 'Honour' and 'shame' are not irrevocable, static realities. But they are, rather concepts; they are expressions or codes of social and cultural relations. Concept of 'honour' and 'shame' vary with different cultures and within cultures as well, in accordance with gender, class, status, geographical location and the like. However, in this paper, the researchers have limited the location within India and Pakistan as the focus of this paper is to show how Mukhtar Mai fought her way through numerous socio-cultural and socio-political obstacles; and while doing so references of similar incidents had to be drawn from both Indian and Pakistani socio-cultural ambience. Notably enough, in the past few decades several honour-related crimes in both the lands have come into the notice of the social scientists across the world.

Socio-cultural Background

Noted anthropologist and social historian J. C. Baroja has linked 'honour' and 'shame' with society in a dialectical relationship[3]. He

argues that different power groups struggle over structuring the concept of 'honour' and 'shame' and these power struggles resultantly bring forth re-structuring and re-shaping of these two concepts. For instance, if the cultural history of different societies round the world could be looked at, it would be noticed that in the ancient societies 'honour' was based on conquest, revenge and competition over the resources the group/-s possessed. With the advent of religiosity in each society, perception of 'honour' came to be based on virtue, although the 'noble' feudal lords continued with the old concept of 'honour'. Afterwards, with the formation of the merchant and industrial class in each society, a new concept of 'honour' evolved. It is concerned with virtue and efficiency in work, utility, and the general good. This concept of 'honour' invites a criticism of the honour code represented by the old feudal aristocracy. But still, this older concept of a competitive 'honour' continues to prevail in societies underpinned by a feudal ideology.

In today's world, most Modernist and Post-modernist societies are structured along the line of Individualism. These social patterns are propped up by voluntary participation rather than by family ties. Consequently, the notion of morality in these societies is based on general, non-discriminatory principles designed to be applied to everyone on an equal basis. But the fact is, there are still many societies which do not value a person as an *individual subject*, but embed the 'Self' of a person within the matrix of a value-system based on the age-old traditions of some predominating clans, coteries or lineage. These value-systems are not based on objective, universal principles. Many contributors in Peristiany[4] uphold that a *collective honour,* which is based on a system of patrilineal clans, is a common factor in traditional communities. Honour values in such societies are *exclusive* and *particularist* in contrast with the *universal* and *inclusive* values of the societies which value individuals.

Now, what is an 'honourable man' and what is an 'honourable woman'? 'Honour' of a man is ascribed with several dimensions.

Traditionally 'honour' of a man is the competition among men in valour in defending their masculinity, the integrity of his personality, fulfilment of his obligations towards his family as the 'provider', and in regard to his relation to women it is as the 'protector' of *his* woman. On the other hand, a woman's 'honour' is largely one-dimensional. Construction of 'honour' of a woman is located in the intactness of her virginity or chastity. Why so? It is because of the construction of 'femininity' and 'masculinity' in the patriarchal society. Patriarchal ideology dictates that 'humanity is *male* and man defines woman not in herself but as relative to him; she is not regarded as an autonomous being'[5]. He is the Subject, the Absolute, she is the Other. She is simply what man decrees; so she is called 'the sex'. It signifies that for man, she is essentially a sexual being. Her identity is embedded in her sexuality. Man is the Transcendent Self, while the woman is essentially bound to her Immanence. In the patriarchal society defence of male 'honour' is of paramount importance.

Myths and Legends

How patriarchy delimits the 'Self' of a woman to her sexuality alone, can be evinced from the myths and legends that bear witness to human history. If we study the famous myths and legends the world over, an interesting link among all of them could be noted — in all kinds of honour-related dispute among men a woman is held as a pawn. Be it the story of the 'Ramyana' (Sita is kept a hostage), and the 'Mahabharata' (Draupadi is considered a pawn) or be it the saga of 'Odyssey' (the story pivots around the capture and retrieval of Helen of Troy) and the myth of Cassandra (the legendary Greek prophet taken as a war-captive and therefore customarily serving as a concubine to the triumphant king Agamemnon).

Capture of Sita by Ravana evokes the feud between Ravana and Rama, Sita's husband and the hero of the myth. Rama eventually rescues Sita. But the dutiful wife who followed her husband in his exile (*vanvas)* was herself banished by her 'mighty' husband simply

because she spent years in *other man's* captivity, therefore her **honour** has been tarnished. To prove her honour as intact, Sita would have to pass fire test (*agnipariksha)* which she comes through successfully. Notwithstanding, she is supposed to accept her exile because of Rama's gnawing suspicion. Years later when she is taken back from her recluse, she is again asked to perform another fire test. This is the time when she resists and asserts her own sense of *honour*. She invokes Mother Earth and takes refuge in her womb forever. In the first place, her honour is what her society constructs it to be — her *chastity.* But when Sita disdainfully spurns Rama's proposal of another fire-test it is her self-respect that she asserts — the true sense of honour.

Mahabharata shows how Draupadi was made a pawn along with other material belongings of her husbands in the game of gambling between the two opposing groups of the royal kinsmen, and afterwards how she was molested in the midst of all the courtiers at the royal court when the Pandavas faced defeat.

That women were considered merely as the property of men, can even be corroborated by the description in the epic of how Draupadi became the wife of five Pandava brothers. Actually she got married to Arjuna at her *Swayambhara* (this too is ironic as the prevalent belief is that the bride was supposed to *choose* her own husband at a *Swayambhara*). When the five Pandavas arrived home along with Draupadi, some among the brothers called Kunti, their mother and asked her to see what they had brought along with them. Kunti was then busy working inside home with her back on them and therefore was completely unaware of a new person, i.e. Draupadi (her ignorance in this regard was further accentuated by the fact her sons used what instead of who/whom to mention Draupadi; the first one is used to denote a *thing* whereas who/whom is used for a *person).* She ordered her sons to share equally amongst themselves whatever '*thing*' they have brought. In order to carry out the order of their mother, five obedient sons decided to share Draupadi among themselves. From

then on, Draupadi was wife to five husbands. Significant to note that no one cared to ask for Draupadi's opinion or consent in such a decision of a lifetime, none felt the need to know her choice. This clearly shows what was the value of a woman in ancient society — the personal property of man, woman could easily be shared or distributed among men like any other material asset a man possesses. This is the very reason why a woman could be held as a pawn in the gambling game. Similar status of woman as the personal property of man can be traced back to ancient Greece also where women were taken as the war-trophy after a sect conquered another one. So we find in the famous myth of Agamemnon that Cassandra, the famous prophet was violently abducted and raped by the Greek hero Ajax after the Fall of Troy. She was then taken as a concubine by King Agamemnon. It was the custom in the Mediterranean and the Middle East that after the death of a man, the wife and the children became the property of his brother had the man not been blessed with a son. This practice is still prevalent among the Afghans and some ethnic groups in Pakistan

Conceptual Analysis of 'Honour'

'Honour' as an abstract idea is determined by one's role and status in society. Being the Transcendent Self, the Subject, man is associated with the 'Public Sphere'- playing different roles of significance. Therefore, male 'honour' is multi-dimensional. Reason for woman's 'honour' being centred in her 'virginity' or 'chastity' is her *essential* link with the 'Domestic Sphere' of family where her primary role is of the child-bearer— she gives birth to the child of the *man*. Within the patrilineal order of succession in the patriarchal society, it is necessary for the man to ensure his paternity; and to materialize it he needs to monopolize the sexuality of his woman/women. Her sexuality has to be intact, in its entirety, before he comes to possess it and its sole ownership by him must be guaranteed.

'Virginity' is a social construct and it is equated with 'purity' and 'goodness'. From very childhood it is internalized into a woman's mind through socialisation process that virginity/chastity is the most precious asset of a woman can ever have. It *is* her 'honour'. As long as she retains her virginity/chastity she is the 'good' woman. Once she loses it (except for within marital relationship, which is why marital rape is still not recognized as 'rape' in our social system) she is endowed with the epithets of 'fallen', 'spoiled', 'bad', etc. This labelling of a woman ('virgin', 'chaste', 'fallen', 'spoiled', etc) according to her sexual 'purity' can be described in Sartrean term as 'Thingification' or 'Objectification'. She is not a free individual, she is an object of how patriarchy evaluates her worth. In fact, forces of patriarchy contrive to condition the 'Self' of a woman to be centralized in her sexuality. This state, can be explained, again in Sartrean terms, is the state of 'Being-in-itself' — the state of an *object*. Object exists, so does a human being. But an *object is what and as it is* - its *identity is fixed*. On the contrary, human beings *are what they are not*; they are always ahead of themselves. In other words, they always have the possibility of being otherwise than that they are. This possibility of transcendence enables him to *become in whatever way he* ***chooses.*** That's why he is a free subject with multifarious attributes which determine that a man's 'honour' has different shades of significance in society, while the woman's 'honour' like her identity is fixed. It pivots around her bodily 'purity'- the female body which is *looked at* by the patriarchy as a commodity.

Overview of Honour Crimes in Today's World

Human Rights Watch defines Honour Crime as, "Acts of violence, usually murder committed by male family members against female family members who are perceived to have brought dishonour upon the family"[6].Such *dishonourable* acts comprise seeking divorce, adultery, pre-marital sexual relations, pre-marital pregnancy, being subject to sexual assault. In reality, 'honour crimes' are not limited

to these situations alone; it has a range far wider. Any kind of activity on the part of a woman, that affects the male-honour, results in 'honour-crime'.

Today's modern world may brag of innumerable technological advancements with the change of ages but basic societal tenet is not changed at all. It is the same patriarchal mores with its feudalistic attitude which relegates a woman to a man's personal property in matrimony and fortifies its stand with the sanction of religion and even legal system. So, even the new rape-law is enacted in India after much public agitation over Nirbhaya rape case, the lawmakers turn a blind eye on the issue of marital rape and make little mention of the same under the rubric of the new rape law. It is a common belief in Indian culture that once a girl gets married she becomes the property (*amaanat)* of her husband and his family. Thereafter whatever happens within the four walls is not concern of the society and no social agency should interfere in it. Therefore legal system of the State keeps reticent on the issue of marital rape. The problem is further aggravated as the women who are subjected to marital rape, do not come out with it and lodge complaint because it is also a deep-rooted belief that women who bring such 'homely' affairs before public are dishonourable women.

Except for a very few instances status of women and concept of a woman's honour have not much changed even in today's world. This becomes evident especially when a woman is sexually assaulted. Instead of condemning the rapists society gets to find faults with the woman raped. Somehow or other she is held responsible for what has happened to her. Sceptical fingers would be pointed at her dressings, the way she carries herself, her physical and *moral* disposition, so on and so forth. An extrovert woman is considered as easily accessible and worthy of abuse. The incidents of the Park Street in February 16, 2012[7] and of the molestation of the girl outside a bar in Guwahati in July 9, 2012[8] substantiate this truth. In the former case, instead of securing justice,

the lady herself was accused of 'framing' the whole thing and many even went to the extent that since she is *single, separated mother* of two it has been *un-gentlewomanly* for her to visit a nightclub and therefore she has been *rightly* served. The alibi is the same in the latter case too. The girl went to a bar and this was *her fault.* The idea is that women who do not abide by certain codes of conduct 'invite rape'.

Sexual violence is implicit in the very creation of the concept of 'gender', in the construction of 'woman'. As Catherine Mackinnon remarks, "Socially, femaleness means femininity, which means attractiveness to men, which means sexual attractiveness, which means sexual availability on male terms. Good girls are attractive, bad girls provocative".[9] This notion has been deeply ingrained in the judiciary too. 'Gender and Judges', a study by the Delhi-based organization 'Sakshi', found that 55% of the judges interviewed held that 'moral character of a woman is of relevance in a case of sexual assault'. The report says, "The moral character of the victim was more important to most judges than was the evidence against the accused".[10]

Now, who sets the standards of morality for women? It is defined and determined by society which is governed by the patriarchal rules and ideology. This is why when a woman is raped, instead of abhorring the rapists the society tend to ostracize the woman. Nurul Islam had said in the Parliament in 1983:

"Once a lady is raped, not only is she not acceptable by society, but also she is not acceptable by the parents, and instead of helping the lady everybody wants to take undue advantage for which she is not liable or she is not to be blamed and ultimately she has to live the life of a prostitute."[11]

Again, all this is because patriarchy constructs woman as a *thing, a commodity* and once it is tarnished, it loses its value just as any usable object is to be disposed of when it is damaged. So we find incidents where the raped move court to marry the rapist; and it is most often against the will of the woman concerned. She has to succumb to such compromises because no other man generally marries

her. When Assam minister Rajendra Musharray was proved to be the father of the child of a teenage girl, Monila, by a DNA test, he married Monila. The charge of multiple rape was then withdrawn by Monila and her family and the case was dropped. [12]

That a woman's **Self** is still diminished by attenuating her **Being** solely as a *sexual thing* to be used for male gratification, is a stark reality even in today's world. Girvas village in Rajasthan is commonly dubbed as the 'village of prostitutes'. Families of this village abduct little girls from neighbouring regions and start raising them as 'their own daughters'while regularly injecting the kids with oxytocin hormones to expedite their sexual maturation. The little girls are then transported to Mumbai or in the Gulfs for prostitution. As Ram Prasad, a village *panch* puts it, "Prostitution is a tradition in our community"[13].

In another incident of sex-slavery, Radhika, a Nepali girl was forced by her husband at first to sell her kidney, then she, along with their daughter were sold by the husband to Mumbai for prostitution. Her daughter's tongue was burnt so that the kid could not cry when her mother was made to entertain clients[14]. It is this very patriarchal gaze at females as just sex-objects leads to the rape of infant girls and sexual abuse even by peers at schools. On 12th August, 2012, 16-year old Weirton from West Virginia was drugged and raped by two of her school-mates, Trent Mayes and Ma'lik Richmond, both 16-year old students of Steubenville High School. The duo belonged to gang of schoolboys who touted themselves as t*he 'rape crew'*. They continued assaulting the unconscious girl for roughly six hours while others of the 'rape crew' stood watching and photographing everything. Then, they posted those pictures on social networking sites like Facebook, Twitter and also uploaded a video of the same on YouTube. They did it all for 'fun' and relished the sleazy comments made at those pictures on Facebook and Twitter. The boys got convicted of rape on March 17, 2013.This is again another incident where the girl was blamed by the community for the rape and those boys received dollops of

sympathy when the verdict was issued. How strong a cross section of people's sympathy was for them, became evident when media too ostensibly sided with the boys. On March 17th itself, CNN's Poppy Harlow remarked ruefully,

"it is incredibly difficult, even for an outsider like me to watch what happened as these two young men that had such promising futures, star football players, very good students, literally watched as they believed their lives fell apart..."[15]

These people were too concerned about the 'honour' and 'reputation' of those two 'bright' boys and held the girl accountable for all the dishonour the football team and the town had to bear on account of this case.

As patriarchy determines the qualities of 'ideal femininity', it lays down some rules and code of conduct to be religiously followed. Women who internalize these patriarchal values, are 'good' and 'honourable' woman. Inversely, women who break those rules are 'bad' and 'dishonourable' women. Panchayats in Haryana, Bihar, Rajasthan issue diktats like girls should not wear skirts and jeans, girls should be barred from using mobiles, etc[16]. Some self-proclaimed moral-guardians in Ranchi were a step ahead in putting up posters threatening acid attacks to girls who wear jeans or do not take *dupatta*. Patriarchy thus metes out punishment to those who are its delinquents. Recurrent incidents of 'honour killing', rape, acid throwing, murder — all are often turn out to be means of such punishment.

On 27 November, 1973, Aruna Shanbaug[17] a nurse in Mumbai was brutally raped by Sohanlal, the sweeper in the hospital where she worked. She was choked with a dog-chain and then sodomized. This left her with a brain injury, cervical cord injury and cortical blindness. Since then she is in a vegetative state at a city hospital while repeated pleas for her euthanasia went unheard by the govt. as euthanasia is illegal in India. Sohanlal was once chastised by Aruna for his irresponsibility in hospital duty. This hurt his sense of honour and he satisfied his resentment by committing that heinous act.

The gang-rape of Bhanwari Devi in 1992 at a village in Rajasthan galvanized nation-wide uproar in India and the protest led to the issuance of much-discussed 'Vishakha Judgement'[18] which pertains to sexual harassment at workplace. Bhanwari was raped because she stopped many child-marriages in her region and thus hurt the honour of the higher-caste sect in her region.

In April, 1999, Samia Sarwar of Pakistan [19] was shot dead by her own parents at her attorney's office when she was filing a divorce case against her husband who unleashed torture on her ever since her marriage. Her parents thought by seeking a divorce she maligned their social honour.

In December, 2002, a 16 year old Pakistani girl was attending a wedding party where she joined the dancing with other family members. One of the men present there caught hold of her hand. Though she instantly released her hand, her male relatives regarded the girl as dishonourable and killed her.[20]

Popular Pakistani singer Ghazala Javed[21] was shot dead in June 2012 as defied the curb on women's singing imposed by the Talibans.

On 9th October, 2012, Malala Yousafzai[22] was shot at her head in an attempt of murder by the Taliban assassins. Malala's *'fault'* was that refused to abide by the diktats of the guardians of patriarchy and promoted education for girl children.

On December 7, 2012, Mehtab decapitated her sister Nilofer Bibi. Nilofer was married off when she was 14 and was subjected to torture by her in-laws. After a couple of years she got back to her parents' home and later got united with her old friend Firoz. She thus tarnished her family's honour and so Mehtab punished her for her 'sin', "she had sinned and had to be punished"[23].

And then there is Mukhtar Mai whose struggle to effect a change in social mores this research paper is concerned about. Prior to going into the detailing, the researchers intend to cast some light on the societal framework of the State of Pakistan in so far as its women are concerned.

A Brief Overview of Socio-political structure of Pakistani Society

Pakistani society has a strong patriarchal tenet where women are denied even the fundamental rights of a human being. In rural areas especially where tribal rules are prevalent, women are regarded as objects of exchange between families to increase social status, gain resources or settle disputes (the last one is known as *dukhmany*[24] a custom where women are used to settle disputes). Thousands of women fall prey to sexual violence while in police custody, specially the poor who cannot manipulate with a powerful connection. Among the urban Pakistani populace there is growing conflict between the cravings for a society with Modernistic values and the long-standing practice of adhering to the traditional customs.

Back in 1947, when Pakistan was formed as the result of the Partition, Mohammad Ali Jinnah, founder of Pakistan, aimed at securing political rights of the Muslims with the founding of a new nation. But if observed closely, Jinnah himself was no so much a religiously-avowed person as he was a political one and at that juncture he was much more concerned with the political identity of the Muslims than that of their religious one. In a speech delivered in 1944, Jinnah expressed,

"No nation can rise to the height of glory unless your women are side by side with you; we are victims of evil customs. It is a crime against humanity that our women are shut up within the four walls of their houses as prisoners. There is no sanction anywhere for the deplorable conditions in which our women have to live".[25]

Personally, Jinnah encouraged the space for free and intellectual discourse. After Jinnah, succession of leadership in Pakistan started constricting that space to retain a sovereign power. As Professor Ishtiaq Ahmed remarks, "each time a government felt threatened or insecure it resorted to Islamic rhetoric in the hope of gaining legitimacy and prolonging its existence"[26]. Thus in 1977, in the name of establishing Islamic order in Pakistan, General Muhammad Zia-ul-Haq actually established a number of fundamentalist laws. Among them the Zina

Ordinance stated that in a rape case, if the court was unable to find proper evidence the court may consider the act as consensual and may charge the accuser with the crime of adultery[27]. This led to the hushing up of evidences by the perpetrator. The Qisas and Diyat Ordinances made provision in a rape case that the accuser or her heirs could, at any point of time of the prosecution, may lift the charges and 'forgive' the perpetrator of the crime in return for 'blood money' from the convict[28]. These Ordinances along with some traditional customs act as a hindrance to making effective the Constitutional rights of women. Article 32 of the Pakistani Constitution says that there shall be no discrimination on the basis of sex alone. Article 9 states that no person shall be deprived of life or liberty. The Constitution also ensures the right of consent to marriage or divorce (a right allowed in Islam).

Though in 2005 a Bill called Honour Killing Bill was passed in Pakistan's National Assembly, the Bill invited severe criticism from the women's rights activists stating it as an eye-wash because it made no provision for withdrawal of above-mentioned Ordinances and practically presented the old laws regarding honour killing in a new form. They argued that the hardening of the penalties introduced by the Bill, even the death penalty for some severe cases would prove simply ineffective in the face of Qisas and diyat Ordinance. NGOs and activists pressed the legislators to propose amendments to the Bill. The proposed amendments included rejection of forgiveness option for any honour-related crime, no concession in punishments and confirmation of the government as legally defending the victim[29]. Some legislators placed the proposal in the Assembly in 2005 but after a heated debate the proposal got dismissed as support for the amendments were limited.

In Pakistan, vast sections of the populace live in rural areas where the tribal councils are the final decision-makers. Such councils are with feudalistic attitudes and constituted of only male members who

hail from powerful clans. More often than not, existence of such councils does not cater fair justice to women.

Mukhtar Mai too belonged to such a village where decrees of the tribal councils predominate.

Mukhtar Mai : The Lone Crusader

"You must understand the environment in Pakistan…This has become a money-making concern. A lot of people say if you want to go abroad and get a visa for Canada or citizenship and be a millionaire, get yourself raped"

- President Parvez Musharaf, September 13, 2007[30]

"I offer all the 'riches' I have made out of the panchayet-enforced gang-rape to the President in return for justice"

-Mukhtar Mai, September, 15, 2005[31]

Mukhtar Mai is a 30-something Pakistani woman who hails from the district of Meerwala, a small village in southern Punjab, near the border of India. This illiterate and apparently 'powerless' Mukhtar Mai made headlines around the world through a report that shook the complacency of the civilized world. She had been condemned by her village tribal council to be gang-raped. Her young brother was accused, though wrongly, of having an affair with a girl of the powerful Mastoi clan. So the tribal council declared that Mukhtar's family should be punished by subjecting her to gang-rape. The sentence was carried out promptly by four members of the Mastoi-clan and she was made to walk home nearly naked before a jeering crowd.

Like other women of similar experience in life, she was now meant to commit suicide, and initially, a shattered Mukhtar contemplated of doing the same: "Just like other women, I initially thought of killing myself".[32]As her older brother HazoorBux explained,

> "A girl who has been raped has no honourable place in the village. Nobody respects the girl or her parents. There is a stigma, and the only way out is suicide".[33]

In this context, it is to be mentioned that a girl in the next village was gang-raped a week after Mukhtar and she took the traditional route — she committed suicide.

Interestingly, there is a nexus between the 'honour' of a woman and 'honour' of a man in so far as sexual 'purity' of the woman is concerned. Jane Schneider has studied it in her widely acclaimed essay "Of Vigilance and Virgins: Honour, Shame and Access to resources in Mediterranean Societies". She explains that 'The repository of family and lineage honour, the focus of common interest among the men of the family or lineage is its women. A woman's status defines the status of all the men who are related to her in determinate ways. These men share the consequences of what happens to her, and share therefore the commitment to protect her virtue.[34] She is the part of their patrimony'. The origin of this practice can be traced back to the advent of private property with the discovery of copper, bronze, tin, and iron tools. As Engels opines, with the appearance of private property, man, the master of slaves and of the land, became the proprietor of women also gaining absolute sovereignty over her sexuality. This is why a man has to be able to defend the 'virginity' or 'chastity' of the woman under his dominance if he is to defend his masculinity, his '*honour*'. If she loses her virginity/ chastity, it implies shame for her family as a whole. As Schneider maintains, '…families associate their honour with the virginity of daughters…(a) girl's loss of virginity brings unbearable shame to her family or lineage'[35]. Thus women are considered as a potential source of shame: ' Shame, the reciprocal of honour, is especially important when one of the contested resources is woman, and woman's comportment defines the honour of social groups. Like all ideologies, honour and shame complement institutional arrangements for the distribution of power ….the idea of honour and shame as political ideologies which govern relations of power among men'[36]. This can be better explained through Pierre Bourdieu's concept of '*symbolic*

capital'[37]. Traditionally, 'capital' is defined as sums of money or assets put to some productive use. What Bourdieu did, was to extend the significance of the notion of 'capital'. He made a classification of 'capital'- economic, cultural, social and symbolic. Bourdieu describes, 'symbolic capital' ('prestige', 'honour', 'attention', etc) as a *crucial source of power*, perceived through socially inculcated classificatory schemes. Along with 'symbolic capital' Bourdieu coined another term- *'symbolic violence'*[38]. It is the imposition of thoughts and perception upon the dominated ones who are supposed to regard the social order to be *just.*

Situating 'honour' of the family and the community in woman's sexuality makes woman the target in communal riots, political vendetta or personal revenge. In the Gujarat programme, the proponents of Hindutva raped young girls, pronouncing, "go to Pakistan, why are you in Hindustan?"[39] The notion of 'honour' makes men to take either of two roles vis-à-vis women: either a protector or a violator. Retribution takes the form of 'dishonouring' the women of the Other's community, caste or nationality. Thus, in July 2004, when a 14 years Yadav girl from Bhamtola, Madhyapradesh eloped with a 19 years Dalit boy, the boy's mother and two aunts got gang-raped by 30 Yadav men[40].When the man is unable to protect *his* woman he even prefers to kill her rather than let the enemy rape her. During the Partition, husbands attacked wives, fathers beheaded their children to escape rape.

The notion that a 'good woman' should choose death over '*dishonour*' has a long history. We have heard about the practice of *jauhar*(socio-historically much eulogized and idolized) by Rajput women to avoid abduction and molestation by the enemy rulers. On the other hand, if a woman mixes freely with men and she asserts her agency in matters of marriage, divorce and co-habitaion, she is looked down upon as 'disreputable' woman; she is no longer considered worthy of protection. Violence inflicted upon her is considered to be justified.

But Mukhtar went off the beaten track. Instead of killing herself Mukhtar testified against her attackers with the realization that *shame lies in the act of raping, rather than being raped*. But Mukhtar's story does not end here. That was just the beginning of a new dawn. Mukhtar used her compensation money to start schools in her village. Although an illiterate woman herself, she firmly believes that one way to fight feudal attitude is to educate people. With the compensation money she built one school for girls and another for boys as she believes that not only girls but boys should be educated in the proper way to bring about a social change:

> "My slogan is to end oppression through education.…I hope to make education more readily available to girls, to teach them that no woman should ever go through what happened to me, and I eventually hope to open more school branches in this area of Pakistan. I need your support to kill illiteracy and to help make tomorrow's women stronger. This is my goal in life."[41]

Mukhtar keeps persuading parents to keep their daughters in school. The parents of a girl called Sidra, who was in her fourth grade, had planned to withdraw her from school to marry her off. Mukhtar convinced them to drop that idea altogether and now Sidra wants to be a doctor.

Mukhtar said :

> "Actually, the women of my area are unaware of their rights. Yes, some women are afraid to empathise with me. They are afraid of men, conservative social values and the male dominated society. In our school, we teach girls the regular syllabus as well as special chapters on women's rights, human rights and women empowerment."[42]

This is for this school she keeps refusing to move in safety in the city in spite of the fact that she is receiving continuous threat from the people of the Mastoi clan. This woman is on a mission. At her home too, distressed women from across Pakistan come to take refuge,

for they have heard of Mukhtar and hope that she may help. They are victims with heart-wrenching accounts of their own; yet they are symbols of hope as well indicating that times are changing, women are fighting back. Previously, women who were raped simply killed themselves. Gradually they are following Mukhtar's instance. The fact that a rape victim, instead of committing suicide or living a life of shame and disgrace will seek to prosecute her attackers, is setting a real disincentive for rape and so the number of rapes seems to be decreasing in the area of Meerwala. Really, Mukhtar has waged a crusade against the patriarchal attitude and way of life.

1) In Mukhtar's book *In the Name of Honour* rules and regulations imposed by the powerful Mastoi clan on other groups are the example of what Bourdieu termed '*symbolic violence*'. Impositions such as persons of other groups are not allowed to have relationship of love with a Mastoi girl/boy, a raped woman needs to commit suicide, are instances of 'symbolic violence'. Violation of 'symbolic violence' leads to physical violence as punishment in such a way that it vitiates the 'honour' of the accused group. And what can be more 'dishonourable' for a group when the 'honour' of its woman is tarnished? That is why Mukhtar was subjected to a brutal gang-rape by members of the Mastoi clan as a punishment to her family .Thus is the custom among the tribes at the village of Meerwala in Pakistan and people there have long been accepting it as the *norm.* She fought back, she sought help of the legal system of the country so that the rapists could be brought to book. This was absolutely unthinkable in that region to take a stand against the powerful Mastoi clan, especially by a woman, that too by one who has already lost her 'honour'. This sets Mukhtar apart as a crusader. What she actually did was to claim her 'honour' back. As mentioned earlier, she raised a very crucial question — when a woman is raped, who is to bear the shame? The woman, or the person who committed the heinous

act? In this context the researcher would like to refer to Pitt-Rivers who invoked an extremely important question through all his works on the issue of 'honour'. The question is: what is the relation between 'honour' as status and privilege on the one hand, and 'honour' as moral/conscientious integrity of a person's character on the other? In the light of this question it can be inferred that so far as the concept of 'honour' is a gendered notion — compartmentalising different categories of 'honour' for the two sexes, 'shame' for the sexual abuse would be thrust on the female abused. But if the conventional perception of 'honour' can be deconstructed by viewing it with an 'asexual' perspective, '*fall*' of 'honour' is on the part of the 'Self' who *chooses* to *objectify* another 'Self' denying the '*Being*' of the latter as an active, conscious *subject* having control over her/his body and mind and who can resist any attempt to violate and undo them.

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Institutionalising Efficiency: Debating the Age of Retirement in Late Nineteenth Century Colonial India

Poorva Rajaram

Abstract

This article focuses on a fascinating and explosive debate on the retirement age in colonial India in the late nineteenth century. In 1865, a new rule made retirement compulsory at the age of 55, departing drastically from earlier practice which was more flexible. The rule change heavily affected subordinate Indians in the colonial bureaucracy who vociferously opposed it, offering an alternate vision in the workplace of ageing that foregrounded the skills and experience of older employees. The article argues that these rules sparked off intense opposition because they sought to transform the government employee into a figure that was 'efficient' and 'youthful'.

Introduction

In his report on the 1931 census, John H Hutton quoted a fellow official who had remarked wryly that "to the Indian our application of age-limits to govern retirement and general insistence on birth certificates seem probably to show a defective and to use a popular word in India – bureaucratic attitude towards life."[1] This article investigates this tension noted between the so-called "Indian" understanding of his own age and a "bureaucratic attitude towards life". Interestingly, this Census Superintendent, Hutton, marked out the age limit of retirement for official service as something Indians had particular trouble grasping. This article focuses on a new rule enforcing compulsory retirement at the age of 55, which was brought into effect in 1865. The rule change heavily affected a subordinate Indian bureaucracy who vociferously opposed the new age limit,

offering an alternate vision of the workplace in which the skills of older employees were to be valued.

By covering bitter contestations over the retirement age this article addresses conflict over time, in this case the imposition of calendrical time on the scale of the human lifespan.[2] This article uses previously unearthed primary source material found in vernacular Indian newspapers, British trade magazines, administrative commentaries and manuals of the time as well as official state material from the National Archives of India, Delhi and the India Office Records in London. The uneven spread amongst Indians of self-definition through calendrical time was itself a cause of worry to census officials and employers within the colonial state.[3] The colonial state never made major attempts in the late nineteenth century to build a strong, legally binding documentary apparatus around birth and death in India.[4] It was common throughout the late colonial period for Indians to have what was colloquially referred to as a 'home age' and a 'school age', pointing to the existence of a bureaucratic world that slowly began to require age-verifiability, especially for those who sought government employment.[5]

I will discuss that calendrical time, which got mapped on to a bio-medicalised understanding of age, was becoming a more important aspect of how employees were understood. A new model that plotted diminishing gains from employees over time began to motivate official decision-making. It was not that ageing and the loss of physical prowess were new to the workplace, but rather that bodily decay was now something a bureaucracy had to take precautions or militate against if it wanted an efficient workforce. In the late nineteenth century, a new theory of the workplace emerged in which the concepts of chronological age, the body and efficiency became so finely braided together that they were impossible to distinguish. Through the pull of these new ideas, I will show the everyday official procedure through which the state-as-workplace was slowly being transformed, especially for its subordinate Indian bureaucracy. The term "efficiency" was

omnipresent and even critics of new administrative changes were forced to make their case by citing the cause of greater efficiency.

The realm of employment in the second half of the nineteenth century had undergone a somewhat similar change in Britain as well. Writing about the politics of retirement in the late nineteenth and the twentieth century in the UK, John Macnicol characterises the shift toward old-age pensions and formal retirement as part of a larger historical process signifying "the growth of state dependency."[6] The difference was that in India, the growth of state dependency affected a select set of people and most demonstrably employees of the colonial state. Leslie Hannah, a historian of occupational pensions and retirement in Britain, sees compulsory retirement as a feature of large-scale white-collar organisations with developed internal bureaucracies. In Britain, writes Hannah, rules on compulsory retirement were rare in the nineteenth century and occurred at the end of the century within the civil services, banks, and railways.[7] These rules were unfailingly unpopular and Hannah shows that opposition to a retirement age was often diffused with the offer of a better scale of pension, something that did not occur in colonial India.[8] According to Hannah the rationale for compulsory retirement was often that it "appealed to the needs of younger employees for career progression: the increasing numbers of aged staff were, it was alleged, blocking the promotion prospects of the young."[9] In colonial India, too, reasoning followed similar lines, with promotion opportunities for younger employees cited as one goal of the new rule. Yet retirement rules in India were crafted decades before they took widespread effect in Britain and were specifically meant to phase out the generation of Indian employees who occupied positions in the 1860s and 1870s.

Civil employment in colonial India was split into the elite covenanted service and the uncovenanted services. The rule on retirement at the age of 55 had migrated from the covenanted service to the uncovenanted service, which had operated with a separate set of rules on salary, pension, leave, and retirement.[10] Uncovenanted employees who had been allowed to stay on till the age of 60 or even

later would now have to retire at 55. One commentator on the structure of colonial Indian administration described "the gradual expansion of the Uncovenanted Service, from a body of subordinate clerks to a great administrative service filling all the posts in many of the departments of the state."[11] This expansion included staffing all the special departments created in the second half of the nineteenth century, including the Postal, Public Works, Forest, and Telegraph departments.[12]

The compulsory retirement age of 65 in the British Civil Services only came about in the 1890s, decades after the 55-year rule had been put in place for those in civil employment in India.[13] The 55-year rule had crystallised as a response to the afflictions of the European body in India. As one official explained, it was "a rule, founded on the theory that the European constitution deteriorates too much after a long exposure to the Indian climate."[14] The historian David Arnold has proposed the concept of tropicality to understand the intertwining of climatic conditions and bodies.[15]

The initial draft of the rule stated that it applied to "clerks in public offices," affecting the fate of a large part of the subordinate Indian workforce that kept the colonial bureaucracy running.[16] The special focus on clerks was no accident. One commentator in the London-based publication *Tinsley's Magazine* cited a shift in the kind of people employed as clerks beginning from around 1870.[17] He wrote specifically about the Financial department and described clerks of the "ancient regime" as "limpets in their seats and are in no sort of hurry to enter the Valhalla of pension."[18] Although conceding that they were good at their particular jobs, the writer went on to complain that "government could not well supersede and gall these old servants by promoting their better-born, better-educated and in every way more eligible juniors over their heads."[19] According to this anonymous commentator, even the Europeans in the uncovenanted service had historically been without education and social status. The term "uncovenanted" could often be used in a "derogatory sense."[20] "Better-born" and "better-educated": this was the unspoken and sometimes

spoken mantra of the sustained attempt to remake the service. Administrative policy in the second half of the nineteenth century in India sought to create a new subordinate Indian employee, partly by making sure his body was hardier and more 'efficient' but also by insisting that his numerical and linguistic skills as well as general cognitive makeup were more forward-looking and modern.

The infamous 55-year rule imagined at least 30 years of service before a retirement at the age of fifty-five, which is why it had to be accompanied by another rule which prescribed that only those under the age of 25 could be newly appointed. Along with those two new rules, came the compulsory medical certificate for new appointments: from 1871 onwards, anyone eligible for a pensionable job had to be certified as fit by a government doctor. All these rules combined to create the impression of an all-out attack on the Indians in the uncovenanted service. The *Akhbar-i-Alam* on 13 September 1871 wondered why "the Governor-General had fettered the public service with strict conditions and bound it hand and foot. While on the other hand, it is shackled by the twenty-five years limit, on the other hand, it is hampered by the fifty-five year's rule; besides which the doctor's certificate is another encumbrance."[21] These three rules, and the larger stories they tell about the recasting of civil employment itself, form the kernel of my article. By examining workplace rules surrounding matters of everyday bureaucracy for employees like retirement, this article maps the complexities of this particular transition to 'better' employees within the subordinate Indian workforce. An entity described in official correspondence as the "greatly efficient native officer" became the object of this new bureaucratic universe of subordinate employment.[22] This new figure had to be trained and nurtured, but simultaneously his inefficient 'other' had to be ushered out of the workplace.

The list of those subject to the rule grew to include Superintendents of Central Offices, Head Clerks, Copyists, Tehsildars, Naib Tehsildars, Translators, Jail Darogahs, Inspectors and Deputy Inspectors of the Police, Headmasters and Teachers of Schools, and many other

designations.[23] The rise of the efficient 'native' officer was meant to complement a new colonial state, which was rationalising and reforming its own apparatus in the wake of the revolt of 1857. The youthful malleability of a new set of employees after the revolt of 1857 could provide the colonial state with the chance to remake loyal subjects for the next four or five decades at the very least. In this context, "efficiency" was both a vague and precise word. This article argues that the constitutive features of the concept of efficiency were its relative imprecision and its status as a compulsory referent in all things administrative.

The 55-year rule led to a huge amount of employee unrest which was repeatedly referenced and amplified in vernacular newspapers. This article mines the words in the Indian press levelled squarely against a changing bureaucratic universe. Weekly extracts which the government culled from vernacular newspapers were compiled as the "Native Newspaper Reports" and offer a range of insights into the views and life worlds of Indian employees.[24] Editorials in various newspapers were picked up and transcribed in a compressed form and compiled for intelligence and surveillance by the state. One estimate of the vernacular press from 1873 suggested that it produced 1,00,000 copies with the highest circulation of any one paper being 3,000 copies.[25] The content of newspapers could be amplified far beyond the reach of the sheer number of copies that circulated, through word of mouth or through the copies of the papers themselves passing through many hands. Most responses against the 55-year rule clustered around 1871-72, when the rule was extended to all uncovenanted government servants. The sheer volume of complaints in a short time indicated the feverish pitch of the response. In a sense, the subordinate employee had to rhetorically battle his own impending obsolescence.

Given the daunting barriers which had been raised against Indian entry to the covenanted services or to the commissioned ranks of the Indian Army, there was intense public scrutiny of the conditions of service laid down for the uncovenanted service.[26] To indicate that there was ample opportunity for Indians in this sphere of official

service in 1879, all uncovenanted posts with salaries above Rs 200 a month were reserved for Indians. A European could be admitted to these only with prior sanction from the Government of India.[27] Yet, in spite of this rule, in the 1880s, 66 per cent of the top posts within the service were held by Europeans.[28]

Efficiency in Colonial India

The historian Geoffrey Searle, in his book *The Quest for National Efficiency* about early twentieth-century British political thought, traces a "national obsession" that cut across liberals, conservatives, socialists, and capitalists with the concept of efficiency. Searle shows that this cross-ideological complex was a crystallisation against orthodox liberalism which had dominated the previous two decades of British politics. Where this story becomes relevant to a colonial setting like nineteenth-century India is in Searle's discussion of the nineteenth-century precursors to the early twentieth century's "cult of national efficiency".[29]

In colonial India, though efficiency and centralisation were not as synonymous as Searle implies in his analysis, since there was a separate school of thought that favoured decentralisation as a more effective mode of administration. A major administrative reform taking place exactly at the time when these new rules for entry and retirement were being introduced was the decentralisation of Finance. Provincial governments were handed control of Land Revenue, Jails, Police, Education, Medical Services, Civil Buildings, and Roads to ensure greater efficiency of operation.[30] However other departments like Opium, Salt, Customs, Post Office, Telegraph, Mint, Railways, and Army Services were kept under tight central control. Yet the departments that had been "decentralised" and handed over to the provinces had to proceed with some restrictions. They needed Government of India approval for any new posts created that paid above Rs 250 a month.[31]

The tension between administrative centralisation and decentralisation in colonial India pointed to the epistemological

complexity and specific historicity that lay behind a term like "efficiency" in a colonial context. It was also a tension fundamental to understanding state functioning in the late nineteenth century. Decentralisation had discursive appeal as a theory of efficiency specific to India and came to be widely considered an effective way to cut down on budgetary expenditure.[32] Therefore, diktats about office procedure meant to apply across India had the effect of shadowily resurrecting bitterly fought internal debates about how advisable centralisation was.

Though financial decentralisation was considered one of the biggest and most lasting reforms of its time, pensions and by extension the fiscal balancing of civil expenditure on state employees were very much part of a centralising impulse. The Finance department had interpolated itself as a procedural touchstone in the everyday functioning of many aspects of a civil employee's life. What was unfolding through the new rules on retirement was the seizure by the Finance department of an area of control previously left to the discretion of local governments. To soothe the outcry from local governments, the Secretary of State for India expressed the hope "that the various governments and administrations will always be disposed to extend to it [the 55-year rule] a very liberal interpretation and that the state may in no case be deprived of the valuable experience of really efficient Native officers by the untimely exercise of the powers of compulsory retirement on a pension."[33] Across different departments, superior officers were worried about the loss of valuable subordinates due to the 55-year rule and applications for the grant of exceptions came pouring in.[34]

The historian Sumit Sarkar usefully points out that which "for convenience may be termed lower-middle-class groups have entered historical narratives, if at all, mainly under economistic rubrics as victims of educated unemployment and price-rise."[35] Historian Sanjay Joshi's work is a welcome correction of this historiographical elision.[36] Newspapers of the time configured the subordinate bureaucracy as a class victimised by the failure of colonial monetary policy to cushion the low-salaried classes against fluctuating silver prices. Writing

evocatively about the spiritual lifeworld of Bengali clerks and the subordinate bureaucracy in the late nineteenth century, Sarkar frames government and mercantile offices as spaces through which "disciplinary time" entered Bengal:

> Disciplinary time was a particularly abrupt and imposed innovation in colonial India. Europe had gone through a much slower and phased transition spanning some five hundred years….Colonial rule telescoped the entire process for India within one or two generations. In Bengal, particularly, government and mercantile offices (along with the new type of schools and colleges) became the principal locus for the imported ideas of bourgeois time and discipline.[37]

While Sarkar focuses on time discipline during the 24-hour day, I broaden the idea to include time on the scale of a lifespan. What I am calling the work-lifespan is an amalgamation of working life and a life span. What Sarkar calls the "telescoping" of social change into one or two generations also happened through a reordering of the work-lifespan. Rules on retirement or the age of entry to the workplace were ways of codifying and rearranging the work-lifespan of the Indian employee, all in the hope of producing a new employee.

Public Service and the Politics of Representation

In *Poverty and Un-British Rule in India,* Dadabhai Naoroji complained that the best paying posts in the uncovenanted service still went predominantly to Europeans.[38] It is significant that it is the under-representation of Indians in the uncovenanted service which Naoroji drew upon to make his famous argument about the drain of wealth from India. He argued that the colonial state's high expenditure on the salaries and pensions of Europeans benefitted the British economy at the cost of Indian revenues, and that hiring Indians in senior positions was one way rectify this. While nationalist voices like Naoroji and Gopal Krishna Gokhale were demanding the Indianisation of the higher administrative service, the social reformer Jyotirao Phule demanded that the government end the "virtual monopoly" of upper-castes in this sphere, especially in higher offices.[39]

The theme of Indians in civil employment was one of the most prominent strands of public discussion in the 1870s and 1880s. Years of pressure from educated Indians resulted in the convening of a Public Service Commission in 1886 headed by Charles Aitchison.[40] The commission was assigned the task of devising "a scheme which may…do full justice to the claims of Natives of India to higher and more extensive employment in the public service."[41] While most of the public controversy surrounded the entry of Indians into the elite Civil Services, the commission conducted detailed investigations into the predicament of employees of the uncovenanted services. Unease around the employment of educated Indians directly fuelled burgeoning nationalist politics in the late nineteenth century. Simultaneously many Europeans resident in India lobbied hard to preserve a hold over the best paid and most prestigious posts.

At the time, two issues came to be emblematic of the fate of Indians in public employment – the age limit placed on exam aspirants and the location at which the exam would be conducted. The maximum age of entry to the civil services was nineteen and considered too low by Indians who wanted more years to prepare for the rigorous exams. Candidates who passed the various examinations would then have a 2-year training period before they could join the Civil Services. The fact that exams were conducted only in Britain was seen as a major barrier to the entry of Indians, because only a small number had the resources to travel to England and compete. At the time of the Aitchison commission there were twelve Indians in the Covenanted Civil Service which had a strength of 900.[42]

The historian Mrinalini Sinha writes that "the Commission held sittings at Lahore, Allahabad, Jubbalpore, Bombay, Madras, and Calcutta, examining a total of 849 witnesses orally; in addition, it received 113 written replies to questions that it posed. The Minutes of Evidence contained in twenty thick folios were the most extensive ever collected on any public subject in India up to that time."[43] The committee report resulted in the refashioning of a two-tier system into a three-tier one, with the creation of a new branch called the

Provincial Services, to be comprised of Indians. The "Uncovenanted Service" was recast as the "Subordinate Service". The move was unpopular amongst agitating Indians because the Provincial Services were by their very creation lower in prestige and pay than the Civil Services. Additionally, the highest posts across civil administration were still reserved for the Civil Service, from which Indians were not forbidden, but entry to which still contained the same obstacles as before. As Sinha notes, the effects of the Public Service Commission were paradoxical since they resulted in even tighter European control of top administrative posts, something that would not drastically change until after the First World War.[44]

In 1877, the number of Indians who earned more than Rs 75 a month was 21,466, and historian Anil Seal estimates that the number of Indians employed who earned less than Rs 75 a month was ten times that number.[45] While Indians would still technically be eligible for the highest level of service, the Civil Services, many of the barriers to entry that existed before the commission was set up persisted. The commission also recommended raising the maximum age of entry to 23, a suggestion that was ultimately accepted.[46] After the age limit was raised, the Civil Services examinations started ensuring new rigorous physical tests for aspirants and Sinha writes that, "not surprisingly, the very first casualty…was a native candidate, Aravinda Ackroyd Ghose. Having passed the Civil Service Examination in 1890 with the overall rank of eleventh, he was debarred from the Indian civil service for failing his riding test."[47]

Sinha situates the politics of the commission within a cultural clash between the archetypes of the "manly Englishman" and the "effeminate Bengali". For the purposes of my article, I will show some correlation between traits that were considered "manly" and those considered "efficient". While ideas of manliness and the set of ideas it connoted fit into an aristocratic order as a partly hereditary trait, efficiency didn't carry the same cultural baggage and it fit into the 'modern' workplace. In 1885, Lord John Kimberley, the Secretary of State for the India Office, had referenced the fear of the educated babu "impairing

the efficiency of our European bureaucracy."[48] His use of the word "efficiency" is significant because it was a key concept deployed to make the case against native aspirants and especially those who fit the category of 'babu'.

The term efficiency though was far from neutral given that it could describe bodily attributes, but also manifested cloaked meanings about personality and social status.[49] It was precisely the babu's supposed bookishness that was wielded against him, almost as if it constituted evidence of physical frailty. Behind this usage of the word "efficiency" lay a particular theory of leadership and workplace volition that relied heavily on a hereditary idea of who could command and inspire others and therefore become a suitable employee for higher posts. This preference for those born as 'rulers' extended to British recruits, where a similar suspicion existed about educated aspirants from non-aristocratic backgrounds who made it through competitive exams and may have attended Scottish or Irish universities instead of Oxbridge.[50] As the stereotype went, the "competition-wallahs" lacked the leadership and authority necessary for effective administration. In British satires of the time, Sinha points to the "negative usage of the babu, its connotation of social climbing or money-grubbing."[51]

Lord Robert Lytton, the Viceroy between 1876 and 1880, complained that "the educated, and educable, natives of Bengal, Madras, and Bombay, are probably unfit for employment out of their own Presidencies, and the hardier and more energetic races of the north will not submit to any educational process imposed by us as qualification for Government employment."[52] "Hardier and more energetic" combined with a modern education described the wishful figure of the new "efficient" Indian employee. The issue of recruiting Indians to public employment had become politicised in a way that pitted the educated aspirants against the traditional gentry. Entry through competitive exams was the one route available to educated aspirants. Most services within the broad umbrella of the uncovenanted service used a combination of nomination and open competition to recruit.[53] Europeans came to India hoping to be nominated to the

uncovenanted service, carrying recommendations from influential people in England or trying to win influence in "powerful official quarters" to be granted entry.[54] It was not unusual for the uncovenanted service to use hybrid methods of recruitment that emphasised both education and birth. For example, some departments would nominate candidates of "respectable" birth guided by how they performed in competitive exams or demand that nominated employees of birth and respectability also have basic education qualifications.[55]

The Public Service Commission left the existing system of recruitment largely intact, not explicitly expressing preference for one method or the other. The newly born Provincial Services continued in that mould and greatly favoured discretionary hiring.[56] Anil Seal shows that the tide in different regions was firmly in favour of nomination.[57] In 1886, statistics from just the executive and judicial branches of the uncovenanted service showed that Hindus made up 72 per cent of those earning salaries above Rs 75. Upper-caste Hindus made up the largest percentage of that figure, consisting mostly of Brahmins and Kayasthas, who just by themselves made up 72 per cent of the total number of Hindus employed at this level.[58] Only 18 per cent of these officers had passed university entrance exams, indicating that open competition played a limited role in recruitment.[59] Yet education at least up to the level of Matriculation, if not university, was increasingly a requirement for new recruitment through both competition and nomination, prompting the observation by the Director of Public Instruction in Bengal in 1876 that "none but an educated person can hope to enter the public service in any except its menial branches."[60]

Folded into the politics of recruitment at this moment were the politics of difference between Indians. Moving toward competition as a method of recruitment was understood as synonymous with allowing an upper-caste Hindu monopoly on the jobs that did go to Indians. British officials testifying before the commission laid out a scenario in which, if readiness for a job was measured in terms of existing educational qualifications and competence in entrance tests, civil employment would be flooded by 'babus'. They had seized on the

cause of representation, suggesting that hiring in civil employment had an obligation to match the demographic makeup of the country, even if they had to empower systems of local patronage in the process. They also expressed concern about the under-representation of Muslims in some regions. This became another justification for a system of nomination that gave employers a higher degree of discretionary powers in hiring. Yet, at the same time, newer rules that fixed the ages of entry and exit curtailed employer discretion.

Underlying public agitation that was focussed on Indians entering the highest brackets of civil employment included unrest about the existing practices around promoting Indians, where prospects of major advancement during their work-lifespan were dim.[61] The aforementioned unnamed covenanted officer examining official life in India, writing in *Tinsley's Magazine*, suggested that the uncovenanted service recruited mainly through nomination, a practice he described as tantamount to "favouritism".[62] He complained that promotion in the service did not abide by "any hard-and-fast rules" and the service itself stood in danger of "jobbery and nepotism".[63] There was also a casual workforce lodged in the different departments, about whom statistics were harder to find and who did not qualify for the much-disputed perks of formal employment like retirement, promotions, leave, and pensions. Most often, appointments of Indian candidates were made first to the lowest possible grades. These were grades of employment where Europeans and Eurasians did not work because of the small salaries on offer. From there on, promotion could be governed by seniority and special skills, qualifications, and aptitude for supervision.[64]

Practices of promotion, like those of recruitment, could have a pronounced discretionary character. In the Post Office, Indian employees complained to the Public Service Commission that Europeans were likely to arrive at the grade of Superintendent much faster than Indians, and many Indians were considered not sufficiently "energetic" precisely because they had been consigned to year upon year of the lower grades of employment.[65] They also complained that recruitment only at the lowest ranks and a static outlook for future

promotion made educated candidates wary of joining service. In this context, amidst widespread worries about non-promotion, a newly inflexible retirement age further dimmed prospects within the Indian employee's work-lifespan, adding an electric charge to discussions of the retirement age, which were especially contentious.

The Sedimentation of Skill

Indian employees widely perceived the 55-year cut-off date as a measure meant to speed up the exit of ageing subordinates, especially ones who could not read and write English or who could not prove their supervisory prowess within the chain of office hierarchy.[66] This section examines the intricacies of the public debate on the rule. The press outrage against the rule catalogued in the Native Newspaper Reports during the year of 1871 can help reconstruct a complicated dialogue taking place between the state and its employees as well as intellectual currents shaping responses. Editorials in various newspapers attacked the rule by ventriloquising the life plight of the subordinate Indian bureaucracy. Multiple arguments were deployed to oppose the new service rules, ranging from spiritual arguments to purely utilitarian ones, but in particular, assumptions that linked youth to efficiency were challenged vigorously. Responses in the newspapers made full use of the fact that efficiency as a concept evaded exact definition. In their reconstruction of the concept, efficiency was embodied by long years of workplace experience, something that, by definition, new recruits could not have. They repeatedly highlighted the irreplaceability of experience in the face of a new bureaucratic regime's view that began to see long careers that proceeded without the obvious addition of new skills as a liability.

The *Lawrence Gazette*, an Urdu paper published from Meerut, reported that some public officers had submitted a memorandum to the Secretary of State for India asking for the cancellation of the rule fixing 55 as the age of retirement:

> The editor concurs with the officers in their opinion and remarks that the rule is ill-suited for a country like India, where fifty-five

> years is regarded as the proper age of mature experience. "Satha Putha" (i.e. a man of sixty is a youth, i.e sixty years is the proper age of manhood) is a common saying among the natives. With special regard to the Indian customs, therefore, it is proper, in the writers opinion, that the rule be revoked.[67]

The new bureaucratic view of the workplace plotted diminishing bodily returns after a given age. Indian respondents in the press argued that ageing was not something that the workplace had to be protected from but rather a natural process that added cerebral value to an employee. These editorials objected to the reduction of an employee to his body and the disregard of his cognitive skills. The *Akhbar-i-Alam,* an Urdu paper also published in Meerut, carried this editorial on 15 October 1871. It argued that:

> Even in the military profession mere strength and force of arms are of little avail unless attended by warlike skill and strategy, which can only be acquired by long experience and service in a war. As to service in civil departments, it is obvious that with the exception of copying work, all other kind of work, especially public functions, are best performed by old and experienced employee.[68]

This editorial pointed out that bodily strength was required only for certain kinds of work, that in all else experience counted for more, and that this ought to be reflected in the retirement rule.[69] It counter-intuitively cast military labour as cerebrally demanding. It used the example of judicial work to underline this point, citing a profession where the sedimentation of experience led to exemplary and respected judges.[70] The argument for the value of experience relied powerfully on the mind-body distinction, with cerebral labour in 'service' occupations on top and labour involving bodies below it. This was unsurprising given the largely upper-caste Hindu composition of the subordinate bureaucracy. The body of the employee represented through the editorials was often glossed over in favour of his experience-based contributions. This view resisted the reduction of the employee to what the scholar Anson Rabinbach has described

elsewhere as a "human motor" to be harnessed only for labour power.[71] Yet the new rules on retirement and medical certification kept this employee's body insistently in view as the object of a transforming bureaucracy. Interestingly, the editorial conceded that, of the many jobs within civil employment, the drudgery involved in clerical labour required the least amount of cognitive skill. Experience, in other words, did not significantly add value to repetitious clerical work.

In the late nineteenth century clerical work lay discursively trapped between 'service' and 'labour.' In her discussion of scribal labour in colonial India and Britain, historian Jane Caplan challenges the rigid differentiation sometimes made between white-collar and manual work:

> (It is, incidentally, mysterious to me that the white-collar clerk's work of handwriting has been so rigidly differentiated in terms of labour process and social standing from working-class 'manual' work.) But this human machine was fallible and error-prone, and true mechanization came late to office work. Until at least the mid-century, clerks and copyists regularly worked with quill pens and might have to mix their own ink. Steel pen-nibs were not in circulation much before the 1830s, and were not in mass production until the 1860s. Typewriters, available from the 1870s, did not come into widespread use in Britain until the turn of the century.[72]

The drudgery of clerical labour is described in granular detail by the sociologist Dalia Chakrabarti in her book on colonial Indian clerks. She summarises the predicament of the Bengali clerk as one of "deprivation and domination."[73] Chakrabarti portrays the clerk as an immiserated subject, not a strictly white-collar one – caught between long working hours, low pay, urban inflation, a racist work structure, and pressure to support rural relatives. At the heart of the debate about retirement age and the age of entry were two different visions of time. The official view wanted to nurture the physical energy and malleability of youth, militating against what was imagined to be a slowly decaying or atrophying subordinate workforce. Critics inverted this scenario by embracing the passage of time as a boon for the

development of skill in the workplace, skill that was untethered from bodily prowess or ailments.

In a practical argument against the rule, newspapers warned that the 55-year rule would be unfairly applied, denting the efficiency of the workplace. The editor of the *Lauh-i-Mahfuz* of 20 June noted that officials who have no means of patronage or are truthful enough to misstate their age are removed from service under the 55-year rule though perfectly sound in body and mind, while, according to him, "others who enjoy patronage though old and decrepit and unfit for work but who are clever in deceiving officials by tinging their hair black and using artificial teeth" are retained in the office.[74] Since the rule theoretically had room for exceptions, workplace hierarchy and internal systems of patronage took on new significance if employees wanted to stay on after growing older than 55 years.

Newspapers also complained that those hardest hit by the rule would be the lowest strata of civil employees. The *Surya Prakash* of 5 August 1871 wrote that :

> These classes can hardly maintain themselves with the pittance they get, and when they are thrown out of employ on pension or gratuity their distress is sure to increase. The Government appears to relax the rule in the case of some of the highly-paid servants.[75]

The picture painted in this editorial was one where the more an employee was paid, the more likely he was to be able to escape compulsory retirement at 55 years, since his scale of pay itself was an indication of how valued he was by his employers. The spectre of genteel destitution also haunted employees scared of being pushed out of government employment. The possibility of five extra years on a full salary instead of a pension could matter a lot. The new rules were also assailed using financial arguments. Many editorials as well as official memorandums worried about the potential loss of public money since the pension list would grow longer. The rule would be applied throughout the uncovenanted service and it would apply to salaries and pensions much higher than just the meagre clerk's pension,

contributing to an increase in the civil expenditure as a whole. This particular line of reasoning was a testament to the fact that the debate on both sides was fully encased in the language and logic of economic efficiency. The one commonality between all the various strands of debate that took on the new rules was their framing of arguments using the concept of efficiency. In late nineteenth-century India, "efficiency" had risen to the level of a ubiquitous meta-keyword in the field of public employment and administrative reform, filtering all existing ideas through its grasp. It was now the compulsory currency of the modern workplace.

Defining Youth

This section looks at the rule created to ensure that those entering civil employment would be younger than 25 years of age. The rationale put down brusquely for the new rule, introduced in 1871, was "that men of advanced age are never to be admitted the government service except upon public grounds of a special character."[76] In fact, age-related rules were applied in a slow and uneven way across different departments, but this did not stem the level of anxiety amongst Indians that was created by their formulation. For with them came a new set of descriptions of what made certain people and bodies ineligible for the workplace. Official correspondence on this issue complained incessantly about "inefficient" or "worn-out" subordinates admitted into government employment who were well past the age of 25.[77] This phraseology accompanying a moment of huge transition was solidifying into a new perception about the kind of human material required to train employees for the new specialist departments emerging in the 1870s. Men in their early twenties or late teens were held to have the necessary vigour of body and mind as well as a key quality – malleability within a new bureaucratic order.

As much as the age limit on entry was meant to ensure the presence of a new, slightly younger entrant, 25 was not a particularly low age. The rule was also a way to signal that the discretionary hold of employers across departments and provinces could not be absolute.

New appointments of those above 25 would require official clearance from all, up to the Government of India. At the time this rule was first floated in 1870, the limit on the age of entry to the Civil Service was 19, indicating that the preferred age range of recruitment could even fall below 20. The Telegraph department, one of the 'special' departments created in the second half of the nineteenth century, recruited candidates between the ages of 16 and 20, including some who were just out of school, to work as signallers.[78]

In 1886, the signalling branch comprised 1,286 employees, of which 250 were Indians. Candidates were required to take 9 months of classes and then pass a qualifying exam on aspects of the science of electricity, office procedure and the use of instruments.[79] Exams for existing employees were held annually, to determine who could be promoted. Since the work of signalling required specialised skills and technical competence, recruitment of candidates early in their careers was considered the best way to staff the department. For signallers, promotions in the department were regulated by "aptitude, conduct and physique", not seniority.[80] There were complaints within the department that older employees could not keep up with the rigorous internal examination practices. Such employees were also being phased out with the stricter application of the new rule on retirement. In 1875, the "absolutely compulsory retirement" of some lower officials in the Telegraph department was brought about by a change in the rules of the Civil Pension Code.[81] This Telegraph department was often held up as an exemplary employer for ushering in a new bureaucratic paradigm because it had successfully tailored recruiting practices toward only "efficient" and youthful employees.[82]

Unsurprisingly, Indian newspapers yet again produced a rhetorical challenge from the point of view of those being phased out in this moment of transition. The *Akhbar-i-Alam*, which had also been fiercely critical of the new retirement age, now attacked the fixing of 25 years as the age limit for entry, complaining that public employment would now contain "mere novices."[83] Here, youth was associated with

inexperience, whereas in the governmental understanding it was associated with vigour and adaptability.

In 1877, six years after the 25 year rule came into effect, the Financial department worried that it was simply being ignored, especially by large employers like the Post Office. RB Chapman, the Finance Secretary, complained that "worn-out and inefficient men" were still being admitted "under pressure" from the staff.[84] He blamed some recent blunders in accounts on the presence of "inefficient" employees hired too late in their professional careers: age was becoming a foundational fact about employees. Other determinants of workplace performance like skill, experience, specialisation, suitability, and competence were now being seen as causally affected by age, not independent from it.

The new rules were also sometimes critiqued on the grounds that they would be impossible to enforce. J Inglis, a Senior Member of the Board of Revenue for the North-Western Provinces, pointed out that "to ascertain correctly the ages of all Natives in government service with the declared intuition of making all those above 55 retire would be next to impossible."[85] RB Chapman, the Financial Secretary, and other high-ranking colleagues like Richard Temple personified the modern reformist zeal which ran through the Finance department. They saw themselves as leading the fight to fix the ramshackle bureaucracy inherited from the East India Company by pioneering a modern transformation that would face considerable resistance from older, slower, and more backward-thinking officials who were resisting an erosion of their autonomy. The goal of the Finance department was to "unobtrusively bring the provision of the Codes to the notice of heads of departments without any invasion of their rights."[86] Debate within the Finance department tended to be about the procedural aspects of the implementation of these new rules, not whether or not the rules were desirable. That was taken for granted.

The number of age-related rules being introduced from the 1870s onwards reveals the growing importance given to age as a bio-medical reference point in the workplace. The difficulty of verifying an

employee's age took up a lot of space in official correspondence. One manual for medical officers from 1870 warned that on questions of age "natives have the vaguest possible descriptions" which were little more than "random guesses."[87] The age of entry was a huge flashpoint when it came to Indians entering the elite Civil Service, and their experiences with proving their age demonstrates the complexity of the process. In 1870, JB Peile, Director of Public Instruction for Bombay Presidency, wrote a detailed letter to the Chief Secretary of Government, announcing procedures through which provincial governments could establish the age of candidates aspiring to the Indian Civil Service.

Strikingly, Peile declared that "the date of birth will have to be treated as a fact to be proved in each case."[88] He acknowledged the absence of an official register of births and was quick to point out that most of the available forms of "proof" of birth were not to be trusted. He listed horoscopes, family books, tradesman's account books (which showed expenses spent on birth ceremonies) and school registers as possible documents to establish date of birth for the local magistrate.[89] He added that Muslims were likely to have books documenting the expenses of Bismillah ceremonies, which could give an approximate sense of a candidate's age. Procedures that verified age for those joining the uncovenanted service reluctantly used the same list of documents, including horoscopes.[90]

As the Director of Public Instruction, Peile was aware that schools were not always in the habit of keeping registers with carefully vetted information on students, but he assured the Government that in the future, schools in his province would become a reliable source of biographical information on students. He especially cautioned against horoscopes, complaining that they were only made by upper-castes and when they were available they used inaccurate astrological names for potential candidates that could not conclusively establish identity. His major complaint against the use of horoscopes was they were "superstitious," mired in a worldview that owed nothing to the modern world of bureaucratic facts he was in charge of marshalling.[91] According to Peile, fraud was a looming possibility with horoscopes or trade

books.[92] Since evidence of date of birth could not stand by itself, he suggested corroborating it with in person witnesses who were known to the candidate, who could present themselves at the magistrate's office and vouch for him.

The sudden tethering of appointment to an official age of entry meant that the age of prospective employees had to be conclusively determined. Self-declaration of age supplemented by documentation was the slipshod formula that prevailed, but this put the responsibility of confirming this evidence on employers. A notification issued by the Finance Department on 5 June addressed the problems that arose when "age was contradicted by personal appearance."[93] This circular was meant to address widespread suspicions that many employees were older than their paperwork or self-declarations claimed. Doctors had to judge for themselves and make medico-legal pronouncements about the age of new entrants. Employers had to attach a new declaration to the certificate of physical fitness, stating the doctor's estimate of the employee's age at the time of appointment.[94] In other words, officials were advised to fall back on a visual verification of age, since various kinds of corroborating evidence could not be trusted.[95] This notification marked a grudging official acknowledgement of the fact that the youth of employees, let alone the benefits that came with younger employees, were difficult to visually pinpoint and certify. The very intangibility of youth as a personal and bodily attribute led to the bureaucratic apparatus around it.

In this article I have written about the change in three rules and through that demonstrated the larger way in which in the workplace was being remade. Heightened bureaucratic rationalisation, targeted especially at the Indian subordinate bureaucracy, along with low wages and low purchasing power, had fundamentally altered the allure attached to government service. Attacks on public employment in the popular press were particularly sharp in the 1870s and 1880s. One editorial summarised this succinctly: "during the long period of one hundred years that has now elapsed since the establishment of the British rule in India, no such restraints were ever imposed; they are

all inventions of this age."[96] The government employee, especially those who joined service in the 1840s and 1850s, had to confront his own disposability, replicability and curtailed horizons. This often created a despondent sense that life would be brighter outside state employment. On 16 January 1871, *Dnyan Prakash* carried an editorial advising "educated young men not to look to government exclusively for employment, but to try and become the architects of their own fortunes."[97]

Notes

[1] John Henry Hutton, *Census Report of India*, Vol. I, Delhi: Government of India Publications Department, 1931, 89.

[2] See Vanessa Ogle, "Whose time is it? The pluralization of time and the global condition, 1870s-1940s", *The American Historical Review* 118, no. 5 (2013): 1376-1402.

[3] Timothy L Alborn, "Age and empire in the Indian census, 1871-1931", *The Journal of Interdisciplinary History* 30, no. 1 (1999): 61-89.

[4] For the late nineteenth century Radhika Singha has written that "in India, the recording of birth and death meshed with the colonial legal structure in a very faltering way. Government placed its priority on the enumerative project, foregoing the more detailed and indexed registration of individual particulars which could be used in court." Radhika Singha," Colonial Law and Infrastructural Power: Reconstructing Community, Locating the Female Subject", *Studies in History* 19, no. 1 (2003): 87-126.

[5] Ibid.

[6] John Macnicol, *The Politics of Retirement in Britain, 1878-1948*, Cambridge: Cambridge University Press, Cambridge, 2002, 4.

[7] Leslie Hannah, *Inventing Retirement: The Development of Occupational Pensions in Britain* Cambridge: Cambridge University Press, 1986, 135.

[8] Ibid, 135.

[9] Ibid, 135.

[10] George Chesney in his primer on the administrative structure of India writes that "the Uncovenanted Service, and the members of it are all on precisely the same footing, as regards appointment, the privilege of leave, and pensions", George Tomkyns Chesney, *Indian Polity: A View of the System of Administration in India,* London: Longmans, Green and Company, 1870, 244

[11] Ibid, 250.

[12] Charles Aitchison et al, *Report of the Public Service Commission, 1886-87,* Calcutta: Superintendent of Government Printing, 1888. 90.

[13] Hannah, *Inventing Retirement*, 9.

[14] From C. Grant, Secretary to the Chief Commissioner., Central Provinces to E. C. Bayley, Secretary to the Govt. of India, Simla, dated 15th July 1869; Home, Public, February 1870, 114-130, *India Office Records* (hereafter IOR).

[15] *Panjabi Akbar*, 10th June, *Selections from the Vernacular Newspapers Published in Punjab, NWP, CP and Oudh,* 1871, GOI Press, 231.

[16] John Strachey, *India: Its Administration and Progress*, London: Macmillan, 1903, 82.

[17] Covenanted Civilian, "Indian Civil Service", *Tinsley's Magazine*, London: Tinsley Brothers. Vol XXIX, From July to December 1881. 231-239, 236.

[18] Ibid, 236.

[19] Ibid, 236.

[20] HH Dodwell ed. *The Cambridge History of India 1858-1918* Vol. VI, Cambridge, 1932, 361.

[21] *Akhbar-i-Alam*, 13th September, *Selections from the Vernacular Newspapers Published in Punjab, NWP, CP and Oudh*, GOI Press, 1871, 612.

[22] Home, Public, April 1872, 35 (IOR).

[23] Home, Public, February 1870, 114-130, (IOR).

[24] George Grierson, the noted linguist, characterises the time between 1857 and 1887 as the "rise of the vernacular press". He went on to add that in this time there is "scarcely a town of importance which does not possess its own printing press or two." George A Grierson, "The Modern Vernacular Literature of Hindustan." Volume 57, Part 1. *Journal of the Asiatic Society of Bengal,* Calcutta: Asiatic Society, 1889, 691.

[25] Uma Das Gupta, "The Indian press 1870-1880: a small world of journalism", *Modern Asian Studies* 11, no. 2 (1977): 213-235, 229.

[26] See Dadabhai Naoroji. *Poverty and Un-British Rule in India*, S. Sonnenschein, 1901.

[27] Strachey, *India: Its Administration and Progress*, 1903, 83.

[28] Mrinalini Sinha, *Colonial Masculinity: The 'Manly Englishman' and the 'Effeminate Bengali' in the Late Nineteenth Century,* Manchester University Press, 1995, 105.

[29] Geoffrey Russell Searle, *The Quest For National Efficiency: A Study in British Politics and Political Thought, 1899-1914*, University of California Press, 1971, 31.

[30] John Strachey, *India: Its Administration and Progress*. Macmillan, 1903, 115.

[31] Parakunnel Joseph Thomas, *The Growth of federal finance in India: Being a survey of India's public finances from 1833 to 1939*, Oxford University Press, London, 1939, 170.

[32] Ibid, 169.

[33] Home, Public, September 1872, 143A, National Archives of India (NAI).

[34] "Administration of the rule of compulsory regiment after the age of 55 years in the case of certain officers in the Government of Bengal" Finance, Pensions and Gratuities, October 1871, 41-43A

[35] Sumit Sarkar, *Writing Social History,* New Delhi : Oxford University Press, 1998, 306.

[36] Sanjay Joshi, ed. *The Middle Class in Colonial India*, Oxford: Oxford University Press, 2010 and Sanjay Joshi, *Fractured Modernity: Making of a Colonial Middle Class in North India,* Delhi: Oxford University Press, 2002.

[37] Sumit Sarkar, *Writing Social History,* New Delhi : Oxford University Press, 1998, 309.

[38] Naoroji wrote that statistics showed that at the highest paid positions in the uncovenanted service there were 1,302 Europeans and 221 Indians. Among the Indians, only one made a salary of 1,500 a month. Dadabhai Naoroji. *Poverty and Un-British Rule in India*, S. Sonnenschein, 1901. 210.

[39] In 1882, testifying before an commission on education, Jotirao Phule wrote that "one of the most glaring tendencies of Government system of high class education has been the virtual monopoly of all the higher offices under them by Brahmins…it is the duty of Government to check a host of abuses, it behoves them to narrow this monopoly day by day so as to allow a sprinkling of the other castes to get into the public services." Quoted in Ramachandra Guha ed, *Makers of Modern India*, New Delhi: Penguin, 2010. 80.

[40] Charles Aitchison was a high ranking Scottish civil servant and a former Lieutenant Governor of Punjab. Charles Aitchison et al, *Report of the Public Service Commission,* 1886-87. Calcutta : Superintendent of Government Printing, 1888.

[41] Ibid, 1.

[42] Sinha. *Colonial Masculinity*, 1995, 104.

[43] Ibid, 100.

[44] Ibid, 101.

[45] Anil Seal. *The Emergence of Indian Nationalism: Competition and Collaboration in the Later Nineteenth Century*. Vol. 1. CUP Archive, 1971, 116.

[46] Sinha. *Colonial Masculinity,* 1995, p. 114.

[47] Ibid, 118.

[48] Quoted in, Sarvepalli Gopal, *British Policy in India*, 1858-1905, Cambridge: Cambridge University Press, 1965, 171.

[49] On the question of hierarchy and colonial governance see David Cannadine, *Ornamentalism: How the British saw their empire*, Oxford University Press, USA, 2002.

[50] Sinha. *Colonial Masculinity*, 104.

[51] Ibid, 17.

[52] Quoted in Seal, *The Emergence of Indian Nationalism*, 141.

[53] According to George Chesney writing in 1870, nomination was the primary method of appointment to the uncovenanted service. George Tomkyns Chesney, *Indian Polity: a View of the System of Administration in India*, London: Longmans, Green and Company, 1870, 250.

[54] "The Uncovenanted Civil Service in India", *The Saturday Review of Politics, Literature, Science and Art*. No 277, Vol. II, February 16th, London: Chawton Publishing Company, 1861, 153.

[55] Aitchison et al, *Report of the Public Service Commission*, 32.

[56] Sinha, *Colonial Masculinity,* 1995, 125.
[57] Seal, *The Emergence of Indian Nationalism*, 1971, 183.
[58] Ibid, 118.
[59] Ibid, 321.
[60] Quoted in Seal, *The Emergence of Indian Nationalism*, 1971, 128.
[61] Anil Seal writes that "the uncovenanted service as the best opening for Indians. But here promotion and pay went so far and no further." Seal, *The Emergence of Indian Nationalism,* 134.
[62] Covenanted Civilian, "Indian Civil Service", *Tinsley's Magazine*, 236.
[63] Ibid 236.
[64] Charles Aitchison et al, *Report of the Public Service Commission*, 121.
[65] Ibid, 121.
[66] The *Arunodaya* on 5th February complained about "the excessive importance attached by the authorities to the knowledge of English in their subordinates' and the difficulties this caused to natives". *Native Newspaper Reports of Bombay*, GOI Press, 1871, 34.
[67] *Lawrence Gazette*, 29th September, *Selections from the Vernacular Newspapers Published in Punjab, NWP, CP and Oudh*, GOI Press, 1871, 587.
[68] *Akhbar-i-Alam*, 15th October, *Selections from the Vernacular Newspapers Published in Punjab, NWP, CP and Oudh*, GOI Press, 1871, 612.
[69] *A'rya Mitra*, 2nd July, *Native Newspaper Reports of Bombay*, GOI Press, 1871, 283.
[70] *A'rya Mitra*, 2nd July, *Native Newspaper Reports of Bombay,* 1871, GOI Press, 283.
[71] Anson Rabinbach, *The Human Motor: Energy, Fatigue, and the Origins of Modernity,* University of California Press, 1992. In Europe, Rabinbach has shown that late nineteenth century and early twentieth century science increasingly began to conceptualise the worker as a "human motor" to be harnessed for his "labour power".
[72] Jane Caplan, "Illegibility: Reading and Insecurity in History, Law and Government" In *History Workshop Journal*, vol. 68, no. 1, 99-121. Oxford University Press, 2009, 108.
[73] Dalia Chakrabarti, *Colonial Clerks: A Social History of Deprivation and Domination*, Kolkata: KP Bagchi & Co, 2005.
[74] *Lauh-i-Mahfuz*, 20th June, *Selections from the Vernacular Newspapers Published in Punjab, NWP, CP and Oudh*, GOI Press, 1872, 330.
[75] *Surya Prakash*, 5th August, *Native Newspaper Reports of Bombay*, GOI Press, 1871, 353.
[76] *Finance and Commerce, Pensions and Gratuities*, June 1877, 31A (NAI).
[77] *Finance and Commerce, Pensions and Gratuities*, June 1877, 31A (NAI).
[78] Aitchison et al, *Report of the Public Service Commission*, 137.
[79] Ibid, 136.

[80] Ibid, 137.

[81] This amendment was made to the Civil Pension Code. "Alteration in the rules of Civil Pension Code in regard to the retirement of officers of the Public Works and Telegraph Departments at the age of 55." *Finance, Pensions and Gratuities*, March 1885, 124-126A.

[82] Aitchison et al, *Report of the Public Service Commission*, 137.

[83] *Akhbar-i-Alam*, 15th October, *Selections from the Vernacular Newspapers Published in Punjab, NWP, CP and Oudh*, 1871, 612.

[84] Home, Public, February 1870, 114-130, (IOR).

[85] From J. Inglis, Senior Member, Board of Revenue for the Northwestern Provinces to R. Simson, Secretary to Government of North Western Provinces; Home, Public, February 1870, 114-130, (IOR).

[86] *Finance, Pensions and Gratuities*, November 1877, 9-14A (NAI).

[87] William Robert Cornish, *A Code of Medical and Sanitary Regulations for the Guidance of Medical Officers Serving in the Madras Presidency*, Madras: Government Press, 1870. p. 36.

[88] *Report of the Department of Public Instruction in the Bombay Presidency for the Year 1870-71*, Bombay: Education Society's Press, 1871, 430.

[89] Ibid, 430.

[90] *Finance and Commerce, Pensions and Gratuities*, March 1885, 111-112A (NAI).

[91] *Report of the Department of Public Instruction*, 1871, 430.

[92] Ibid, 430.

[93] *Finance, Pensions and Gratuities*, November 1877, 9-14A (NAI).

[94] *Finance, Pensions and Gratuities*, November 1877, 9-14A (NAI).

[95] *Finance, Pensions and Gratuities*, November 1877, 9-14A (NAI).

[96] *Akhar-i-Alam*, 15th October, *Selections from the Vernacular Newspapers Published in Punjab, NWP, CP and Oudh*, 1871, GOI Press, 612.

[97] *Dnyan Prakash, Native Newspaper Reports of Bombay*, GOI Press, 1871, 21.

Technical and Engineering Education in India in the Nineteenth Century: The Bengal Engineering College, c. 1840s - 1890s

Sunayana Maiti and Sujata Banerjee

Abstract

History of science and technology is now an established field of study in India, though its genesis can be traced in the West. This field of research is still growing and developing by incorporating new dimensions in studying the progression of science, technology and engineering, one of which being institutional history. Bengal being the first capital of British India, scientific studies thrived in comparison to the other metropolitans. Institutionalisation of scientific knowledge started in India with the inception of the Asiatic Society, established in Bengal in 1784. In continuation of this new phase in the growth of organised research, the commencement of the University system in the next century was also a turning point, where again with the inception of the University system later, Bengal was one of the foremost beneficiaries. In this way, even in the case of institutionalisation of technical education, Bengal was one of the pioneers. Engineering education was the main reason amongst others, behind the initiation of institutionalisation of technical education in Bengal. The inception of Bengal Engineering College ushered in a new era of knowledge generation, which focused on diverse and specialized aims/training. Directly, it was for administrative needs, and indirectly, it created a new generation of engineers who became more conscious about their subordinate position with the growth in awareness due to the engagement with knowledge. As a result of the changing socio-economic and political atmosphere in the country, the newly educated generation took steps to bring about a change in the colonial system of education, which was imposed from above. Therefore, they clamoured for an alternative mode in the education system, through more nationalistic institutions for scientific and technical education. The repercussions of

which are seen in different parts of India in the twentieth century. Therefore, the second half of the nineteenth century in India saw the beginning of this changing attitude, where specialization in technical education became a need and not just a want for the country. By tracing the history of the Bengal Engineering College in the nineteenth century we will see how administrative needs which was also limited to the PWD, created demands for a more scientifically specialized system of knowledge generation in technical education. This paper will try and trace the reasons behind the limited growth of technical education in Bengal in the twentieth century, by revisiting/tracing the history of the progression of technical education in the nineteenth century from a pan-Indian and global perspective. This paper will highlight the causes and constraints behind the legacy of limited growth in technical education in the twentieth century.

Keywords: *Technical Education, Public Works Department, Industrial Schools, Technical Schools, Engineering Education, B.E. College.*

Introduction

Over the last seven decades the development of the history of science has been marked by the proliferation of methods and perspectives. The change has been prompted by developments in the social sciences and has been informed by changes in the realm of international politics. Deepak Kumar, an expert in the field of history of science, technology, environment and medicine which is cryptically called HISTEM, speaks about the expanding frontiers of each of these areas of knowledge over time. He views the intellectual development in terms of an ever-increasing battle between what has been called mainstream and periphery in history. To quote Kumar, "Changes did occur from political accounts to social explanation, peasant studies, then 'subaltern' studies, post-modernism, and now, probably, the history of science, technology, environment and medicine (HISTEM)".[1]

The paper is divided into three parts. The first part is a general introduction of the development of technical education/engineering education in the nineteenth century both in the European Continent and in India. The second part takes up the study of the Bengal Engineering College and tries to relate it with the broader scenario of the nineteenth century. The final section concludes the article.

PART I

THE COLONIAL MODEL OF ENGINEERING EDUCATION

The early phase of institutionalizing the education system in India

The first instinct of the British rulers was to leave the traditional modes of instruction undisturbed and to continue the support which they have been accustomed to receive from Indian rulers. But with changing times, the 'need of the hour' changed. The nineteenth century becomes very important to understand the institutionalization of scientific and technical education as well as industrial research in India. The nineteenth century witnessed several phenomenon like the introduction of western education in India, the revolt of 1857, the annexation of several provinces under the British India, the introduction of the railways and many more.

According to Shiv Visvanathan, the introduction of western science in India can be divided into three phases. The first of these was called the era of the Great Surveys. The second phase commenced with the establishment of the universities in the presidency towns of Calcutta, Bombay and Madras and their transformation from mere examining bodies to active agencies combining the functions of teaching and gradually incorporating research. The third phase culminated in the establishment of agricultural research and in the eventual rise of the industrial research laboratory.[2]

But what Visvanathan misses here is the institutionalization of technical education in India, which took place simultaneously with the second phase he mentioned. This era saw the introduction and development of organised engineering education between 1840s-1880s. As the need for the introduction of occupational education was hinted in 1854 through the Wood's Despatch for establishing engineering and training facilities; engineering colleges[3] were opened in Bengal, Bombay and Madras which respectively developed into Bengal Engineering College (1856), Poona Engineering College (1854) and Guindy Engineering College (1859). The first engineering college was established in Roorkee for the training of Civil Engineers mainly for

the need to form a canal for communication from Bengal to Upper India. The emergence of engineering colleges in India is preceded by the existence of technical and industrial schools. There were indications that technical schools existed in Calcutta and Bombay as early as 1825 for the training of artisans and artificers. These industrial schools were attached to ordinance factories and other engineering establishments. Authentic accounts are available for industrial schools established in Guindy in 1842, in Madras which was first attached to the Gun Carriage Factory and the school for the training of overseers in Poona in 1854.[4]

The introduction of English/Western education is seen as a tool for administrative needs of the colonial rulers. The Wood's Despatch focused on the establishment of western education through the University system. The decision to introduce english education in India was a momentous step taken by the British Raj and the year 1835 can be regarded an important landmark in modern Indian history. The colonizers regarded it as a sacred duty to confer upon the natives of India those vast moral and material blessings which flow from the general diffusion of *useful* (emphasis ours) knowledge.[5] But even this had exploitative motives. When the universities in India were established in 1857, they were actually expected to produce a cheap cadre of government employees for running the administration, as importing officials for all posts from England would not only have been difficult but also expensive. This is where the usefulness of the new knowledge laid.

The Education Despatch of 1854 merely touched the issue of technical education by devoting one paragraph in the margin of a page.

> Our attention should now be directed to a consideration, *if possible* (emphasis ours) still more important, one which has been hitherto ... too much neglected, namely, how useful and practical knowledge suited to every station in life may be best conveyed to the great mass of the people who are utterly incapable of obtaining any education worthy of the mass by their own unaided efforts; and

> we desire to see the active measures of Government more especially directed for the future to this object, for the attainment of which we are ready to sanction a considerable increase of expenditure.[6]

In the following article we will find out how long it took to implement the above.

A glimpse of Technical Education in the Continent (UK and Europe)

In a period when secondary education was a luxury, it was not surprising how few educational institutions existed which could offer technical training. The most prolific in the first half of the nineteenth century were the Mechanics' Institutes, attended in the main by artisans in the evenings. Their popularity was such that by 1850 there were 610 such institutes in England and Wales with a membership of more than half a million. Indeed, a situation was arising in which shortage of teachers was proving a stumbling block to further expansion. There was, however, a dearth of educational establishments capable of providing such teachers. Technical colleges developed only slowly during the century, and in 1856 there were only four universities in England (Oxford, Cambridge, Durham and London) and four in Scotland (St. Andrews, Glasgow, Aberdeen and Edinburgh).[7]

Engineering did not fare better than other technical studies and was taught at only a limited number of places. Notably there were engineering courses at Glasgow University, at Owens College, Manchester, at University College of London, and at Kings College, London. The fault of these early courses was that they were entirely theoretical and did not offer any practical training for those who would later work in manual trades requiring workshop skills.[8]

In 1871, lack of professionally trained civil engineers led to the foundation of the Royal Indian Engineering College at Cooper's Hill, Egham, to train men for service in the Public Works Department in India.[9] That is a different story altogether which had its implications in the engineering colleges in India. The establishment of the Cooper's Hill College was considered to be a blow to the colleges in India. It was said that the opening of the same was a stab in the back of

Roorkee College as well as other Indian Engineering Colleges. The officials ignored the existence of the colleges in India while coming to the above decision of opening a college in England. Principal Brandreth in his convocation speech complained that "Impious men have even ventured to propose the abolition of the Thomason College". As a climax to the attacks on Roorkee and other engineering colleges in India, came an important move in 1891. H. S. King a member of the British Parliament who moved (Indian Engineering, 25th July 1891) in the House of Commons, for a return showing the capital cost of each of the four colleges in Roorkee, Shibpur, Poona and Madras, the annual expenditure and amount of return in each case. There was an opinion in England, which considered granting of pensions and other benefits to retired engineers of greater economic importance than the expenditure on engineering colleges in India. Cooper's Hill finally closed on financial grounds.[10]

Throughout the century, however, there was a growing need for technical and mechanical skills as Britain advanced into the industrial age. New engineering materials, such as cast and wrought iron had to be understood, and a complex structure on a massive scale, carrying hitherto undreamt of loads had to be designed and built.[11] A further attack on the problem of technical education was made after the 1867 Paris Exhibition when there was some evidence that Britain having led the world into the industrial age was being rapidly overtaken by foreign competition. Envious eyes were cast across the channel at the Continental technical institutions which were springing up in France and Germany and at the new Polytechnics at Zurich and Delft.

The background to the origin of engineering colleges and their gradual transformation to civil engineering colleges in India

Roorkee was the first engineering college to be established in India in 1847. This was happening at a time when Britain itself did not have a tradition of providing academic training to engineers in an organised institution. Indeed, as late as, 1869 the very idea of a 'college of engineering' was abhorrent to many British civil engineers. They thought it to be a place where students were crammed with

mathematics and theory.[12] After Roorkee, three other engineering colleges came across the country. One wonders why was this earlier institutionalization of engineering taking place in India when it was not present even in England? Perhaps one can find answers in the following incidents of the time:

a) The obligation of the State to construct public works for the improvement of the country first began to obtain general recognition in about the year 1842, although one or two canals had been previously undertaken in Upper India, and irrigation in Madras Presidency had been undertaken. In that year the Ganga canal was projected, and the Trunk Road from Calcutta to North-West set in progress.

b) In 1849 the Punjab was annexed and the need of an extensive system of roads and irrigation works set on forth in that province. This set an example and gave a great impetus to the progress of public works in other parts of India.

c) Here mention must be made that Public Works was originally a part of military department and charged mainly with the construction of and maintenance of barracks, forts, and other military buildings of the country, along with having charge of various state civil buildings and roads. In 1854 the control of the Public Works was removed from the Military Department, and a separate bureau or department was established.[13]

d) The revolt of 1857 is considered as the beginning of the struggle against British rule. The proud position that India enjoyed in trade and industry was lost and India was turned into a market for raw materials to support the British economy. During these times there were only four engineering colleges. The British rule brought about an intellectual outburst in Bengal. The introduction of English education changed the 'Bengalis' way of thinking. The first two decades of the nineteenth century brought about an educational renaissance in Bengal, which mainly saw the spread of English education in India. David Hare and Ram Muhan Roy, two pioneers in the spread of English education helped to open

many schools, among which was the Hindu College (1817) which turned into the famous Presidency College in 1855. We also see the coming up of Universities in the three Presidencies in 1857.

After the 1857 upheaval, Her Majesty's Government initiated a policy of meeting almost the entire demand of civil engineers in India by recruitment in England. Very few openings were left for the engineers produced by the Roorkee College or by the engineering colleges at Calcutta and Madras, which had come up by then. To be fair, the Government of India continued to have warm feelings towards the engineering colleges in India and particularly towards Roorkee. They protested against the policy but could do little else. The policy had a crippling effect on the development of the engineering class at Roorkee.[14] In saying this, in the colonial government there was a division of opinion towards the propagation of technical education, which will become clear in the next section where we discuss about the B.E. College.

PART II

TESTING/STUDYING THE COLONIAL MODEL: BENGAL ENGINEERING COLLEGE IN TRANSITION

Origins of the College

In 1823, a General Committee of Public Instruction, comprising mostly of English officers, was constituted in Bengal. For about twenty years, it was the only agency of Bengal Government concerned with education matters. In 1842, the Committee was replaced by a Council of Education. The Committee and its successor Council in their reports frequently mentioned the branches of study which would be useful to students to earn their livelihood. Apart from reading, writing and arithmetic, surveying was strongly recommended for Indians required in judicial and revenue departments and by courts. Surveying was taught in Bengal in two colleges, the Mohammedan College (established in 1875) and the Hindu College (1817). The later became Presidency College in 1857. The opinion in Bengal which crystallized was that drawing and surveying should be taught only in colleges

and not in schools. From the need to teach these subjects in colleges, the desirability of having colleges of civil engineering was a big step. Engineering was not classified into several sub-divisions and it meant engineering for civil purposes as distinct from military.[15]

In 1843-44, Government sanctioned a professorship of civil engineering in the Hindu College but no suitable candidate was found. Efforts to get a person through the Institution of Civil Engineers, London also did not succeed. At this time the idea for having a University was gaining ground. The Council in its report in 1844-45 suggested the establishment of a central university for "granting degrees in arts, science, law, medicine and civil engineering".[16] However, the Bengal Government took no action until after ten years.

The idea for a technical school arose mainly out of the need for trained personnel for development works. The British wanted to reduce the cost of bringing in technical hands from abroad. For this reason a Civil Engineering Class in Hindu College was started in 1843-44 but the post of the professor remained vacant due to the non-availability of a suitable person. In July 1847, the Council of Education was asked by the government to report on two schemes, one formulated by the Government of Bombay for the establishment of a Subordinate Branch of Engineers and the other by the Military Board "to restrict the employment of persons in the Department of Public Works to those of Military class (and therefore to Europeans)"[17]. After considering the report of the Council, Governor-General Dalhousie in his minute on 29 August, 1848 recommended to the Court of Directors for the establishment of an engineering class at each of the presidencies. In March 1854, the Council of Education submitted another proposal for the establishment of a College of Engineering as a separate department of the proposed Presidency College and the Chief Engineer of Bengal supported the idea "for the general improvement of the Department of Public Works". The Court of Directors on 2 May, 1854 approved the proposal of the establishment of a separate Engineering College in Calcutta. While submitting the

detailed scheme of the College in October 1854, the Chief Engineer specifically stated that it would be "to meet the very great demand of the Department of Public Works of Bengal and the Lower Provinces"[18]. The salient features of the scheme were that the College would consist of two departments — the Senior and the Junior, and an associated Training School would be formed into three classes. For some time the government was hesitant about the venue of the College. There was an alternative proposal to locate it in Raniganj "owing to its healthy climate and proximity to the mineral belt".[19]

But in April 1855, the Chief Engineer stated that the College should be constituted at or near Calcutta as it was the intention to utilize the professors who taught Chemistry and Geology at the Presidency College for teaching these subjects at the Engineering College. The final approval from Government of India for the establishment of a Civil Engineering College came on 12 February, 1856. Accordingly, it was established on 1 October, 1856 at Writers' Building, Calcutta and Lt. E.C.E. Williams was appointed as its first Principal.[20]

Systems of Education

The Sibpur Engineering College was founded for the purpose of turning out mechanical engineers as well as civil engineers. The college attracted both students from abroad and native students alike. The professors were both Indians and Europeans. The Principal was European and this came to be a distinguishing factor in an institution with majority students coming from the Indian community. European students went back to their country after acquiring the degree. The main official staff in the higher categories was always an European.

As the college was attached to the public works department most of the staff was recruited from there. The qualifications that were needed for the students to get admission into the college did not favour the Indian students as one needed to have 50% in both english and mathematics in the Calcutta university entrance examination.[21] The European students had an upper hand regarding the subject english but for the native student this was not the case. This could be

one of the reasons why the number of native students was far less than what was expected.

The College in the nineteenth century had Civil Engineering as its main and flagship course. Mechanical Engineering was taught as a part of the syllabus but was not as a separate specialized discipline. The College mainly followed two systems of training:

1. A boy who entered the Sibpur College from school at the age of about 16 or 17, studied at the college for 4 years. He then went through a practical course in the college workshops for 1 year.
2. A boy, at the age of 15 to 18 years became apprenticed for about 5 years in a railway or other workshop. During this period he obtained, at any rate in the larger shops, some theoretical instruction.

The first system, accordingly, turned out a college product with little practical experiences while the second turned out a practical man with insufficient theoretical education. This system of education continued well into the twentieth century.[22] This system although produced an engineer but the engineer in question could not compete with courses and students abroad and nor could he be appointed to higher positions. In 1919, due to the war and the demand for proper technically trained men, the deficiencies caught the government's eye. Therefore, a proposal was made to amalgamate the two systems. In the 1880s further changes did occur in the course work but the course of engineering was not altered. The committee drew up the existing course work in greater detail and in doing so it had been guided by the Cooper's Hill course of instructions.[23]

The importance of workshop training in engineering was neglected which hampered the prospects for internships and employment for the students. The Bengal Government put down that the advancement of technical education was not a matter which could be pressed regardless of the demand or the economy. At the Sibpur College provision was made in 1896 for a course in electrical engineering, and in 1906 for instruction in mining engineering. The Bengal Government wanted to develop the college as a centre for industrial education and

for this reason they harped on its maintenance and development.[24] Hence, the negative attitude towards the development of technical education did not really come from the periphery (colonial India) but from the core (Britain).

The notion of Discrimination

The demand for admission in engineering kept increasing over the period, this was mainly due to the promise of a job at the end of the training in the PWD. One post of Assistant Engineer in the superior Engineering Establishment in the provincial service of the Public Works Department was guaranteed each year.[25]

The number of students in the class 1881-1882 before its amalgamation with civil overseers class were 52 European students or Eurasians and 14 natives. After the amalgamation of the classes, the numbers in each year were as follows:[26]

Year	Europeans/Eurasians	Natives	Total Number of Students
1882-83	35	42	77
1882-84	32	79	111
1882-85	32	66	98
1882-86	32	81	113
1882-87	27	76	103
1882-88	17	87	104

The university examinations in Engineering were held in June 1885. There were five candidates for the License in Civil Engineering, of whom two passed in the second division; and one candidate for the License in Engineering (under the new regulations), who also passed in the second division.[27]

Therefore, over the years we can see that the number of native students had increased and the European students have decreased. Between the years 1865-1868 the increase of native and other students was because of the prospect of employment in irrigation works.[28] The decrease in the European students (as seen from the above chart) was mainly due to the reason that the instructing staff consisted of native

instructors (mainly in the Apprentice department), the foreign students were not so keen to take up such classes and furthermore the shops provided were not suitable for the training of pupils. The committee because of such circumstances stated that the Sibpur workshops should be abolished as they were useless in giving proper training to students.[29]

The Indian students as we see from examples were treated inferior compared to the European students. The professors themselves took too harsh measures when it came to disciplining the native students, most incidents went unnoticed but we do have an example of one incident where harsh and unjust treatment by a teacher was reported by a student. It was a complaint by a student against Mr. Fouracres who verbally abused the student. A memorandum was sent by 87 native students. But the board sided with the former. The main contention of the letter was, the students were sons of Gentlemen and should not be treated as such.[30]

> "In a report regarding the salaries paid to a European engineer and a native engineer the disparity in their salaries was quite stunning as it was stated that it would be a sheer waste of the salaries of the establishments of the Public Works Department were fixed with reference to a proper remuneration for European service, and were calculated with the view of attracting European Engineers to serve in India; such a scale was obviously not necessary to secure the services of native Engineers, and native labour should of course be paid for at the value of the local labour market. If competent native Engineers can easily be obtained at salaries of Rs. 300 to Rs. 400 a month, it is sheer waste of money to pay them Rs. 700 or Rs. 800 a month, because this is the scale of pay of European Engineers serving in a foreign country. It is clearly much more to the advantage of a Road cess Committee to have three or four competent native Engineers than one. European, if they can be procured at the same expenditure of money which is often the case."[31]

When it came to teaching something new to the students or even introducing new subject, a European professor was preferred to a

Native teacher. The qualifications to become a professor mentioned that it was imperative that the person had to be an European. As for example while engaging a staff for Mechanical Engineering it was stated that a qualified European should be appointed, no mention of the native teachers was given.

> "November 1884 a Parsee student applied to Mr. Downing for permission to take up the B or Mechanical course stating that he could have learned Civil Engineering in Bombay, and that he had joined the Seebpore College relying on the college prospectus and the statement in the University calendar. The principal of the Seebpore College therefore asked Mr. Croft, to lay before Government his inability to teach the Mechanical Engineering course up to the university standard, and proposed that a properly qualified European should be appointed to teach the Mechanical Engineering students those subjects, which the staff of the Civil Engineering College was not qualified to teach, and to superintend the Engineering and Apprentice students while engaged in the workshops."[32]

Turning Point in the history of the college

A turning point in the history of engineering education took place when in September 1891, all appointments in the Upper Subordinate grade of the PWD of the Government of Bengal were reserved for being filled up by the graduates of the college. This step helped in attracting Indian youths to engineering and increased competitiveness in the engineering field.[33] This meant that the hold of PWD on the college was decreasing and that although Indians were really not accepted into the upper subordinate grade, the doors were now partially opened. The colonial ties in turn were slowly untangling.

The College in 1921, changed the nomenclature of its classes - Civil Engineer Classes was formerly known as Engineer Classes and Apprentice Classes came to be known as Mechanical and Electrical Engineering Classes. This was a change of far-reaching importance and combined with the ceasing of recruitment to the Upper

Subordinate Classes ordered by the Government of India in their Letter No. 192. EA., dated 1st April, 1920, it puts the college upon a definitely higher basis as it will in future have nothing to do with the Public Works Department subordinate training classes. The Bengal Engineering College is the first engineering college in India to reach this higher status.[34] Thus our contribution in the field of history of science and technology was to make a study on this college.

PART III
Conclusion

The Education Despatch of 1854 emphasized the importance in the propagation of "useful and practical knowledge ..." to the great mass of the people of India. Literary knowledge was given more importance opposed to scientific and technical knowledge. The negative effects of this culture became more visual as we progress in to the latter half of the nineteenth century. The corrective measures to change this system became prominent with the Education Commission of 1882, which suggested, "that studies which may incline to the application of natural science and to scientific research should not be neglected in favour of literature."[35] Therefore, the institutional development engineering education in India must be seen keeping this larger background in mind. In saying this, nineteenth century can be argued to be an introductory phase of engineering education in India where as the evolutionary and the development phase began with the turn of the century. The limited development of engineering education in the nineteenth century cannot only be testified by the lack of introduction of other subjects in engineering sciences but the limitation was in the system of education. B. E. College throughout the nineteenth century went through a slow progressive stage which only saw results with the change in the attitude of the colonial government towards technical education with the beginning of the First World War. Therefore the reasons behind the limited growth of technical education in India in the twentieth century can be traced by looking at the history of the progression of engineering education in

the nineteenth century. One should keep in mind that the colonial government under the Governorship of Lord Curzon took the initiative to define technical education for the very first time. Thus, one may argue that with the turn of the century, technical education took a new direction which gained momentum around the First World War when other engineering subjects like mechanical, electrical came in to the courses of the colleges, which is a different story.

Notes

[1] Sunayana Maiti, *CSIR and the Direction of Industrial Research in India, 1942-1964*, MPhil Dissertation, University of Calcutta, 2013, p.1.

[2] Ibid., pp. 15-16. Also in Shiv Visvanathan, *Organizing For Science: The Making of an Industrial Research Laboratory*, Delhi, OUP, 1985, p. 8.

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[21] *Proceedings of the Government of Bengal*, Qualification for Admission to the Sibpur College, Calcutta, 21 March 1890. West Bengal State Archives (WBSA)

[22] Letter from the Hon'ble Mr. W. C. Worsworth, Director of Public Instruction, Bengal to the Secretary to the Government of Bengal in Recommendations of the subcommittee of the Governing Body of the Civil Engineering College Sibpur, Nos. 1-5, File 4-C/3-1, Calcutta, 21 December 1871, *Proceedings of the Bengal Government, General Department (Education), April, 1918*, File 4-C/3 1-2, Nos. 1-6, (WBSA).

[23] *Report of the Committee appointed under the resolution by the Government of Bengal in the General Department*, 30 July 1887.

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Dialectics of Axiological Valence: Exploring the Issues of Value-System as the Site of Cross-Cultural Conflict in R. K. Narayan's *Swami and Friends*

Pushpen Saha

Introduction

Many events that the historians with hindsight call 'historic' begin not with a bang but with a whimper. One such event it was that sent Britain on to the road of colonization. The Dutch privateers who controlled the spice trade had raised the price of pepper by five shillings per pound. Incensed with this highway robbery, twenty five angry merchants of the city of London gathered "on the afternoon of September 24, 1599, in a decrepit building … to found a modest trading firm … Only the simplest of concerns, profit, inspired their undertaking. Called the East India Company, the enterprise … would ultimately become the most grandiose creation of the age of imperialism, the British raj".[1] And these "five miserable shillings changed India geographically, historically and emotionally as no other force - not the Greeks, not the Huns, not the Mughuls - had hitherto done. The primary cause behind such an anecdote is that the present paper broadly focuses on the site of conflict between the two cultures and their associated axiological valence – the English and the Indian at the time of British colonization and more specifically the paper concerns about how the novels of the illustrious Indian-English writer, R.K Narayan (1906-2001) portrays the problematic nature of this cultural conflict at a significant juncture of history and how they disseminate a serious underlying concern for the basic Indian value-system, the restoration of harmony, particularly in the context of his first novel *Swami and Friends* (1935).

As a celebrated Indian-English novelist R. K. Narayan's fictions may appear on the surface as social comedies but as I have already proclaimed they have a serious underlying quest for a basic Indian value-system, the restoration of harmony. This concern emerges in a particular pattern in which the protagonist comes to be disturbed through his own excessive attachment to something and realizes the problematic nature of the attachment because of the disturbance. The solution comes when in a moment of supreme detachment, the protagonist performs an act for no other consideration than this that it is the protagonist's *dharma*[2] or duty - the right thing to perform at the right moment. This moment may come as a flash of insight, as the culmination of a steady development of genuine detachment, or of detachment that was spurious while seeming to be genuine, and now becomes genuine. This insight is possible because the protagonist belongs to an ethos that recognizes certain traditional paths which are essentially spiritual and lead to enlightenment of the respective soul. Through the action performed at the moment of supreme detachment, the protagonist achieves separation from the problematic attachment and moves towards liberation. The liberation is never complete or total, and the protagonists do not achieve it to the same degree since the degree is dependent upon the awareness each had initially brought to the problem. However, it has a potential of completion in time which may stretch to aeons. The completion can be possible only within a world order that is immutable, balanced, and continuous. The Hindu philosophy believes in this kind of world order, and so does Narayan. Now, in almost all of Narayan's novel such an world-order which is essentially Indian in nature appears in deep crisis when it comes in direct confrontation with the Western infiltration of non-unifying materialistic world-order and his very first novel, *Swami and Friends* (1935) becomes the first one which becomes a site for such a dialectics. The primary objective of my paper is to visualize *Swami and Friends* in the light of various multi-layered concepts of Indian Philosophy like *dharma* and *moksha*[3] and to examine how Narayan tries to put forward such ethical ideas in front of a crisis-stricken perilous world where traditional way of life were

constantly been challenged. But let me at first discuss a bit about the socio-political background which had led the ground for the introduction of English language and culture and hence prepared the imminent site of a colossal cultural battleground.

The Genre with a Difference: Tracing the Philosophical Foundations of Origin and Development of the Indian Novel-Form

Almost everyone who has done a critical study of the novel in India has maintained that this is a "foreign" genre to India. It is held almost unanimously that the novel, a sustained prose work, came to India with the impact of the West:

> With the help of the Indian scholars, Christian missionaries had translated the Bible into the living languages of India, and the prose medium ... this brought into currency came handy for office use, petitions, records, journalism and the translation of the Sanskrit Classics into the spoken languages of the people. The translation of Eastern Classics (mainly English), including novels, followed. The next step was the composition of original novels, in distant imitation or under the inspiration of Western models. (Iyengar 1)

Many theories ranging from the suffocation under the ponderous weight of the epic tradition to nutritional deficiencies of the Indian diet have been advanced as a plausible explanation why Pre-British India lacked a tradition of the novel. A. L. Kroeber contends that like the Greek and the Roman, the Hindu civilization too came under the heavy hand of the epic which did not allow a "non-heroic" prose counterpart in the shape of the novel to originate among them; "In India, a larger factor is likely to have been the Hindu penchant for extravagant exaggeration which alone would be fatal to the novel as here defined" (Kroeber 423) And M. E. Derrett surmises that in India:

> The general indifference to worldly values and ambitions, the lack of domestic privacy and personal freedom; the often trying climate and sometimes inadequate diet, might well have combined to militate against the creation of a sustained narrative prose fiction. (Derrett Vol III, 24)

A. L. Kroeber grants that one European country too is found wanting in the novelistic tradition: Germany. "It is notorious that Germans have consistently failed... in our genre" (Kroeber 25). But Kroeber creates a justification for including Goethe's novels in the exalted company of the Europeans novels because "these simply are of a different category, in intent and execution, from what has come to be standard in the world's novels" (Kroeber 414). The question is if a German novel is acceptable with the qualification that it is "of a different category," why can the same acceptance not be granted to Indian "novels" of the past?

India, as is well-known, has a long, ancient tradition of story-telling. In fact, many of the ancient Indian tales have migrated to Europe, Asia, and even Africa. The epics *Ramayana* and *Mahabharata* are veritable storehouses of stories. But India also produced novels and this fact is beginning to be recognized. Mulk Raj Anand, himself an Indian-English novelist of considerable repute, comments that:

> The epics *Ramayana* and *Mahabharata* are near enough to the novel in verse, like the story of Nala and Damayanti or Savitri; and the tales told by the Upanishadic seers are reminiscent of the Conte or the modern short story; while the Buddhist *Panchatantra* stories and the short tales of the *Hitopadesa*, as well as the stories of Yoga Vasishta, have the essence of fiction in them; and the romances of the classical Gupta and mediaeval periods are almost novelistic. (Anand 45)

Krishna Chaithanya[4] tells us that in Sanskrit literature, there are "two types of novels, the *Akhyayika* built around real people and incidents, and the *Katha*, whose plot was pure invention. . . . [But] even in the *Akhyayika*, invention is given a free hand (Chaithanya 376). Of these romances or novels, the most important are Dandin's *Dasakumaracarita* (*The Tale of Ten Princes*; 6th century A.D.); Subandhu's *Vasavadatta* (7th century A.D.); and Bana's *Kadambari* (Early 7th century; in some Indian languages, the word Kadambari means a novel).

These writers made no claims to original plots, but like Shakespeare, clothed with new flesh and blood tales told by their precursors.

Thus we see a twofold problem regarding the tradition of novel or the lack of it in India: one, a lack of definition because even in the Europe of the 15th century, the novel was very different from the modern novel; two, the "spirituality" thrust on India negates the worldly concerns that are amply reflected in ancient literature, both in long works and short stories. A couple of examples should prove the point. *The Panchatantra* (The Five Arts or Stratagems) embodies stories that exemplify the art of survival, often by wit, and teach practical wisdom for successful living in this world. Arthur W. Ryder explains that:

> *The Panchatantra* is a niti-shastra, or text-book of *niti*. The word *niti* means roughly ¯the wise conduct of life". Western civilization must endure a certain shame in realizing that no precise equivalent of the term is found in English, French, Latin, or Greek... *niti* presupposes that one has considered, and rejected, the possibility of living as a saint. (Ryder 10)

Even the so-called religious cycles of stories belonging to Jainism and Buddhism (*Kathakosha - A Treasure of Stories*, and the Jatakas respectively) display a great concern for the individual's well-being now and here. Although a Jain eventually wants *Moksha* - liberation from the cycle of birth and death - and wishes to possess *kevalajnana* - absolute, unimpeded knowledge - he does not want to go through life being miserable. Poverty is not glorified. Krishna Chaitnya remarks:

> Like the Protestant revolution in Europe, the Jain movement in India combined puritanism with industry and built up wealth. The hardships of poverty, therefore, come for frequent comment. Better is a forest infested by tigers and elephants, a shelter of trees, a diet of leaves, fruits and water, a bed of grass, better worthless rags for garments, than life among relations for a man who has lost his wealth. (Chaithanya 377)

Thus we see that neither the novel tradition nor the worldly concern is foreign to the Indian literature or temperament. Perhaps the reason why these works seem so exotic to the Western eye is that in spite of the realism, the literature is permeated with magic, speaking birds, supernatural forces, and events which are accepted as the same reality as the vagabonds, thieves, tricksters, and down-to-earth, even ribald, ideas. (*The Sukasaptati - Seventy Tales of the Parrot* - is a collection of perhaps the most risqué stories of all times which absolutely shocked the early Christian Missionaries.) But this is the specialty of the Indian world-view. The point of the discussion is that India just did not grab at the novel form at the advent of the West; it merely adapted the form to suit its own changing needs. Richard Carnac Temple, in his "Foreword" to *The Ocean of Story* (*Katha Sarit Sagara*), comments: "We must remember that the religion, ethics and philosophy of India have been ever changing, and nothing is more inapplicable than to speak of the 'Changeless East'" (Temple XVIII). We also must remember that a culture, especially one as old and settled as the Indian culture, takes from another only that which suits its own temperament and genius. If Bankim Chandra Chattopadhyay (1838-1894), the Father of the Indian Novel, was attracted to this 'foreign' form, it was not for its pure novelty; it was because he recognized it as a close counterpart of his own traditional narratives and saw it as a vehicle for his own and his nation's aspirations and achievements.

R. K. Narayan : The Quintessential Indian Storyteller

R. K. Narayan is a writer of India who is steeped in the aforementioned tradition and uses the background, the philosophy, and the myths and legends not as mere ornamentations or intellectual abstractions but as means of viable solutions to problems besetting the modern world including the quiet, peaceful, stable India represented by the serene and apparently solid Malgudi - the fictional world inhabited by his characters. Other Indic-English writers like Raja Rao, present the excitable changing India:

> One has to convey in a language that is not one's own the spirit that is one's own. One has to convey the various shades and omissions of a certain thought-movement that looks maltreated in an alien language. I use the word "alien", yet English is not really an alien language to us. It is the language of our intellectual make-up - like Sanskrit or Persian before - but not of our emotional make-up... We cannot write like the English. We should not. We cannot write only as Indians... Our method of expression therefore has to be a dialect which will someday prove to be as distinctive and colourful as the Irish or the American (Rao 7)

Narayan, while asserting that we should not be imitative, presents a synthesis between the intellectual and the emotional make-up. He asserts:

> We are not attempting to write Anglo-Saxon English. The English language, through sheer resilience and mobility, is now undergoing a process of Indianization in the same manner as it adopted U. S. citizenship over a century ago. I cannot say whether this process of transformation is to be viewed as an enrichment of the English language or a debasement of it. All that I am able to confirm, after nearly thirty years of writing, is that it has served my purpose admirably, of conveying unambiguously the thoughts and acts of a set of personalities who flourish in a small town located in a corner of South India. ('English in India' in *Commonwealth Literature* 123)

Like the ancient story teller under the banyan tree, Narayan captures life's many facets in quiet tones, through understated stances. His medium is comedy in both senses of the term - the stories are funny and the protagonists, through the various vicissitudes, manage to achieve liberation from their problematic attachments, and are absorbed back in society. Although deeply concerned with the dialectics and dichotomies of life, Narayan has steered clear of the merely imitative, has refused to be lured by the popular and the propagandistic, and has steadfastly adhered to the exploration of social reality of the common, average man, albeit one with potential. These

protagonists consciously or unconsciously follow the traditional ways and paths the most important of which in Hinduism are: the four stages of life and the four goals to be obtained through those stages. The Vedics divided the life of man into four periods (*asramas*): first is the period of the student, the *Brahmacarya*, the second stage is of householder, *Garhastha*, the third stage is that of *Vanaprastha*, a forest dweller or anchorite, when a man starts to detach himself from the worldly possessions, the last stage is that of *Sannyasa*, which is the time to forsake self interest but not the world. Now according to the Hindu Soteriological thought there are two significant moral principles which one has to obey in order to achieve complete salvation. The first in order is *dharma* because this is what sustains the world. The basic meaning of dharma, a word derived from the root *dhr*, meaning 'to sustain', is the moral law which sustains the world, human society, and the individual. Dharma thus replaced the Vedic word *rita*, the principle of cosmic ethical interdependence. And the last but not least goal is *Moksha*, release from the cycle of birth and death which one can achieve by following one's dharma and by performing disinterested action. *Swami and Friends* (1935) is the first of a trilogy of novels written by RK Narayan, the other two being *The Bachelor of Arts* (1937) and *The English Teacher* (1945), set in British colonial India in a fictional town called Malgudi. The novel depicts the growth of an adolescent mind, the chief protagonist of the novel - Swaminathan and his four principal friends: Somu, Sankar, Mani, and the Pea. Sequentially the first novel of the trilogy it depicts perhaps the *Brahmacarya* stage of Swaminathan, the stage of learning when the student studies with the *guru*, and returns later to assume responsibilities of life. Now let us directly enter into the text to discover that how Narayan portrays the basic components of Indian ethics and value-system at a significant juncture of history in *Swami* and *Friends* (1935).

Toward the Restoration of Harmony: *Swami and Friends*

In his first novel, *Swami and Friends* (1935), R. K. Narayan creates the mythical town of Malgudi and Malgudi has found the same place

in the Indian mind and map that Faulkner's Yoknapatawpha County has in the American, and Hardy's Wessex in the British; it becomes the arena where human battles are fought. And we are glad that Narayan did not model Malgudi after Lalgudi or any other real place because Malgudi, as it forms the setting of novel after novel, remains fixed enough to give us a sense and spirit of the place and is plastic enough to expand with the needs of times and characters. The topography of Malgudi expands with subsequent novels but the river Sarayu, the pride of Malgudi; the Ellaman Street, the last street of the town chiefly occupied by the oilmongers; Nallappa's grove, the place where the Sarayu can be forded; and the gutter with which every child beginning with Swami is fascinated, remain the centre of action. New extensions in living quarters, restaurants, cinema-houses, and printing presses are added to the town as its population and needs grow and slowly it becomes an integral part of the action and character rather than remaining a mere setting. Thus, Malgudi surrounded by the Mempi Hills, the Mempi Forest, the river Sarayu, becomes the microcosm of India in general and of South India in particular.

It is in this Malgudi that the story of Swami and his friends takes place. Swami's little coterie of friends consists of Mani, the brawn of the group; Sankar the brain; Somu the monitor; and Samuel the Pea, called so because of his size, with whom Swami shares the greatest giggles. Later to this group is added, though not without some internal strife, Rajam, the son of the Deputy Superintendent of Police, who has the sophistication, the leadership qualities, and the glamour of the well-travelled, well-seasoned newcomer. Life moves on an even keel except for problems like studies and examinations; and there are the usual excuses that every school boy makes to avoid them. Swami's stable world at home gets a jolt when there is a new arrival in the family, a baby brother. Then there are more disturbing events from the outside world. This is the time India is getting involved deeply in the struggle for independence. The waves of turbulence reach the small Malgudi town too. There is a political strike in which Swami, with other friends, participates and is caught breaking the glass of

the ventilator in the headmaster's room. The headmaster canes him and Swami runs away. He is admitted to the Board School, the indigenous counterpart of the sophisticated Albert Mission, the only other school in Malgudi. The headmaster of the new school is very particular that the boys must attend drill classes. This keeps Swami so busy that he does not have the time to practice for a cricket match that the M.C.C. - Malgudi Cricket Club - so named in the hope that it will reflect the glory of its famous namesake, the Marylebone Cricket Club, is going to play against the Y.M.U - Young Men's Union - of the Board High School. Rajam, the captain of M.C.C., insists on Swami's coming for practice regularly as he is the best bowler the team has - he is called "Tate" (a famous M.C.C. bowler), after his very first bowling. In despair, Swami seeks the help of Dr. Kesavan to obtain an excuse from the drill classes on grounds of ill-health. The doctor promises that he will speak to the headmaster and on the strength of that promise, Swami misses the classes. History repeats itself and he is about to be punished by the stern headmaster when he runs away again. Since there are no more schools in Malgudi, he is afraid of his father's wrath and starts walking on the Trunk Road. He is lost in the Mempi Forest and is found by Ranga, the cart man, who takes him to Mr. M. P. S. Nair, the District Forest officer who returns him to his family. In the meantime, the D-Day, the day of the match, has come and gone and because of "Tate's" absence, M.C.C. has suffered an ignominious defeat. Rajam will not even speak to Swami. Rajam's father is transferred to Trichinopoly and in the last scene, as Narayan has told us, the train is seen leaving Malgudi station with Rajam and family, instead of arriving there.

Most reviewers view this novel only as a comedy of manners or a social comedy. Joseph Hitrec, reviewing it for *The Saturday Review*, calls it "a sort of South Indian opposite number of *Huckleberry Finn*, and sees in it only "the gentle wit and limpidness of writing", but does not perceive that like *Huckleberry Finn*, the novel has some serious concerns under the surface. Neither does an eminent Indian critic, K. R. Srinivasa Iyengar, who concentrates only on its surface comedy. It

is as though everyday actuality has taken Narayan's pen and written out this universal topic of all our boyhood yesterdays that are now no more" (Iyenger 261). He recounts, "One has" also studied under the 'fire-eyed' *Vedanayakam* [sic, for *Vedanayagam*] and the fanatical Ebenezar. One has dreamt, planned, blundered; one has... (Iyenger 261). And this list of "one has" goes on and on, under the torrent of which the fact gets lost that in spite of its surface comedy of growing up, the novel has a serious underlying theme. Then there are critics like Haydn Moore Williams who perceive the serious underlying note, but because the form is that of comedy, they slant to satire and view the novel as a satire on humanity in general and Indian social institutions in particular. What these critics fail to perceive is that in *Swami and Friends*, the first novel of the novelist, lie all the serious concerns that will emerge repeatedly in Narayan's later novels: the attachments of the protagonist that produce sorrow and instability in the protagonist's world and from which he must detach, the darkness lurking under the sunshine externally or internally due to the protagonist's own fears and anxieties, and the final liberation to which the gods contribute not a little. The following two events show how deep the disturbance brought by external events is and although they are garbed in comedy, their import is very serious. The events spawn directly from the British intrusion into India creating political domination and religious strife.

The first event is a strike that takes place on the 15th of August, 1930 (in 1947, this date was chosen for India's Independence Day). A prominent political leader from Bombay is arrested and there is a meeting to protest the arrest. The current against the British Government is running strong and is expressed vociferously in the *vox populi*. The speaker, after going into banal generalities, the usual Indian way of leisurely getting to a problem, however serious, a facet that provides for a lot of comedy, starts analyzing the reasons for the Indians being timid, docile, and demoralized. "It is the bureaucracy that has made us so, by intimidation and starvation". Then he suggests a very dramatic remedy. "Let every Indian spit on England, and the quantity of saliva will be enough to drown England" (*Swami and*

Friends 95). Swami and Mani are amongst the audience, listening raptly to the speaker. Swami asks Mani:

> "Is it true?"
>
> "Which?"
>
> "Spitting and drowning the Europeans".
>
> "Must be, otherwise, do you think that fellow would suggest it?
>
> "Then why not do it? It is easy".
>
> "Europeans will shoot us, they have no heart". (*Swami and Friends* 95)

For the rest of the lecture Swami and Mani are totally wrapped in the words of the speaker:

> With the lecturer they wept over the plight of the Indian peasant; resolved to boycott English goods, especially Lancashire and Manchester cloth, as the owners of those mills had cut off the thumbs of the weavers of Dacca muslin, for which India was famous at one time. What muslin it was, a whole piece of forty yards could be folded and kept in a snuff box! The persons who cut off the thumbs of such weavers deserved the worst punishment possible and Swaminathan was going to mete it out by wearing only *khaddar*, the rough homespun. (*Swami and Friends* 95-96)

The surface tone of the passage is alternately comic and serious, but the underlying tone is very important. A very dark reality has emerged from the comic dialogue of the enthusiastic, perhaps overenthusiastic, school boys. But this does not minimize the real threat that "the Europeans have guns" and that "they have no heart". The fear that they will not hesitate to shoot anyone who dares to spit on them is very real. To further accentuate the point, the conversation is immediately juxtaposed with the mention of the historical event which killed India's creativity, when the thumbs that created it were cut off. This subjugation of India's psyche by force led to the mental docility, and timidity mentioned above. What could be a concern of greater import than dealing with the slow, continuous corroding of a

whole nation's psyche and the power of survival? This indeed is an extremely serious issue that has emerged out of the comic passage.

The second incident is Swami's confrontation with his Christian teacher, Ebenezar, in the Mission School where Swami is studying. Ebenezar is eulogizing the virtues of Christianity and of Jesus Christ. "Tears rolled down Ebenezar's cheeks when he pictured Jesus before him. Next moment his face became purple with rage as he thought of Sri Krishna" (*Swami and Friends* 4). Krishna is one of the most revered Hindu gods. He compares Jesus to Krishna and finds the latter absolutely without virtue:

> Did our Jesus go gadding about with dancing girls, like your Krishna? Did our Jesus go about stealing butter like that arch-scoundrel Krishna? Did our Jesus practice dark tricks on those around him? (*Swami and Friends* 4).

Swami's Hindu-Brahmin sensibility is terribly hurt at that moment. His blood boils. He gets up and asks: "If he did not, why was he crucified?" (*Swami and Friends* 4). The teacher merely tells Swami to see him after the class. Emboldened by this mildness, Swami asks another question: "If he was God, why did he eat flesh and fish and drink wine?" (*Swami and Friends* 4). In answer to this question, Ebenezar leaves his seat, advances slowly towards Swaminathan, and tries 'to wrench his left ear off' (*Swami and Friends* 4). It is again a very serious issue that Swami's ego is scathed on a very deep convictional level and is bruised through a physical humiliation in front of the whole class. Haydn Moore Williams, commenting on these incidents, says: "There is an undermining of human posturing and pretension when Narayan makes us laugh at the political schoolboys on strike in 1935 or at the Christian fanaticism of Ebenezar. But on whose side is Narayan?" (Williams 58). Misquoting the second incident in which Swami's comment comes out as "that Jesus could not have been a god since he was not even a Brahmin", and Ebenezar's response is turned into a reaction "to this display of caste snobbery", Williams further says that "In a single scene Narayan has playfully

pilloried intolerant schoolmasters, arrogant priggish Hindu schoolboys, Christian fanaticism, and the less edifying stories retailed of the earthly doings of the Lord Krishna" (Williams 58). The question that needs answering here is not on whose side Narayan is. Rather it is: can Narayan's novels be read in benevolent ignorance of his ethos and of Indian culture and myth and their application? The answer is an obvious no. The concern here is not with taking sides; at issue is the important discovery that a disturbing force can create imbalance and disharmony ranging from the psyche of a growing boy to that of a whole nation. Under the cloak of comedy, this is a very serious issue. Narayan is often accused of being apolitical and he does not ever dispute it, but is shouting slogans the only manifestation of political concern?

The political issue brings disturbance not only in the quiet world of Malgudi but also in Swami's safe and secure world. But before we go into that, we need to take a look at what kind of tranquillity Swami enjoys and what upheavals assail it. At home, he is secure in the affection of his mother, Lakshmi, in the concern of a rather strict and disciplinarian father, and in the indulgence of a grandmother: "After the night meal, with his head on his granny's lap, nestling close to her, Swaminathan felt very snug and safe in the faint atmosphere of cardamon and cloves" (*Swami and Friends* 19). At school, his small group shares laughter by day and an idyllic scene on the Sarayu "glistening like a silver belt across the north" by evening. The incident with the scripture teacher, Ebenezar, already mentioned, creates a disturbance in the psyche of Swami and a split in the group. Mani, "The Mighty Good-For- Nothing" who is no good with the books but extremely so with a club, threatens to "wring his [Ebenezar's] neck and break his back" (*Swami and Friends* 8). However, Samuel the Pea finds himself "in an acutely embarrassing position" as being a Christian, he sees "nothing wrong in Ebenezar's observations" but he cannot prove a traitor to the group, either. He manages "to escape by making scathing comments on Ebenezar's dress and appearance and leaving it at that" (*Swami and Friends* 8). Rajam's advent brings another threat of split to the group. Besides being the new kid on the block, he is above and apart from the group:

> There were vague rumours that he had come from some English boys' school somewhere in Madras. He spoke very good English, exactly like a "European", which meant that few in the school could make out what he said (*Swami and Friends* 12).

Those kind of people who set themselves apart from the masses were usually the butt of jokes but Rajam, though occasionally snobbish and obnoxious, is a nice person on the whole. Rajam and Mani are as contrary as any two persons can possibly be. They challenge each other through Swami (It is "a matter of form between two enemies to communicate through a medium" p. 15). The battling forces meet near Nallappa's grove, on the bank of Sarayu, Mani wielding a club and Rajam holding a gun. Both are unfair for this was supposed to be a hand to hand fight. They make up, and as a show of goodwill, Rajam offers them "biscuits" (cookies). Swami could not be more pleased. "In spite of his posing before Mani he admired Rajam intensely, and longed to be his friend" (*Swami and Friends* 18). With the peace offering, all is well with his world now:

> The river's mild rumble, the rustling of the peepul (a sacred tree) leaves, the half-light of the late evening, and the three friends eating, and glowing with new friendship - Swaminathan felt at perfect peace with the world. (*Swami and Friends* 18)

The next disturbance in his world is more serious in nature. Now we see Swami involved in the political tumult that is affecting the whole country, including Malgudi. After the aforementioned speech in sympathy with the arrested leader, there is a call for a strike which strikes the school too. There is a shouting of slogans and a general chaos. Swami joins the crowd:

> Swaminathan's part in all this was by no means negligible. It was he who shouted "We will spit on the police" (though it was drowned in the din), when the headmaster mentioned the police. The mention of the police had sent his blood boiling. What brazenness, what shamelessness, to talk of police - the nefarious

> agents of the Lancashire thumb-cutters! When the pandemonium started, he was behind no one in destroying the school furniture. With tremendous joy he discovered that there were many glass panes untouched yet. (*Swami and Friends* 100).

And Swaminathan takes shots at glass panes with a gusto. Although it is the boy's delight in the act of destroying the glass panes that attracts one's attention first because of the comic tone of the narration, a serious issue comes to the fore. Swami has performed an action with no consideration for his safety, for the self, in shouting a slogan against the police despite the fact that the Deputy Superintendent of Police is his best friend Rajam's father. However ineffective that action, Swami has performed it. This emphasis on action performed for considerations other than of the self will become a central issue in Narayan's subsequent novels, for an action performed with detachment - not involved with any external considerations - cuts at the roots of attachment, and sets the protagonist on the journey to liberation which all of Narayan's protagonists do at some stage of their lives. Swami, as we shall see later, will have to be detached from Rajam physically and since Rajam feels betrayed by Swami, to some extent, the detachment will have to be mental and emotional also.

It is difficult for us to believe that Swami who "loves every inch" of his six-month old brother - although in the beginning he did resent him - could be so brutal to another little child. Later we see a similar pattern when the extremely non-violent Nataraj (in *The Man-Eater of Malgudi*) holds the butt of a cold gun, his finger on the trigger, ready to pull it. Violence begets violence and the transgression of *dharma* - the right thing to do - whether it is on the part of an individual or an Empire, leads to destruction that cannot easily be stemmed.

The headmaster asserts: "You can't frighten me with your superintendents of police, their sons, grandsons, or grandfathers. I don't care if you complain to His Majesty" (*Swami and Friends* 146). And he raises the cane:

> Another moment and that vicious snake-like cane, quivering as if with life, would have descended on Swaminathan's palm. A flood

> of emotion swept him off his feet, a mixture of fear, resentment, and rage. He hardly knew what he was doing. His arm shot out, plucked the cane from the headmaster's hand, and flung it out of the window. Then he dashed to his desk, snatched his books, and ran out of the room. He crossed the hall and the veranda in a run, climbed the school gate because the bolt was too heavy for him, and jumped into the end of Market Road (*Swami and Friends* 147).

The language of the passage duplicates and intensifies the tearing, tortured movement of Swami's flight after his first caning. Swami again must physically detach himself from the forces that are bent upon destroying him; the survival of selfhood is at stake. This physical detachment results in a blind flight which is not liberation as it merely leads to the darkness of the forest and to confusion and guilt. When the protagonist returns from this darkness not for reasons of self, but for disinterested concern for others, even if for him it means imprisonment or punishment again, he takes a step that prepares for liberation if not lead to it immediately. We see this both in the case of Swami and later in that of Savitri in *The Dark Room*.

After jumping into the Market Road, Swaminathan sits down under a tree on the roadside to collect his thoughts. Enlightenment had come to the Buddha sitting under a tree as it will to Chandran in *The Bachelor of Arts*. Enlightenment must somehow come to Swami though he does not yet know how it will come about. His secure world, Malgudi, is no longer protective. His father is going to do heaven knows what when he finds out that Swami has run away from the only other school in Malgudi. Swami decides that "He would go away without telling anyone, somehow practice on the way [for the match which is still two days off], come back for a few hours on the day of the match, disappear once again, and never come back to Malgudi - a place which contained his father, a stern stubborn father, and a tyrant of a headmaster" (*Swami and Friends* 152). Malgudi is not only not protective, it has become threatening. Swaminathan must detach himself from this threatening place. However, before "disappearing",

he has a moral duty to perform; he must check with the Captain to see how important his presence is for the match. It is his dharma, the right thing to do without regard to anything else. We shall see this regard for performing one's duty in the right way, that is with detachment, in Narayan's subsequent novels which embody one of the most important tenets of Hinduism. This impelling force, dharma, brings Swaminathan to Albert Mission School in search of Rajam.

I mentioned at the start that the darkness in a Narayan-comedy is both external and internal. We have seen the external events cast their shadow on Swami's life; we now see that Swami exacerbates his problems - as will the future Narayan protagonists - by allowing fears and anxieties to stalk him constantly. We first get a glimpse of this characteristic on the last day of the school after the examinations. There is a gathering of the student body, a speech by the headmaster in which he dutifully exhorts the boys not to neglect their books during the vacations, and a short prayer:

> At the end of the prayer the storm burst. With the loudest, lustiest cries, the gathering flooded out of the hall in one body. All through this vigorous confusion and disorder, Swaminathan kept close to Mani. For there was a general belief in the school that enemies stabbed each other on the last day. Swaminathan had no enemy as far as he could remember. But who could say? The school was a bad place (*Swami and Friends* 65).

The juxtaposition of the joyous and the fearful intensifies the latter even more.

While in the forest, the external and the internal darkness coalesce, and "the closeness of the tree-trunks and their branches intertwining at the top gave the road the appearance of a black, bleak cavern with an evil spirit brooding over it" (*Swami and Friends* 162). Swami's usually vivid imagination becomes even more active. He clearly hears his name in whispers with a dreadful suggestion of a sacrifice to a devil. He now sees an animal with "its small eyes, red with anger, its tusks lowered, and the trunk lifted and poised ready" (*Swami and Friends* 162). He now

hears "stealthy footsteps and a fierce growl", and he now feels "heavy jaws snapped behind his ears, puffing out foul hot breath on his nape". Only his presence of mind in ducking his head "saves" him from "the huge yellow-and-black tiger". He imagines that:

> Now a leopard, now a lion, even a whale, now a huge crowd, a mixed crowd of wild elephants, tigers, lions, and demons, surrounded him. The demons lifted him by his ears, plucked every hair on his head, and peeled off his skin from head to foot... The cobra and the scorpion were within an inch of him (*Swami and Friends* 165).

The faster he runs, the faster the shadows pursue him. He falls down in exhaustion, is found by Ranga, the cart man, and is taken to Mr. M. P. S. Nair, the District Forest Officer. This rescue, however, does not take place until the Manchild has stood facing the Primal Force, in existential loneliness, and until he has prayed to the gods. We shall see this combination in practically all Narayan's future novels as a concomitant to the protagonist's liberation.

We discover something here in a child protagonist of Narayan that the adult protagonists will develop consciously or unconsciously: even though they are average and ordinary, they have a sense of what is right and they possess an ability for concentrated action. The first quality helps them to reconstitute their worlds when threatened by imbalances and disorders; the second propels them towards liberation for concentrated action is akin to prayer. (Raju represents the best embodiment of these qualities in *The Guide*.) Swami displays the capacity for concentrated action earlier when his father asks him to clean his long neglected room. Despite being "boyish" in that he decides to keep the spider he discovers as a pet, he does "his work with concentrated interest" (*Swami and Friends* 86). We now see him very aware of his obligation, his dharma, in practicing for the match in spite of the fact that he has just passed through a nightmarish experience. A person can only put forth his best efforts; the world will keep moving automatically through harmonies and disharmonies.

We also see Narayan's attitude that only the right action done at the right time can be harmonious. A good Hindu must pass through the four stages of life in the right order and at the appropriate times. Swami is still a student. He still has to undergo the other three stages - the householder, the forest dweller, and the wandering mendicant. This is not the right time for him to disappear for obligations unmet disturb the world order. (Neither will it be right for Chandran in *The Bachelor of Arts* or Savitri in *The Dark Room*. Oagan in *The Vendor of Sweets* and Raju in *The Guide*, on the other hand, will disappear at the right time, for the right reasons—something one can do, indeed should do—so that the world can continue in peace and harmony.) Therefore, Swami must return to his world of Malgudi.

Swami's fight is not over yet. He still has to find a healing for the wound of a friendship torn asunder. He finds out that Rajam's father is transferred and that they are leaving Malgudi. He takes Anderson's Fairy Tales that his father had brought from Madras as a going away present for Rajam, and with Mani, goes to see off Rajam. The train is about to pull off. Rajam has expressed to others his gladness at Swami's safety but has still not spoken to him. Mani points out to him that Swami is there:

> Rajam craned his neck. Swaminathan's upturned eyes met his. At the sight of the familiar face Swaminathan lost control of himself and cried; "Oh, Rajam, Rajam, you are going away, away. When will you come back?" Rajam kept looking at him without a word and then (as it seemed to Swaminathan) opened his mouth to say something, when everything was disturbed by the guard's olast and the hoarse whistle of the engine. There was a slight rattling of chains, a tremendous hissing, and the train began to move. Rajam's face, with the words still unuttered on his lips, receded (*Swami and Friends* 183).

Swami realizes that the train is moving and he has not given Rajam the present. He gives it to Mani to give it to Rajam. "Rajam held out his hand for the book, and took it, and waved a farewell.

Swaminathan waved back frantically" (*Swami and Friends* 183). Swami's faith in life and the order of things returning to harmony is restored with his conviction that the last waving of Rajam from the streaming train was for him and him alone, and that if the guard had not intervened, he would have heard those words. Christopher Fry remarks that "Comedy is an escape not from truth but from despair; a narrow escape into faith" (Fry 15). To Swami this faith brings calm and freedom. Also the forgiveness of Rajam - at least to Swami it seems so - brings liberation. (Later we shall see Raju in *The Guide* and Nataraj in *The Man-Eater of Malgudi* gain liberation through absolution.) And this faith in the abiding nature of world order is the backdrop against which Narayan works out the theme of man's journey towards liberation - his basic theme.

Thus we see that *Swami and Friends* which has been casually dismissed as a social comedy depicting a growing boy's pranks and escapades is in fact a very deep novel, one which contains the seeds of all the serious issues that will engage Narayan in the subsequent works and will gain a deeper hue as Narayan matures as a writer. The river Sarayu, the railway station, and the Mempi Forest will become significant symbols rather than mere geographical boundaries of Malgudi. Already we see the Mempi Forest treated here as a symbol of darkness which Swami must traverse to reach the light of liberation. They will constitute the stable, immutable world order which, in spite of topographical changes, provides the solidity against which the protagonists will appear, play their roles, and disappear behind the blue curtain (in *The Man-Eater of Malgudi*). Graham Greene hailed this novel as "a book in ten thousand" (Sundaram 27). It takes one genius to recognize another.

Notes

[1] Larry Collins and Dominique Lapierre, *Freedom at Midnight*, New York: Simon and Schuster, 1975, p. 8.

[2] In Hinduism, *dharma* signifies "behaviours that are considered to be in accord with *rta*, the order that makes life and universe possible". See, *Oxford Dictionary of World Religions* edited by John Bowker, Oxford: Oxford University Press, 1997, p. 211.

[3] *Moksha* is a term in Hinduism and Hindu philosophy which refers to various forms of emancipation, liberation, and release. In its soteriological and eschatological senses, it refers to freedom from *saṁsāra*, the cycle of death and rebirth. In its epistemological and psychological senses, *moksha* refers to freedom from ignorance: self-realization and self-knowledge. Arvind Sharma, *Classical Hindu Thought: An Introduction,* Oxford: Oxford University Press, 2000, p. 131.

[4] Krishna Chaitanya was the pen name of Krishnapillai Krishnankutty Nair (1918-1994), known as K. K. Nair. He is an author of about 40 books on the subjects of art, literature, philosophy and education, and an art critic, musicologist and photographer.

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Cognitive Linguistic Support for Historical Linguistic Facts: A Comparative Semantic Study of Hindi-Bangla-Maithili 'come'

Sanjukta Ghosh

Abstract

Cognitive linguistic study of image-schemas can aid the study of socio-historical linguistics. The paper studies the polysemy of the verb 'to come' in three related Indic languages: Hindi, Bangla and Maithili. The image-schema representation of the different senses of one of the most common verbs provides an interesting insight about the degree of closeness/ relatedness among the selected languages. The study shows that the degree of sharing of the image-schemas of the selected verb is much higher in Bangla-Maithili pair than in Bangla-Hindi or Maithili-Hindi pairs.

The pre-linguistic image schemas of the selected verb are significantly shared by Bangla and Maithili indicating that the Maithili and Bangla speakers perceive the physical reality associated with the verb similarly whereas the Hindi and Bangla speakers do not. For instance, the process of schema transformation from Path to Container and Enablement is perceived by the Hindi speakers but not by the Bangla or Maithili speakers. This also clearly reinforces the fact that Bangla and Maithili are geographically and genealogically closer than Bangla and Hindi. Furthermore, linguistic mapping between Maithili and Bangla is easier compared to Hindi and Bangla. As a result, translation between Bangla-Maithili pair is easier than between Bangla-Hindi and Hindi-Maithili pairs. This paper also highlights the relation between the cultural relatedness of the languages and the representation of image-schemas in them.

Keywords: *Hindi-Bangla-Maithili, Polysemy, Image-schema support for historical linguistics, Sense representation, Cultural relatedness.*

1. Introduction

There is hardly any word in natural languages that is used for a single sense in all possible contexts. These multiple senses of a single

word are related and this sense relation is known as polysemy in lexical semantics. A word typically has a core meaning and some associated and extended meanings. Some of these meanings may be metaphorical and metonymical extensions of the core meaning. Polysemy is a widely studied phenomenon in lexical semantics. This relation is extremely important for understanding different uses of a word in different contexts. Analysis and interpretation of a text depends on this understanding.

For instance, take the following sentences where the word *position* is used and the respective meaning of the word in each sentence is given within bracket. These senses are related and the phenomenon is called polysemy in lexical semantics.

- Girls, take your *positions* please. (particular space occupied)
- What is the *position* of the Government on this issue? (stand, view)
- We were in an awkward *position*. (situation)
- We want to see you in the highest *position*. (post in an organization)
- This is an uncomfortable *position* to sit for a long hour. (posture)

This paper seeks to study this special feature of language taking examples from three languages, viz., Hindi, Bangla and Maithili. For studying polysemy, we have taken Cognitive Linguistics as a theoretical framework and particularly used image-schemas to analyze different senses associated with the word. The next two sections provide the objective of the study and its relevance in a broader academic discipline.

1.1 Objective of the study

One of the basic assumptions of cognitive semantic study is conceptualization and it emerges in a context when the language is in use. Cognitive semantics also assumes that our conceptualizations are based on our perceived experiences of the physical world. In the emerging field of cognitive semantics, polysemy especially when it is a metaphor or metonymy has been extensively studied. Lakoff (1987), Johnson (1987) and Lakoff and Johnson (1980) are some of the seminal

works in Cognitive Linguistic framework to understand and analyze polysemy. These works are based on the assumption that a language can be understood in terms of some non-linguistic cognitive constructs which they called image-schemas. These image-schemas are constructed on the basis of conceptualizations of the senses associated with a word. Multiple senses can fit onto one or two image-schemas associated with that word. One schema represents the core or what is called prototypical meaning in cognitive semantics. This schema is retained in most of the uses of that particular word. This schema is likely to be retained in the translation equivalents of the word in other languages. The other associated schemas which are language and culture specific may not be the same across languages. Our assumption is that the more a pair of languages is culturally closer; the more they share same image-schemas for a word.

In this paper we will compare different uses of a highly polysemous verb 'to come' in three languages, viz., Hindi, Bangla and Maithili. The choice of the verb is guided by the fact that 'come' is a motion verb. The motion verbs always triggered the interest of the cognitive linguists because of their interesting semantic properties (Botne 2005, Wilkins and Hill 1995). The verb meaning 'to come' in all these languages have also become historically a second element of a compound verb (V+V) and conjunct verb (N+V or A+V) construction. Therefore, it is interesting for us to see the change of their meaning in such constructions. We will consider not only a particular use of the verbs in different contexts but also the use of the same verb as the second element of a complex predicate. Different uses of the verb 'to come' across these three languages will be explained in terms of some common image-schemas.

Historically, Bangla and Maithili have been derived from Magadhi Prakrit. While Bangla belongs to the eastern group of Magadhi, Maithili belongs to the central group of Magadhi (Chatterji 1926). Standard Hindi or Khariboli is a descendant of Shauraseni Prakrit. However, till 2003 before its inclusion in the 8th schedule of Indian

constitution, Maithili had been classified as a dialect of Hindi. This Cognitive linguistic work points out towards the fact that Maithili is more closely related to Bangla than to Hindi.

We address the following issues :

a. If the core or proto-typical meaning of the verb is considered to be the same in two languages, do the other uses of the verbs as part of a complex predicate also retain the same prototypical meaning?
b. In spite of the physical, experiential or neural basis of image-schemas there are differences across languages how they relate one particular linguistic item in different constructions with corresponding image schema(s). Do the culturally, historically and geographically related language speakers share more image-schemas associated with one particular lexical item?
c. Can image-schemas of similar kinds in two different languages lead to more ease in translation?

The first question relates the work to the study of lexical semantics, the second question tries to explore the relation between the cognitive explanations for the socio-cultural and historical facts known about languages. The third question is relevant for translation studies and natural language processing especially its major application in machine translation.

1.2 Relevance of the work

Identifying all the senses of a word is the first step of understanding polysemy which is one of the most challenging sense relations in lexical semantics. Polysemy had been studied extensively in the past decades, especially in the cognitive semantics framework. A good lexical resource must account for polysemy or multiple senses of a word. The present work is an attempt that will benefit both lexical semantics and lexicography.

This work also provides an insight to see how cognitive linguistics can be used for understanding or validating historical linguistics facts.

The languages which share more image-schemas are historically more closely related to each other.

The work may be considered important for cognitive sociolinguistics which accounts for linguistic variations in social setting with a cognitive explanation. The languages which share more image-schemas are also culturally closer.

If image-schemas are language-independent cognitive structures, similar kind of representation of the possible senses of the related words in related languages (at least culturally and areally associated languages) can be possible. This will make the sense mapping task easier for a translator (both human and machine).

An important and growing area of application of this kind of work is natural language processing. Identifying the senses of a word is important for lexical knowledge representation. One particular frame which is used by the computational linguists and computer scientists for knowledge representation is Generative Lexicon developed by Pustejovosky. Knowledge representation is necessary for many NLP applications from information extraction, data mining, and text summarization to making ontology etc. Categorization of senses is also important for disambiguation of the senses.

The rest of the paper is divided into three sections. The section 2 explains the framework of the study. The section 3 analyzes the Hindi data and makes a comparison across Hindi, Bangla and Maithili. It also analyses the language specific facts that are not found in other languages of comparison. The section 4 summarizes the result of the study and concludes the paper.

2. On methodology and framework

In order to find out the answers to the questions, we have taken a single verb from core vocabulary items meaning 'to come' in English. For Hindi counterpart of this verb *ānā*, we consulted *Hindi Kriyakosh* (Nespital 1997) and online Hindi Word Net covering all possible senses of the verb given there. For Bangla and Maithili, native intuition is used and often the Hindi examples are translated to find out whether that sense occurs in these languages.

Before presenting the data and analysis of the work it will be appropriate at this stage to introduce the framework of analysis. Polysemy is a well-studied phenomenon in cognitive semantics. A word has a core meaning which is called prototypical in the cognitive semantics after the concept of prototypical categorization in the work of Rosch (1975, 1977). The lexical semantic sense relation polysemy can be explained in terms of some cognitive representations such as frame (Fillmore 1975), schema (Johnson 1987, Lakoff and Johnson 1980, Lakoff 1987) or space (Fauconnier 1985, 1997). Conceptual metaphor and metonymy are also found to be important tool to understand polysemy. The cognitive linguists had explained polysemy as a categorizing phenomenon (Cuyckens and Zawada 1997, Riemer 2005) in terms of radial structure. Image-schema is a cognitive structure used by Lakoff and Johnson (1980), Lakoff (1987) in understanding and explaining linguistic structures. Sullivan (2013) provides a construction grammar account of metaphors.

For this paper, we take image-schema theory of Lakoff and Johnson (1980) and provide image-schemas for the verb meaning 'to come' in Hindi, Bangla and Maithili. This work is based on the assumption that language can be understood in terms of some non-linguistic cognitive constructs which are called image-schemas. These image-schemas are constructed on the basis of conceptualizations of the senses associated with a word. Multiple senses can fit onto one or two image-schemas associated with that word. One schema represents the core or what is called prototypical meaning in cognitive semantics. This schema is retained in most of the uses of that particular word.

The image-schema theory has been developed to understand the cognition of metaphors in our day-to-day language. An 'image-schema is a condensed redescription of perceptual experience for the purpose of mapping spatial structure onto conceptual structure' (Oakley 2007). For instance, if we take the sentence 'we are in the class', our bodily spatial experience of being contained in something is expressed by the preposition 'in'. The preposition 'in' therefore, evokes an image schema

of Container. These image-schemas are language-independent and are based on our perceptual interaction with the world around. Johnson (1987: 126) lists the most important image schemas as follows (rendered according to convention in small capitals):

Container; Balance; Compulsion; Blockage; Counterforce; Restraint Removal; Enablement; Attraction; Mass-count; Path; Link; Center-periphery; Cycle; Near-far; Scale; Part-whole; Merging; Splitting; Full-empty; Matching; Superimposition; Iteration; Contact; Process; Surface; Object; Collection.

3. Data from Hindi, Bangla and Maithili

In this section the different constructions related to the verb 'to come' in Hindi, Bangla and Maithili are presented. The first sentence of the data is from Hindi followed by its translations in Bangla and Maithili. When a translation equivalent is not found in any of these languages, it is mentioned there along with the other way of expressing that construction in that language.

3.1 Different uses of the single predicate *ānā*

The core or most central schema in Hindi for the motion verb *ānā* is the (Source)-Path-(goal) with a direction towards the speaker. This is the core sense of the verb in Bangla also. The source is present in most of the usages. However, it may be in the background when the goal is in the focus.

Sense 1: to come

Schema: Source-Path

1a. maĩ thāne se ā rahā hũ. (H)

1b. āmi thānā theke āsachi. (B)

1c. ham thānā sa āib rahal chi. (M)

I police station from come-Prs-Prog-1P

'I am coming from the police station.'

Sense 2 : to go (euphemism, found in Bangla and Maithili only)

Schema: Path

This is a use of addressee-oriented *ānā* in the sense of *jānā* 'to go to addressee's place'. This is often found in the conversation especially

when the speaker is going out of the home. It is customary to use the verb 'come' in this situation in Bangla in order to avoid any trouble outside home. This is a change that may be categorized as euphemism. The example is illustrative.

2a. mā, āschi āmi. (B)

2b. māi, abaichi ham (M)

Mother come-Prs-Prog-1P I

'Mummy, I am going out.' (used when someone goes out of home)

This use is not commonly found in Hindi. This is a typical meaning extension of the verb and questions the basicness of the sense of the basic motion verb. Similar kind of study is found in Wilkin and Hill (1995).

Sense 3 : to go (in a conversation especially telephonic)

Schema: Path-Goal

The use of the verb *come* in the sense of *go* is a common practice in Bangla. However, in Hindi, this is restricted only in certain situations like telephonic conversation, equivalent of which is also found in Bangla. The following examples are illustrative.

3a. ham āyeṁge kabhī āpke ghar. (H)

3b. āmrā āsbo ekbār āpnāder bāḍi. (B)

3c. ham abaichi kahio ahãbk ghar. (M)

We come-Fut-1P sometime your house

'We will go to your house sometime.'

The entire path of the Source-Path-Goal schema is not always defined. Sometimes only the goal is in the focus as in the sense of arrive/reach/befall, as in the next examples.

Sense 4: to arrive, reach, befall

Schema: Path-Goal

4a. kahắ se musibata āyī? (H) (source in background, goal in focus)

From where calamity come-Perf

'From where did the calamity befall?'

4b. kothắ theke jhāmelā ese juṭeche? (B)

4c. kahā sa i jhāmelā ābi gela? (M)

where from trouble come come-Prs-Pft
'Where from has this trouble come?'
4ai. gāḍī der se āyī hai. (H)
4bii. gāḍī derite eseche. (B)
4ciii. gāḍī der sa āela. (M)
Train late come-Prs-Pft-3P
'The train has reached/arrived late.'

The next sense of *ānā* is 'to enter'. In this sense also the goal is in focus.

Sense 5: to enter

Schema: Path-Goal
5a. jādugar ke mañc par āte hī sāre darśak cup ho gaye. (H)
5b. jādugar ke mañc par ābite sab darśak śānt bho gail. (M)
Magician-GEN stage on come-Ipfv-Ptcp Prt, all spectators silent be go-Prs-Pft-3p-PL
5c. jādukar mañce āstei sab darśak cupa hae gela. (B)
Magician stage-Loc come-Ipfv-Ptcp-Emp ayll spectators silent be go-PST-3p
'As soon as the magician entered the stage, all the spectators became silent.'

Sense 6: to return

Schema: Source-Path-Goal

In this sense, there is a circular path involved starting from the point of speaker and coming back there. So the Source as well as Goal is the same.

6a. ham kāl hī (vāpas) āye hai. (H)
6b. āmrā kāli esechi. (B)
6c. ham kāilhe āili. (M)
We yesterday only come-Prs-Pft-1p
'We have returned yesterday only.'

Sense 7: to start

Schema: Source-Path

This schema focuses on the starting point or source.

7a. ām ke peṛõ mẽ manjar ā gayā hai. (H)
mango GEN tree-Pl Loc flowers come go-Pfv be-Prs-3P

7b. āmgāch-mẽ manjara āib gela. (M)
7c. ām gāche mukul ese geche. (B)
mango-tree-LOC flowers come go-Prs-Pft-3P
'The flowers have come to the mango trees.'

The other schema associated with the verb is the Container-Contained schema which is best understood in the meaning 'to fit (into something)'.

The next three senses of the Hindi verb ānā is described in terms of Container schema. A Container is perceived as a bound entity with a shape or size which is able to hold a certain amount of things. In Container schema, a PATH schema is transformed into Container where the motion leads to or the goal of the motion. For instance, when we fill some container with something, a motion happens towards that container but it is not the path of the motion that comes into focus but the destination or the container itself. This may be understood as 'coming to a container'.

Sense 8: to hold

Schema: Container
8a. ismẽ itnā cāwal āyegā? (H)
this-Loc so much rice come-Fut-3P
'Can this (container) hold/contain this much rice?'

Bangla uses a different verb *dharā* 'to hold', *ãṭā* 'to fit' for this use. Maithili also uses a different verb *ãṭa* 'to fit' in this sense.

8b. ete etota cālā dharbe/ãṭabe? (B)
8c. aimẽ atek cāur ãṭata? (M)
This-LOC this much rice hold-Fut-3P

Sense 9: to fit (for clothes, shoes, bangles, etc)

Schema: Container
9a. itnī choṭī kāmīz mujhe nahĩ ayegī. (H)
this much small shirt I-Dat Neg come-FUT-3P
'This small shirt won't fit me.'

In this example, the body is metaphorically perceived as a container which is too big for the shirt.

Bangla uses *haoyā* 'to become' in this sense.' Maithili also uses a different verb *ho-* 'to fit' in this case.

9b. eto choṭa jāmā amara habe nā. (B)
9c. atek choṭ ãgā hamarā nai hoet. (M)
This small dress I-Genneg become-Fut
'This small dress won't fit me.'

Sense 10: to be part of something

Schema: Container

10a. banāras uttar pradeś mẽ ātā hai. (H)
Banaras Uttar Pradesh Gen in come-Imp be-Prs
'Banaras falls in Uttar Pradesh.'

In this example, to be part of a location is considered to be contained in it. Therefore, Uttar Pradesh is metaphorically a container containing Banaras.

Bangla and Maithili use a different verb *paṛā* 'to fall' for this.

10b. benārasa uttar pradeśer maddhye paḍe. (B)
10c. banāras uttar pradeś mẽ paḍaitachai. (M)
Banaras Uttar Pradesh-Gen inside fall-Prs-3P
'Banaras falls within Uttar Pradesh.'

The next two senses of the Hindi verb *ānā* is described by the Enablemnt schema. Enablement is doing something new not done before with the agent's repeated efforts. The use of 'coming' in this sense shows that the speakers perceive achieving a new ability as a result of some force which lies outside the body or self. That dynamic force *'comes'* and changes for the *enablement* in the perceiver.

Sense 11: to be able to

Schema: Enablement

The other common use of this verb is in the sense of 'to be able to' for expressing ability.

11a. rāmko gānā ātā hai. (H).
11b. rāmke gāba ābaichai. (M)
Ram-Dat singing come-Prs be-Prs-3p
'Ram can sing (state).'

Bangla does not use the verb 'come' in this sense. It uses *pārā* 'to be able' as its equivalent.

11c. rām gāite pāre.
Ram sing-Inf can-Prs-3P
'Ram can sing.'

Sense 12: to be obtained

Schema: Enablement

The verb is also used in the sense of 'to be obtained' which indicates that the things that were outside the speaker's ability may come within it. This is an extension of Enablement schema.

12a. kyā ṭibhi itne paise mẽ āyegā? (H)
Q-Prt Tv this much money-Loc come-Fut
'Will the TV be obtained in this money?'

Bangla does not have this use of the verb 'come'. Maithili and Bangla use the verb *bho jā/ hoye yāoā* meaning 'to become' in this sense.

12b. ṭibhi ei ṭākāy haye yābe? (B)

12c. ṭibhi atek rupaiyā mẽ bho jātai?
TV this money-Loc become-FUT-3P

3.2 ānā in a conjunct verb

ānā may be used in a complex predicate with a noun as in N-V construction like *ānanda āna*, *mazā ānā*. In this use of *ānā* there is a change of state of mind as a result of some experience or event. This use of the verb 'come' is also not found in Bangla. It uses *ānanda haoya* 'to be delighted' or *bhālo lāgā* 'to enjoy' for the uses described below. Both are complex predicates of N-V type using the verbs *haoyā* 'to become/to be' and *lāgā* 'to feel'.

Sense 13: to obtain a state of mind (happiness etc), enjoy

Schema: Enablement

13a. gānā sunke bahut ānand āyā. (H)
Song listen-Conj much happiness come-Pst
'We are extremely delighted after listening the song.'

13b. mazā āyā? (H) (this can be asked after experiencing some delightful thing)
enjoyment come-Pst
'Did you enjoy?'

In both the examples of Hindi, the perceived change of the physical or mental state of the experiencer is contributed to some outside instigation.

Bangla uses *haoya* 'to become/be' for this meaning. Maithili also uses an equivalent verb *bho* 'to become' in this sense.

13ai. gān śune khuba ānanda halo. (B).
13aii. gāna sunika khub ānand bhel. (M)
Song listen-ConJ very delight become-Pst
13bi. majā halo? (B)
13bii. majā bhel? (M)
Amusement happen-Pst

Sense 14: to obtain or get (a chance, anger, cry)

Schema: Enablement

Another N-V construction where *ānā* is used is *avasara ānā* 'to get a chance'.

14. āpse milne kā avasar nahĩ āyā. (H)
you-Hon-Ins meet-Ger-Gen opportunity Neg come-Prs-Pft
'A chance to meet you had not occurred before.'

We would like to put some other N-V predicates with *ānā* as V in this schema. Examples are *gussā ānā* 'to feel angry,' *ronā ānā* 'to feel like crying', *yād ānā* 'to remember', *samajh mĩ ānā* 'to understand'. All these predicates indicate a change of state in the experiencer often psychological as a result of some outside instigator. Therefore, the Enablement schema is used,

Bangla does not use the verb *come* in these contexts. It uses *haoyā* 'to become', *paoā* 'to get', *pāḍā* 'to fall', *pārā* 'to be able to' as in *rāga haoya* 'to feel angry', *kānnā pāoā* 'to feel like crying', *mone paḍā* 'to remember', *bujhte pārā* 'to understand'.

Maithili uses *bha* 'to become' in most of these cases. However, due to convergence situation with Hindi, many speakers who are exposed to Hindi use *ānā* with some of the verbs in these contexts

3.3 *ānā* in a compound verb

The verb *ānā*, when used as a vector in the compound verb sequence interestingly retains the core image-schema of Source-Path-Goal and the source as well as the destination is always the speaker.

Sense 15 : deictic function

Image schema: (source) Path (goal)

15a. thoḍe der ke liye bāhar ṭahal āte hai. (H)
sometime for out walking come-Sbjv be-Prs-1P

'Let's walk outside for some time.'

This use of *ānā* is found with the motion verbs as the V1 in a compound verb construction like *ghuma ānā* 'to travel', *cale ānā* 'to come back'.

Bangla also has this type of use in a compound verb construction. Bangla verb for 'come' *āsā* as a vector when used with another motion verb retains this core sense of a path. However, the more predominant sense of this V2 is 'to come (back) to the place of the speaker or that place where the event started'. Therefore, it is used primarily as a deictic vector. The V1s used with this sense of *āsā* are *ghorā* 'to roam, to make round', *beḍāno* 'to travel, to visit', *calā* 'to move' etc.

15b. āmrā śilaṁ (theke) bediye/ghure elām. (B)

15c. ham śilaṁ sa ghumi aelaũ. (M)
we Shilong (from) tour/travel come-PST-1P
'We are back after travelling to Shillong.'

Sense 16: gradualness

Image schema: Path

In the V-V constructions like (*āṁsu*) *bhar* (fill) *ānā* '(eyes) to be filled with tears', (*śām*) *ḍhal* (decline/set in) *ānā* '(evening) to set in', *ūphan ānā* 'to rise to some extent (in a pot)', *umaḍa ānā* 'to become filled with (tears/water)', *ānā* as a vector reflects the Path schema.

16a. dhīre dhīre āam ḍhal āyī hai. (H)
slowly evening fall come-Pft be-Prs

16b. sandhye haye asche. (B)

16c. sãjh bha āel. (M)
evening become-come-Prs-Prog
'It is getting dark (slowly and gradually).'

This sense is also found with a semalfactive verbs in Bangla as in *nibhe āsā* 'to extinguish'. Hindi and Maithili do not have this sense with *ānā.*

Sense 17: continuity

Image schema: Path

In Bangla and Maithili, a third sense of the verb 'come' is found in a compound verb construction. This is a sense of continuity of the first event described by the first verb of the compound. The verbs

with which this sense is found are some activity verbs like *calā* 'go (in the sense of be in use/practice)', *karā* 'to do', *balā* 'to say'. In both Maithili and Hindi, in the sense of continuity when *ānā* is used, it does not form a compound verb. It is used as an auxiliary in a verbal group. In compound verbs, the first verb is used in its bare form without any inflection in Hindi as in *mar jānā* (die go) 'to die'. But in the construction below (16b), the verb *bol* takes an imperfective inflectional marker *tā* followed by the verb *ānā* in its present progressive form.

17a. ami kabe theke bale āschi. (B)

17b. maĩ kab se boltā ā rahā hāū. (H)

I when from say come-pr-prog-3P

'I have been saying it continuously since long back.'

Though the hypothesis that image schema is retained in grammaticalization and semantic change is controversial, we found that when used in two aspectual senses of continuity and gradualness of the event in a compound verb construction the primary image schema of the verb 'come' is retained.

4. Result and Discussion

The senses of *ānā* 'to come' in Hindi may be classified as path coming, coming to a container and coming for an enablement. These senses may be explained in terms of three image-schemas: Source-Path-Goal with some unrealised source or goal, Container schema and Enablement schema. *ānā* as the second member of a complex predicate (both N-V and V-V) is often understood as a Enablement and Path schema.

In Bangla, the main image schema for the single use of the verb is a PATH schema with sometimes a source or a goal in the focus. No other schemas are found in Bangla. When it is used in a complex predicate, it makes the process of the V1 durative, i.e., it is used as an aspectual vector giving only grammatical information. In Maithili also, this is the predominant schema with only one case of exception where Enablement schema is found in the sense of 'to be able to'.

The table below enlists the senses and image-schemas of 'to come' verb present in Hindi, Bangla and Maithili.

Table 1: Sense and Image-Schema Chart of 'to come' *(ānā)* in Hindi, Bangla and Maithili

Sense ID	Sense	Image-Schema	Hindi	Bangla	Maithili
Sense 1	To come	(Source)-Path	Yes	Yes	Yes
Sense 2	To go (euphemism)	Path	No	Yes	Yes
Sense 3	To go (in a conversation)	Path-Goal	Yes	Yes	Yes
Sense 4	To arrive/reach/befall	Path-Goal	Yes	Yes	Yes
Sense 5	To enter	Path-Goal	Yes	Yes	Yes
Sense 6	To return	Source-Path-Goal	Yes	Yes	Yes
Sense 7	To start	Path	Yes	Yes	Yes
Sense 8	To hold	Container	Yes	No	No
Sense 9	To fit (for clothes, etc)	Container	Yes	No	No
Sense 10	To be part of something	Container	Yes	No	No
Sense 11	To be able to	Enablement	Yes	No	Yes
Sense 12	To be obtained	Enablement	Yes	No	No
Sense 13	To obtain a state of mind	Enablement	Yes	No	No
Sense 14	To obtain or get	Enablement	Yes	No	No
Sense 15	Deictic	Path	Yes	Yes	Yes
Sense 16	Gradualness	Path	Yes	Yes	Yes
Sense 17	Continuity	Path	No	Yes	No

The most prominent difference between the use of *ānā* in Bangla and Maithili with Hindi lies at the use of this verb in Bangla even when the speaker is moving from the location of speech or exactly in the prototypical sense of *jānā*. For instance, this is the case when one leaves home and says *āschi* which literally means 'I am coming' to avoid any inauspicious happening. This is because a more positive sense is attached to *ānā* in Bangla (and also in Maithili) compared to *jānā* which is used in negative senses.

5. Conclusion

Hindi, Bangla and Maithili are closely related Indic languages and share a lot of grammatical and lexical characteristics. A simple assumption to begin with is that the pattern of polysemy of a verb will be similar in these languages. However, the present study has shown that the pattern of polysemy as reflected in the image-schemas of a single verb is not the same for Hindi and Bangla. In this respect, Bangla and Maithili emerge to be much more closely related than Bangla and Hindi as Bangla and Maithili share the image-schemas quite significantly whereas the sharing of the image-schemas by Bangla and Hindi as well as Maithili and Hindi is not as high. Bangla and Maithili are geographically as well as genealogically more closely related. They are culturally closer than Hindi-Bangla or even Maithili-Hindi pair. The pre-linguistic image schemas also match more for Bangla and Maithili. If image schemas are representations of perceived physical realities by the speakers, the Maithili and Bangla speakers perceive the same physical reality similarly whereas the Hindi and Bangla speakers do not. This point is established in the process of schema transformation from Path to Container and Enablement perceived by the Hindi speakers but not by the Bangla or Maithili speakers. This leads to the fact that socio-cultural relatedness of languages can be explained by cognitive linguistic evidence. Translation between Maithili and Bangla as a result of this socio-cultural relatedness and cognitive image schema sharing is easier compared to Hindi and Bangla.

The image schemas are mental representations of our perceived realities, therefore, it would be interesting to find out why only Hindi has associated the image schemas of Enablement and Containment with the verb 'come'. A detail cultural and anthropological study of these speech communities may provide some insights about the nature of polysemy found with the verb discussed in the paper.

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On the Swayamvara of the Ancient Hindús, and its traces in the ancient world generally.—*By* E. B. Cowell, *M. A.*

One of the favourite incidents in the heroic poems of the Hindús is the rite called *Swayamvara* or the choice of a husband by a princess from an assembly of suitors met from all parts to take their chance in the lottery. Success is not represented as depending on their own efforts, as in many of our fairy tales, where the knight wins the lady by his own prowess in a tournament; the heroes here submit themselves in silent rivalry to the princess's inspection as she walks along their line, and selects from the throng the favoured suitor by presenting him with a garland, or a cup of water, or some such token of regard. The readers of Hindú poetry will at once remember many instances of this peculiar institution, which must have been not uncommon in actual life as well as in the ideal world of the heroic times, since we find it apparently alluded to in the following passage in Arrian's Indica. "The Indians neither give nor receive gifts when they marry, but when their daughters are of a marriageable age, their fathers bring them out publicly, and set them as the prize for the winner in a wrestling or boxing or running match, or any such manly exercise." This hardly corresponds with the practice as we find it described in Hindú literature, since Arrian represents the lady as acting a merely passive part, whereas, if we may judge by the poems and by the very name Swayamvara (from "*Swayam*" "herself," and *vara*, "choosing,") she had a much more active share in the transaction.* Dean Milman

* The custom is not found among the various forms of marriage given in Manu's third book, but this may be explained by the fact that the Swayamvara relates only to the choice of the husband, the nuptial ceremony being performed afterwards according to the proper rites. We find an allusion in a later part of the Institutes which proves the prevalence of the custom, as it is said (ix. 90, 91), "three years let a damsel wait, though she be marriageable; but, after that term, let her choose for herself *(vindeta,)* a bridegroom of equal rank; if, not being given in marriage, she choose her bridegroom *(adhigachhed yadi swayam,)* neither she nor the youth chosen commits any offence." The Scholiast explains it of the so-called Swayamvara, "*adhikaguṇavarálábhe samánajátiguṇam varam swayam vriṇíta.*"

has, to a certain extent, familiarised the English reader with the custom by his spirited translation of the scene in *Nala*, where Damayantí, the princess of Vidarbha (Berár), chooses the prince of Nishadha from the assembly of mingled gods and men.

" On the gods an instant gazed she—then upon the king of men ;
And of right king Bhima's daughter named Nishadha's king her lord.
Modestly the large-eyed maiden lifted up his garment's hem,
Round his shoulders threw she lightly the bright zone of radiant flowers."

The Swayamvara of the sister of king Bhoja forms one of the most beautiful episodes in the Raghuvans'a, of which we may ere long hope for an English translation from Professor Griffith, already so favourably known as the translator of the *Kumára Sambhava*, or " the birth of the Wargod." Similar scenes occur in almost every Hindú poem ; in fact a Swayamvara is nearly as much an established ingredient in Sanskrit epics, as a catalogue of ships or heroes is in those of the west. We need only mention here those in the Naishadha and the Mahábhárata ; in the latter, besides that of Nala, translated by Dean Milman, we have that of Draupadi, translated by Professor Wilson. Nay, the rite was so popular with the poets that it is even made current in the life of the gods ; and the Swayamvara of Lakshmí forms the subject of the drama, which Urvási is acting before Indra with her sister nymphs, when she loses her presence of mind and lets a mortal's name escape from her lips.

In the following pages, I have collected from classical writers some of the more remarkable instances of the prevalence of this custom in other parts of the ancient world as well as India ; we shall find traces of its presence in widely different climates, Greece, Gaul and ancient Persia ; and in the last case, it may lead to an important and, I believe, hitherto unnoticed corroboration, from a Greek author, of one of the fine old traditions in Firdausi's Sháhnámeh.

The first instance is one which the classical student will easily recall in the 6th book of Herodotus, where he discusses the rise of the family of the Alcmæonidæ, and its great increase of wealth and power by the marriage of Megacles with the daughter of Cleisthenes, the tyrant of Sicyon. This marriage is described as a true Sway-

amvara; Herodotus' account reads like an episode of some ancient poem, when he represents the various princes and nobles flocking as suitors to the court from the chief cities of the Grecian world. The historian tells the account in his very best manner, how the favoured suitor Hippocleides at last grew presumptuous with success and "danced away" his fortune by his thoughtless frolic, and gave birth to the current proverb, οὐ φροντὶς Ἱπποκλείδῃ, while the young Athenian carried off the bride, and their descendant in the third generation was Pericles.

Another instance occurs in Justin's narrative of the founding of the city of Marseilles. A colony of Phocæans, under the leadership of Simos and Protis, landed in Gaul near the mouth of the Rhone. On their repairing to the court of Nannus, the king of the tribe, in whose territory they wished to settle, they found him, as it chanced, engaged in the ceremony of his daughter's marriage, whom he was preparing to deliver, *more gentis*, to the bridegroom whom she might select at a banquet. All the invited guests came as suitors, and among the rest the Greek strangers were invited to attend. At a given moment the maiden is introduced into the assembly, and her father bids her hand water to the man of her choice; when forthwith, unheeding the others, she turns to the Greeks, and holds out the cup to Protis. The fortunate adventurer thus became the king's son-in-law, and founded Marseilles, where his memory was probably honoured as a patron hero. Athenæus tells the same story, on the authority of a lost work of Aristotle; and adds that there was still a family in Marseilles called Protiadæ from their founder.*

But the most interesting of all these parallels is one which Athenæus has given us in the same place as a quotation from the tenth book of the history of Alexander (τῶν ἱστοριῶν τῶν περὶ Ἀλέξανδρον) by Chares of Mytilene. In itself, the narrative wears a peculiarly striking character, all the more so from its entire disconnection with any context, as almost every other line of Chares has perished; and the actors of the scene appear and vanish abruptly, without our

* Cf. Justin, xliii. 4; Athenæus xiii. § 36. Aristotle represents the founder's name as Euxenus, and Protis as his son by the marriage; but this is only one of those ever-recurring uncertainties in the "dissolving views" of legendary, as distinguished from authentic, history.

being able, from *classic* sources, to identify their persons or times. We give it in the historian's words.

" Zariadres was the younger brother of Hystaspes, and both were fair, and the people say of them that they were born of Venus and Adonis. Hystaspes ruled over Media and the region below it, and Zariadres over the country above the Caspian gates as far as the Tanais. Now Omartes, the king of the Marathi, a tribe beyond the Tanais, had a daughter named Odatis; and of her runs a legend that she once saw Zariadres in a dream and fell in love with him, and the same thing likewise happened with him towards her. For some time they continued thus, loving each other from the image in the dream. Now Odatis was the fairest of all the women in Asia, and Zariadres too was fair; but on his asking her in marriage of her father, Omartes would not consent, as he had no male child, and he wished to marry her to some one of his own people. And not long after, Omartes summoned all the nobles of his kingdom and all his friends and relations, and made a marriage feast, but told no one who it was that should marry his daughter. At length when the feast was at its height, he called Odatis into the banquet-hall, and said to her in the hearing of all the guests, ' Oh my daughter Odatis, we are now making thy marriage feast; look round therefore on the guests and view them all, and take a golden cup and fill it, and give it to him whom thou choosest as thy husband; for his wife shalt thou be.' And she then, looking round upon all, walked sadly away, longing to see Zariadres; for she had previously sent a message to him, how that her marriage was about to be solemnised. Now he chanced at the time to be encamped by the Tanais, and immediately on hearing it, he left the army secretly and crossed with only his charioteer; and mounting his chariot by night, came riding through the city, having driven more than 800 stadia. As he drew near the festal place where they were holding the marriage, he left his attendant with the chariot hard by, and marched boldly in, having put on a Scythian dress. On his entering the hall, he beheld Odatis standing before the sideboard, and weeping bitterly as she slowly filled the cup; and standing close by her, he said in a low voice, ' O Odatis, I am come as thou badest, I thy Zariadres.' And she, turning round, beheld the stranger, fair to the

eye and like to him whom she had seen in the dream, and overjoyed she gave to him the cup; and he, seizing her in his arms, bore her away to his chariot and fled. And the servants and handmaidens, who knew of their love, stood silent, and when her father charged them to speak, they said that they knew not whither she was gone. And this story of their love is known among all the barbarians who dwell in Asia, and greatly indeed do they prize it, and they sculpture it upon their temples and palaces, aye and even in their private houses; and many of the nobles call their daughters Odatis after her."

Firdausi's great national epic is a Mausoleum in which he has embalmed all his country's ancient heroes, and inscribed all the old names associated with her days of independence, before her glories succumbed to Islam at Cadesia. He tells us that he collected his materials from the legends which he found floating amongst the *Dihkáns* or landed proprietors* of Persia, more especially in the remoter provinces. He thus gathered together the fragments of "Border Minstrelsy," and incorporated them in his own great poem, which, far from being a mere tissue of his own inventions, like Ariosto's Orlando, was meant to be a faithful monument of all that was remembered of Persia's heroic times.

That his work contains so little that is available for historical researches, arises from various causes, but there is no need to increase their number by supposing wanton infidelity to his trust on the part of the poet. So few of the Greek writers on Oriental subjects are preserved, that we have hardly any means left us to test

* "Les Dihkans formaient une classe de l'ancienne noblesse persane. Ils etaient selon la definition qu'en donne le *Modjmel-al-Tewarikh*, "des chefs, des propriétaires de terres et de villages," et formaient une aristocratie territoriale qui retint, méme sous le gouvernement des arabes, son influence locale.....Leur condition sous le khalifat devait être à peu près la même que celle des familles saxonnes de l'Angleterre qui gardèrent leurs propriétés sous les Normands, et à qui leur influence héréditaire tient encore aujourd'hui lieu de titres de noblesse [*country families*]." M. Mohl's preface to his edition of the Sháhnámeh, vol. i. p. viii. The position of the dihkáns is a most important link in the chain that connects the present reminiscences of Persia with her own earlier times. Their authority is quoted in every part of the Sháhnámeh.

these legends; and the very form in which we have them has been doubtless subjected to continual changes, as they floated on the lips of successive generations, ere they were stamped by Firdausi (A. D. 1000) into their present permanent shape. As it is, they bear all the marks of a legendary age,—deficient in everything but spirit and imagination,—and it is hopeless to construct a system from their chaos. Still such a system might have been partly possible, had Ctesias and Chares been preserved to us,—many a legend which now lies buried under its surrounding inventions, would have started into a new significance, if we could have compared it with some Greek account, which had preserved the true lineaments of the story.

The legend of Odatis, which has been casually saved by Athenæus' quotation from Chares, is a single specimen,—we have nothing else of the kind; but this legend is at once to be recognised in the Sháhnámeh; and the striking confirmation thus presented makes us realise how much we have lost in the wreck of Greek Oriental history.

Lohrásp, the king of Persia, had irritated his son Gushtásp by his excessive partiality for his children by another wife. Gushtásp in despair first fled towards India, but is followed by his uterine brother Zaríṛ (Zariadres,) who persuades him to return to his father's court. He is, however, again provoked to fly, and he now bends his course to Rúm. On arriving at the capital, he in vain seeks for employment in the court, and, failing this, in the bazar; and he is well nigh reduced to desperation, when a Dihkán, in a neighbouring village, takes pity on his forlorn condition, and lodges him as a guest in his house. Of the remainder of the story we add a literal version, line for line with the original as given in Macan's edition, vol. ii. pp. 1038—1040.

The Kaisar of Rúm cast about in his mind,
That, since his daughter was now of age,
Her star of fortune high, and she ripe for marriage,
It was time that she were given to a husband.
He would gather an assembly in his palace
Of all his wise nobles and counsellors,

There should meet together all his peers,
And his men of renown, lofty of stature.
In her father's palace that moon-faced maiden
Was to wander through that assembly, seeking a husband,
And her maidens were to stand round her in a ring,
That no man might see her lofty crown.
Now at that time behind the Kaisar's pardah,
Were three daughters like roses in spring,
Fair in stature and countenance and gentle manners,
Fair too in judgment, modesty and virtue.
The eldest of them all was Kitáyún by name,
And wise was she, bright-hearted and happy.
And one night Kitáyún had seen a dream,—
She had seen a landscape bright with sunshine,
And a band of chieftains had appeared in her sight
In a bright cluster like the Pleiades;
And amidst them all was a stranger,
A gallant exile desolate-hearted,
His stature a cypress, his face like the moon,
And he sat as a king sits on his throne.
And Kitáyún, in her dream, gave him a garland,
And she took from him another, full of colours and scents, in return.
In the morning when the sun came forth,
The nobles all awoke from their slumbers,
And the Kaisar called a great assembly together,
None of great or puissant but was there;
Glad they hastened to the assembly,
And they called the peri-faced princess in.
With her sixty handmaidens came Kitáyún,
A bunch of fresh narcissuses in her hand,
And she walked along until sadness came over her,
For not in that assembly was the man of her choice.
And she turned from the hall and went back to her chamber,
Walking slowly and weeping and with a longing heart.
Then the earth became black like a raven's wing,
Till the sun again lifted his head from the mountains.

Then the Kaisar commanded that from the men of low degree
To the men of highest wealth and birth in Rúm,
All should come with one mind to the palace,
If among them might be found one whom the princess approved.
When the news spread through the city,
To the nobles and high and low,
All turned their faces to the palace of the king,
Each, in his hope, full of colours and perfume.
And the good Dihkán said to Gushtásp,
" How long sittest thou hidden in thy cell ?
" Come, for if thou seest the palace and its pomp,
" Perchance thy heart may lose its burden of grief."
When Gushtásp heard this, he rose and went with him,
And he hastened to the palace of the king ;
And he crept to a corner, away from the great men,
And sat him down, full of grief and with a wounded soul.
The attendants came forth with watchful hearts,
Kitáyún and her rose-cheeked handmaidens,
And she slowly walked round her father's hall,
Her wise men behind her and her maidens before.
When from afar she beheld Gushtásp,
She exclaimed, " My dream has lifted its head from darkness !"
And she decked the head of the gallant youth
That same moment with her royal crown.
When the wise vizier beheld her deed,
At once he ran before the Kaisar,
" She hath chosen a man from out the crowd,
" In height like a tall cypress in the garden,
" With a cheek like a rosegarden, and broad shoulders,—
" All who look on him are lost in wonder.
" Thou would'st say, ' he was the strength of the Almighty !'
" But I know him not, who he is."
Him answered the king, " God forbid that my daughter
" Should bring shame from behind the curtain on her race.
" If I give my daughter to a fellow like this.
" My head will lie down in dishonour.
" Go take her, and him too whom she hath chosen,

"And their heads shall be smitten off in the palace."
The vizier replied, "This is no such direful matter;
"Many a noble hath done thus before thee.
"Thou badest thy daughter choose a husband,
"Thou said'st not that she was to choose none but a king.
"She sought for one who might please her heart;
"Turn not then thy face from the path of God.
"Such hath been the custom of thy ancestors,
"Those proud and righteous pure ones;
"By this law hath Rúm been established on its base;
"Wander not thou in a desert land.*
"Thy words are unblessed, utter them not,
"And stray not in a path untrodden by thee before."
When the Kaisar heard his words, he made his resolve
To give his peerless daughter to Gushtásp,
But he said to her, "Go with him such as thou art,
"Never shalt thou have treasure or crown or signet from me."
When Gushtâsp beheld this, he marvelled greatly,
And he called to witness the Maker of the world.
Then he turned and spake to the royal maiden,
"Oh thou brought up in softness and delicacy,
With a rank so lofty and a crown thine own,
Why hath thine heart chosen such as me?
Thou hast chosen an outcast, and with him no treasure
Shalt thou find, but thou must pine with him in sorrow.
Oh seek thine equal among these nobles,
That thy face may yet be bright before thy father."
Kitáyún made answer, "Oh jealous one,
"Vex not thyself with the decrees of heaven;
"Since I am content with thee as my husband,
"Why seek'st thou crown, or sceptre or throne?"
Then sadly walked out of the Kaisar's hall
Kitáyún and Gushtásp with many a sigh,
And they came to the house of the Dihkán,
And sat them down shrinking and sad.

* Literally "in the land of the owl."

We need hardly stay to dwell at length on the many points of coincidence between the legend of Chares and this of Firdausi. Gushtásp, Zarír, the dream, the Swayamvara and its denouement are at once prominent in both, and point unmistakeably to a common source. The very differences are not without a meaning; the Persian recension has naturally linked the tale to its national hero, Gushtásp, in preference to the less famed brother, Zarír; and instead of the Tanais and the Marathi, we have the more familiar Rúm of Firdausi's own time. But the peculiar features of the ancient story remain unchanged amidst the fluctuations of time and place; it is still the old legend which was "known among all the dwellers of Asia" and "sculptured on their temples and palaces." Chares of Mytilene hands it to the grammarian of Alexandria, who preserves it through the dark ages in the west; while in its own land it lives in the memories of the people, *(volitat vivu' per ora virûm,)* through all the changes of Arsacidæ, Sasanidæ and Mohammedans, until Firdausi arises under Mahmúd of Ghazni, and stereotypes it from the lips of the Dihkáns of his day.

Tradition Rejuvenated: An Ancient Indian Custom Epitomising Women Empowerment and its Parallels in Ancient World Literature

Tapati Mukherjee

In a jet-set globalised world where change is the only constant, where human civilization appears to have reached its zenith due to spectacular success in science and technology, it is expected that this material progress will be reflected in human behavioral pattern too. At least it will be in the fitness of things that we treat our fellow citizens with sympathy and dignity. Unfortunately the present scenario all over the world is not that bright or encouraging. Barring a few exceptions, through out the annals of history, we find that women who had played an equally glorious role as their male counterpart in the development of civilization had been denigrated to the position of second class citizen with their liberty curtailed and dignity thwarted. Even in 21st century, dowry death, honour killing which denies the right of a maiden to select her husband according to her choice is a regular phenomenon in some parts of India.

But there are illuminating exceptions also which highlight women empowerment in India in hoary past. We come across in our epics and classical literature the system of *Swayamvara* which upholds a maiden's right to select her husband in the midst of a royal court or an assembly without any consent of their guardian.

This ancient custom, practised in India had been highlighted by E. B. Cowell in his illuminating article "On the *Swayamvara* of the Ancient Hindus, and its traces in the ancient world", published in *The Journal of The Asiatic Society* (vol 28, 1859, p. 31-40). Considered as one of the noted indologists of his time, Cowell was the first professor of Sanskrit at Cambridge University. Apart from translation of Persian poetry, he edited ancient Indian treasures like the *Rigveda Samhita* jointly with H. H. Wilson and translated Buddhist Jataka tales. In his

article on *Swayamvara*, Cowell had highlighted how the ancient Indian custom of *Swayamvara*, empowering a woman to select her husband has its parallel in other ancient literatures too. Contradicting Arrian's Indica, where Arrian describes a girl of marriageable age given away as a prize by her father to the winning champion of a wrestling or boxing competition, Cowell emphasized that the term *Swayamvara* itself denotes the idea of selection by one (*swayam*) and therefore the girl can not be considered as a passive spectator. On the contrary, she upholds the right of her own choice to select her partner. He quoted the ancient law giver Manu in support of his assertion. Cowell cites also from the *Mahabharata* and a gem of classical Indian literature *Naisadhacarita* to show that in ancient India, a girl was empowered enough to select her groom as per own choice.

In this context, Cowell referred to ancient Greek literature to show similar instance. Herodotus described how in an assembly of princes and nobles, a young Athenian had stolen the show with the consent of the bride.

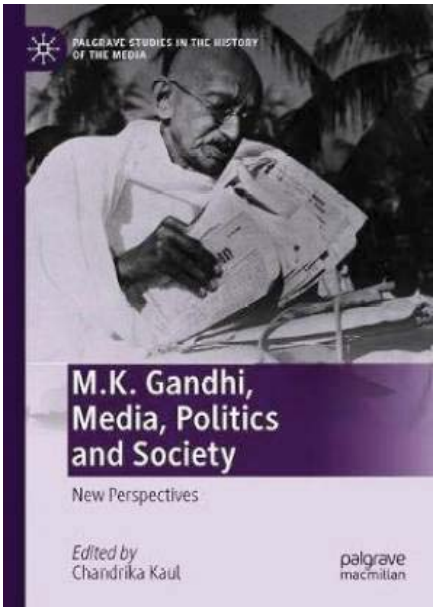
In another instance i.e. Justin's narrative related to the establishment of Marseilles, a young man reached the court of Nannus, a tribal king and after overcoming a series of obstacles succeeded to marry the princess. The young man finally established the city of Marseilles. This is an instance of marriage between a tribal maiden and a person of higher lineage.

Another love story as recorded in the tenth book of the history of Alexander where also the empowerment of women has been emphasized, narrates how a tribal princess mastered the courage to select her partner against stiffest opposition from her father and finally the lover duo managed to get away from the clutches of the guardian. The story resembles Rukmini *harana* (stealing of Rukmini) where Rukmini ran away with Krishna, her chosen partner, defying the wrath of her relatives, as described in our epic.

Coming back to Asian literature, we find that Firdausi in his *Shahnama* had described another similar tale, prevalent in Persia, where Kitayun, a royal maiden was bold enough to select Gushtasp, deserted son of king of Persia and simply could shun the temptation of glamorous royal life for the sake of love.

In conclusion, Cowell asserted that all these stories, drawn from world literature point to a common source and this story of women empowerment stands ingrained in the psyche of both Orient and Occident, defying geo-spatial barrier.

Chandrika Kaul (ed.), *M. K. Gandhi, Media, Politics and Society*, Cham, Switzerland: Palgrave Macmillan, 2020, Rs. 3295.



The book is the part of a series published as Palgrave Studies in the History of the Media, and it deserves our special attention for more than one reason. By all standards, it is an exceptional attempt in Gandhian studies to bring media at the centre of deliberations, the idea of which originated in an international conference organized at the University of St. Andrews in October 2019 to commemorate Gandhi's 150th birth anniversary. One outstanding aspect of Gandhi's persona and praxis was his "faith in, and engagement with, the press and publicity", so much so that he once referred himself as a 'newspaperman', and edited four periodicals during his lifetime. Two of them, *Indian Opinion* (1903) in South Africa and *Harijan* (1933) in India, were actually established by him, and his contributions were published in other newspapers also. He wrote fluently in English, Gujarati and Hindi. However, his attitude towards media was mixed: he used it in very many ways and was aware of its increasing positive influence over people, but at the same time was often "prone to bouts of anger and disappointment at what he considered lies and distortions in the media", particularly in the turbulent time of communal discord in 1946-47. This edited book brings Gandhi's checkered relations with media to the centre-stage of analysis, thereby exploring Gandhi both in national and international contexts. The work thus virtually draws inspiration from several disciplinary fields such as history, politics, literary and religious studies, media and popular culture.

The volume includes significant contributions of nine researchers, besides a brief introduction from the editor. The contributors are

Amelia Bonea, Sanjiv Kakar, Timothy S. Dobe, Sarvani Gooptu, Chandrika Kaul, Gopa Sabharwal, Anjana Sharma and Mei Li Badecker. The contributors come from different disciplines, presumably belonging to several generations, focusing on a variety of themes. Their discussion creatively reflects on Gandhian thought and its multiple constructions over time and space.

Amelia Bonea's essay re-examines Gandhi's prolific record as a political communicator from the point of view of technologies of communication during his South African years. Bonea makes a major departure when she tries to modify the techno-skeptic image of Gandhi later developed through an inarticulate reading of his *Hind Swaraj* (1909). Her argument seems to be that Gandhi's 'general' opposition to technology did not nullify his use and preference of electric telegraph in the mediation of politics during his South African days and after. She connects this technological preference with Hofmeyr's recent exploration of Gandhian text-making and theory of reading, specially his 'slow reading'. Gandhi was able "to exploit the malleability of different media and textual forms – periodicals, newspapers, mails, exchanges, summaries, news reports, (the lack of) advertisements – all strategically employed to mount a critique of modernity in word as well as in deed." In this context, Bonea made a step further, by focusing on Gandhi's "*practice* of modern technology, as opposed to his *theory* of it." A suitable example of the analysis is what has been called *Green Pamphlet* (1896) which came as part of Gandhi's 'Appeal to the Indian Public'. The 30-page octavo-sized pamphlet was printed in 10,000 copies and sent to news papers and leaders of political parties throughout India. A summary of it, in three sentences, was cabled from London to Natal by Reuters, which "was couched in the language of racial emotions", declaring "that the Indians in Natal are robbed and assaulted and treated like beasts and are unable to obtain redress". As a result, Gandhi was attacked in the city of Durban in Natal, and even his life was endangered. Gandhi knew that it was "a miniature, but exaggerated, edition of the picture" he himself had drawn. Thus he urged to "exercise caution, to train our critical eye and thinking skills" while using a modern technology such as telegraph. But he never denied its usefulness in political

activities. On the other hand, he made extensive use of it, and at a time of his life even spent one-sixth of his income for telegraphic dispatches. It seems that telegraphic communications once became a weapon of protest for Gandhi.

Sanjiv Kakar's short article on 'Gandhi's Evolving Discourse on Leprosy' should be read as the story of his engagement with media for social and medical reform. Gandhi was a frequent writer as a 'Health Correspondent' in journals such as *Indian Opinion, Young India* and *Harijan*, which was itself a development unique in his time, for, generally speaking, media health field and health correspondents did not exist before the 1950s, as argued by later researchers like Virginia Berridge on the subject. Gandhi's thought on leprosy did reflect several transformations also. Two obvious phases can be identified, one before 1934 and another after the year. In the first phase, his thought was mainly influenced by the mixed deliberations of the missionaries on the subject. In the second phase, he came into contact with modern medicine for leprosy in much more secular form as advocated by the Indian Auxiliary of the British Empire Leprosy Relief Association (BELRA) and by several medical persons, prominent amongst them was Dr Cochrane. The discussion challenges many well-established notions on Gandhi, especially the view that throughout his life he retained an antipathy towards modern medicine. Secondly, Gandhi was increasingly becoming the lone voice for sexual and reproductive rights of the leprosy affected patients, much against the prevailing national and international view on them. Another related development was his enduring support to Parsure Shastri, freedom fighter and leprosy patient, whom he invited in Sevagram in 1940, to officiate in an ashram wedding. It was "for the very first time in the colonial history of India a leprosy patient was represented in the media without reference to deformity or disability, neither a sinner, nor mendicant nor outcaste." Finally, by 1947, on matters concerning leprosy, Gandhi "stood with the opinions of Dr. Cochrane rather than a naturopath."

Timothy S. Dobe searches for 'The Global Gandhi of the Muslim Vernacular Press', and for this he examines the writings of Khwaja Hasan Nizami (1873-1955), Urdu journalist and Sufi leader, particularly

the latter's popular work entitled *Gandhinama*, written in the 1910s and 1920s. These writings are self-published, and self-illustrated. Nizami's international Sufi thought was also reflected on his discourses on Gandhi. Nationalist leaders like Abul Kalam Azad was a follower of Nizami in very many respects. In Nizami's *Gandhinama,* Gandhi is "imagined as a figure of historic and global significance". The article makes an argument that Nizami's long-overlooked cosmopolitan vision created an important alternative to the nationalist version of an emergent 'Mahatma'. It is also argued that Nizami's experimental press made it possible for his Muslim and non-Muslim readers to familiarize Islam-based frames for Gandhian non-violence, thus challenging us to rethink religion, print and the nation.

Two articles specifically address delicate issues related to Gandhi's engagement with media, Bengali vernacular press on the one hand and All India Radio on the other. Sarvani Gooptu tracks the record of a long list of contemporary Bengali newspapers and periodicals such as *Ananda Bazar Patrika, Bharati, Bharatbarsha, Bichitra, Narayan,* and *Prabasi* to trace the prolonged debate that they had been carrying on Gandhi and his thoughts and activities over a long period, from 1916 to 1940. Many prominent Bengali intellectuals of the time, including women like Sarala Devi Chaudharani, participated in those discourses. Sarvani Gooptu thinks that it was a complicated relationship, as the 'dialogues' that the Bengali intellectuals had with the Mahatma alternated between the undeniable attractions towards the man and his movement, having a common experience of the stirred time, and the conflicting opinions of those whom the intellectuals revered as their leaders. On the whole, constructive nationalism through the lens of Gandhi's personality and work by way of *Khadi* and *Charka* had an abiding influence in Gandhi's evaluation in Bengal. Chandrika Kaul analyses the often neglected aspects of Gandhi's views on radio and his interaction with the key broadcasters as well as with the media *per se* in India and abroad. One notable feature of Kaul's paper is that she has discussed the two live broadcasts of Gandhi – the first from London with BBC during 1931 and the second with All India Radio in 1947, after Indian independence – with reference to the full texts of the broadcasts. The author raised

two seminal questions: Did Gandhi miss an opportunity by not engaging with radio as a social reformer in the fields of rural construction, primary education, and removal of untouchability? How far his response to radio finally be explained by his supposedly techno-skeptic mind-set? Chandrika's answers to both are worth pursuing for further research. Gandhi's understanding of the control of the British rule was such as to deny a real freedom of space in radio communication. He was personally friendly to such broadcasters as Fielden whom he was claimed to have said: *But should I help a machine* (i.e. radio) *which will be used against me*? As regards the second question, the author has reminded us that Gandhi appeared to follow radio developments in India and, despite coming to broadcasting later in life, admired the global reach of wireless technology. In short, Gandhi's experiments in this field ultimately reveal the necessity to acknowledge that the influence of broadcasting technology is linked to its historic specificity.

Gopa Sabharwal has articulately discussed the reports published in the newspaper *Dawn* which was founded by Jinnah and was printed in New Delhi in 1947. It was generally taken as the official Muslim voice of the time. It is highly interesting to note, as the author has done, how Gandhi was being represented in the newspaper in 1947, in the midst of the climax of Gandhi-Jinnah discord. Gopa has argued, it is important to note both, what has been written in the newspaper and what has not been there. For example, Jinnah has always been referred to with the honorific title of *Qaed-e-Azam* while Gandhi was merely mentioned with a common Mr., and rarely with the title of Mahatma which was often done with a sense of sarcasm. The *Dawn* has published elaborate reports of Gandhi's activities amongst the riot victims of Hindu and Muslim communities, but in the last analysis he was depicted as person without ethics, one-sided and merely diplomatic. It is thus apparent how unequal competition between Gandhi and Jinnah in popular leadership in India haunted the *Dawn* as late as 1947.

Anjana Sharma's contribution is also related with the same year, as the title of her essay is self-revealing: "Gandhi in August 1947: Self-fashioning, Print Culture and the Republic of Letters". Anjana has studied the reports of two newspapers, *The Hindusthan Times* of New Delhi and *The Statesman* of Calcutta. As Debdas Gandhi was the

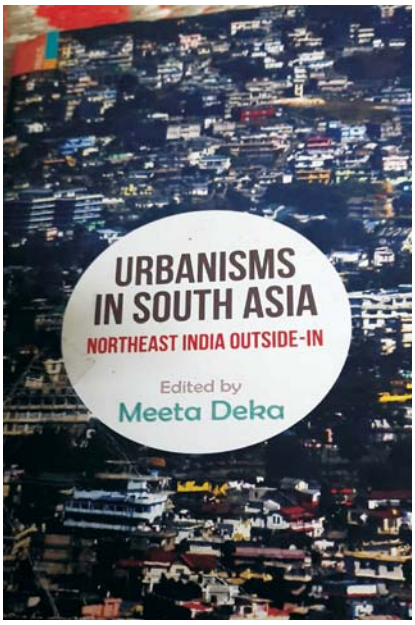
Editor of the former newspaper, it represents an all-India character of Gandhi. By contrast, *The Statesman* was under British ownership at that time, and consequently a mixed character of Gandhi was constructed in its reports and analysis. The author hints the long term impact of these two constructions which may not be out of purview of Gandhian studies even after 150 years from his birth.

The title of the last article begins with a question: "A Modern Mahatma? Use and Misuse of Gandhi in Popular Culture" written by a young scholar called Mei Li Badecker. She has studied the multiple constructions of Gandhi in popular culture throughout the world in the twenty-first century. She has included in her search presentations in television, street paintings, and even mediums such as NBC and Netflix. As a result, her article covers construction of Gandhi in popular lens in a number of cities such as Delhi, Mumbai, New York and Pittsberg. For Badecker, all these constructions of Gandhi in popular culture are significant for the new generation, for the understanding and personification of his character in various ways and various forms. At the same time, the author reminds us in no uncertain terms, there should not be any major deviation in the reflections on Gandhian ideals, philosophy and activities while making these popular constructions.

In conclusion, we should bear in mind that there are multiple aspects Gandhi and his relations with media. Here we have both Gandhi in media, and Gandhi's media at the same time. The book suggests many new facts and interpretations in the analysis of Gandhi's character in history. It is also suggested that in the theoretical construction of Gandhian ideals, there is a definite space for Gandhian praxis and its reflection in media. For example, how all such themes as 'technology', 'medicine' and 'environment' have impacted on Gandhian 'theory', and then how his 'activities' have influenced, transformed and extended them may be a subject matter of further fruitful discussion surrounding Gandhi. It could be better if the 'Brief Introductory Remarks' of the Editor might cover some of them, in a distinct analytical framework, a little bit elaborately.

Arun Bandopadhyay

Meeta Deka (ed.), *Urbanisms in South Asia: North-East India Outside In*, New Delhi : Primus Book, 2020, Rs. 1195.



North-east India in colloquial terms implies the six states in the northeastern part of the country, namely Assam, Arunachal Pradesh, Manipur, Mizoram, Tripura and Nagaland, along with Sikkim, though it is not geographically contiguous. This part of the country has assumed special importance for many reasons and the main among them is the relative isolation in the post-independence period, especially post-partition. The area became almost landlocked, the only land route was through the 'chicken's neck' (north Bengal through Siliguri), because of the creation of East Pakistan (Bangladesh after 1971). The connectivity through the rivers, roads and railways vanished overnight and the region had to face economic problems including the flow of refugees from East Pakistan. Before independence, Assam was the biggest state surrounded by two small Princely states of Tripura and Manipur and the North East Frontier Agency (NEFA) bordering Tibet and China. Assam was divided time and again to accommodate the demand for various ethnic groups (Mizoram for Mizos, Nagaland for Nagas and so on). By the early seventies, all of them were granted statehood and special packages were offered to them. Even then, there was continued unrest in Assam in the early eighties till the Assam

Accord in 1988. Till now, news of sporadic unrest and conflict come to media attention. With this perspective, any academic exercise on this part of the country would be a step towards mainstreaming it. This has become more important in the context of change in policy paradigm- especially the transformation from 'Look East' to 'Act East Policy' of the present government at the Centre. Geopolitically, this region is the gateway to the 'East' and proper nurturing of the advantages (especially connectivity) would bring in a new paradigm of growth and development in the region.

With this perspective, this book edited by Meeta Deka is an important contribution to the study of the historical narratives related to urban of the north-east. However, as the title of the book suggests there is an outside of the north-east – it tries put it against the perspective of 'urbanisms in south Asia, though it confines itself to the subcontinent of India in the colonial and the immediate post-colonial period. There are nineteen articles in all, apart from an introduction by the editor and the concluding statement by none other than Narayani Gupta. Of these, only eleven articles are about north-east and other eight about other aspects related to the main theme of the book. The editor has divided the articles into five subthemes, namely 'ecology and urbanization', 'trade and towns', 'urban demography', 'urban morphologies' and 'urban culture'. It should be said at the outset, such a division even with substantial stretching does not do justice to the articles within it. So, without following that, let me take up the articles on north-east first. A C Sinha gave rethinking about the urban history of the hill states in the north-east, which can be called a summary of his own edited book on the same topic. This is followed by an article by Rajib Handique describing the impact of the earthquake of Assam on the urbanization

process. Mitali Kalita has written a very competent article on the emergence and sustenance of the swadeshi enterprises in Assam. This was a result of the movement that started at the declaration of partition of Bengal in 1905 by Lord Curzon and subsequent boycott of British goods. The entrepreneurs, their training and the variety of products is interesting and calls for further research. Two Barnalis, Sarma and Kakati take up the issue of demographic aspects of colonial Assam, Barnali Sarma focusing on the urban part. The growing diaspora and the advent of plantation and oil industries, migration of educated white-collars along with manual unskilled labours have been well depicted. Begum Sadekayasin concentrated on the migration to the towns of erstwhile Goalpara district in two decades after independence. Surojit Sen Gupta looks into the urban social structure of Shillong and Moushumi Dutta Pathak looks into the refugee colonies of Guwahati. Both of them describe the demographic changes in the post-independence period. Dhanmoni Kalita describes the depeasantization of Assam and concludes this as an evil consequence of urbanization, which is too simplistic without considering the broader perspective of transformation of agricultural sector. The final article in this group is about the shrine of Kamakhya, its historic relevance and conservation of heritage.

The book starts with an excellent article by Rila Mukherjee relating water with cities. She takes up the cities of arid zone and the European and Asian template separately. It would have been great if a subsection was devoted to the cities of the north-east as the majority of the urban areas are related to the great Brahmaputra and its tributaries. Two articles are related to colonial trade and its relation to urbanization – the first on wool by M. N. Rajesh. It mentions the development of Leh as a wool mart but also takes up Darjeeling in the east as the

product of the same process. The second is about opium trade and its impact on the Bombay port in the first part of 19th century. Two articles are on Delhi, one depicting the core-periphery relationship of the metropolis and the second one about the cultural dynamics of the slum dwellers. Pintu Roy writes about the effect of urbanization on the agrarian structure of Bengal in the colonial period. Finally, there are two brilliant articles – one on the political culture of French Pondicherry in the late seventeenth century by Sandeep Kumar Verma and the second one by Urvi Mukhopadhyay, taking up the memoir of Satyendranath Tagore for a comparative study of Calcutta and Bombay. However, none of these articles form the out of the north-east. The editor should have been more careful in selection of articles, however well-written they are.

Lastlty, the reviewer is not a historian and not very sure about the latest methodology of writing history. But she has to say that insertion of long quotations in most of the articles impedes readability.

Mahalaya Chatterjee

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Books :
Rhys Davids, *Buddhist India,* London, 1933, 7.

Articles in Books :
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10. Book Reviews must contain name of the author/editor and the book reviewed, place of publication and publisher, year of publication, number of pages and price.

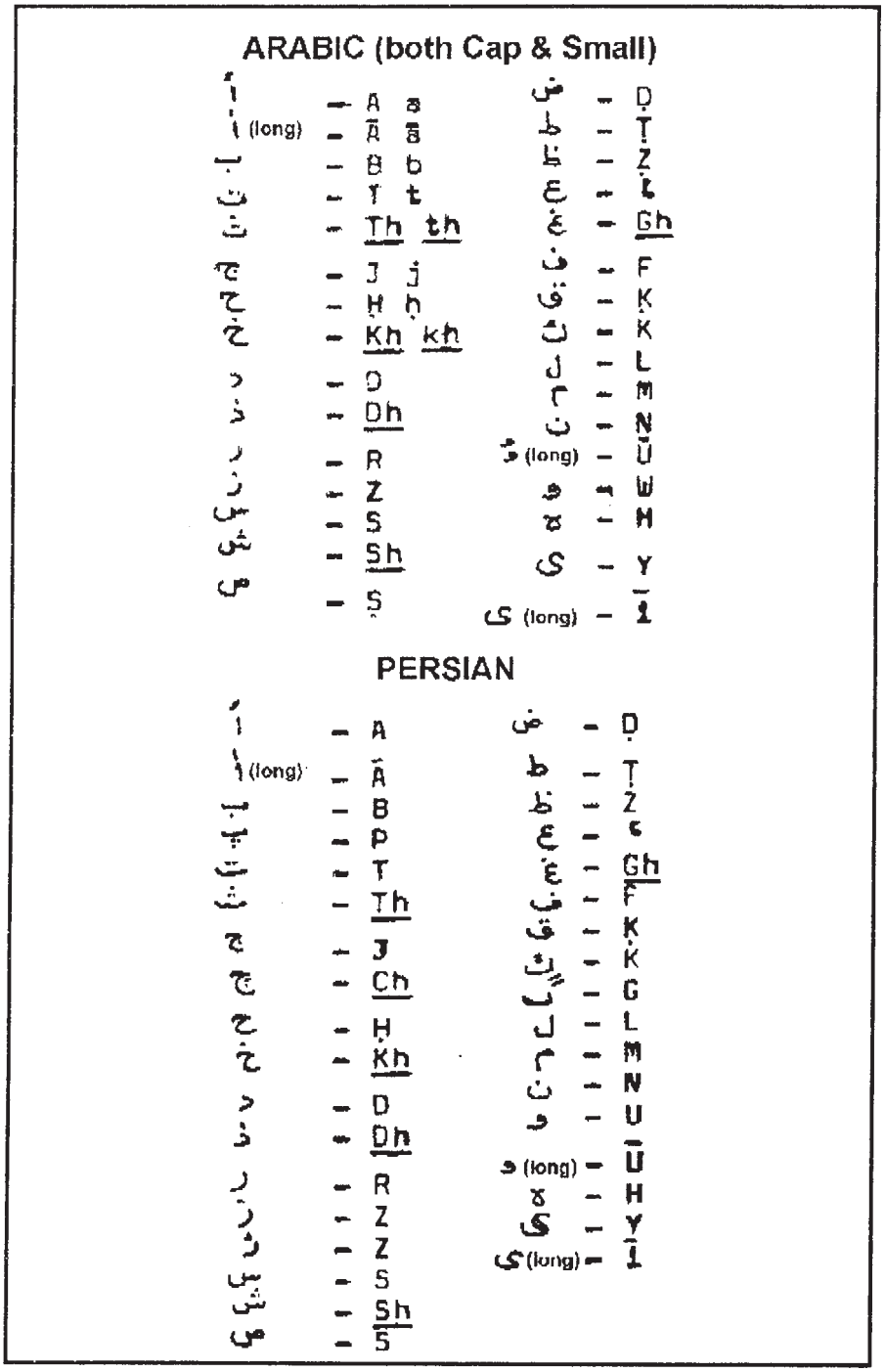
SYSTEM OF TRANSLITERATION

SANSKRIT

आ = ā	ई = ī
ऊ = ū	ऋ = ṛ
ङ = ṅa	च = ca
छ = cha	ञ = ña
ट = ṭa	ठ = ṭha
ड = ḍa	ढ = ḍha
ण = ṇa	श = śa
ष = ṣa	ं = ṁ

TIBETAN

ཀ = ka	ཁ = kha	ག = ga	ང = ṅa/nga
ཅ = ca	ཆ = cha	ཇ = ja	ཉ = ña/nya
ཏ = ta	ཐ = tha	ད = da	ན = na
པ = pa	ཕ = pha	བ = ba	མ = ma
ཙ = tsa	ཚ = tsha	ཛ = dza	ཝ = wa
ཞ = zha	ཟ = za	འ = 'a	ཡ = ya
ར = ra	ལ = la	ཤ = śa/sha	ས = sa
ཧ = ha	ཨ = a		


ARABIC (both Cap & Small)
ا (long) – A a
– Ā ā
– B b
– T t
– Th th
– J j
– H h
– Kh kh
– D
– Dh
– R
– Z
– S
– Sh
– S
– D
– T
– Z
– Gh
– F
– K
– K
– L
– M
– N
و (long) – Ū
– W
– H
ی – Y
ی (long) – Ī
PERSIAN
– A
ا (long) – Ā
– B
– P
– T
– Th
– J
– Ch
– H
– Kh
– D
– Dh
– R
– Z
– Z
– S
– Sh
– S
– D
– T
– Z
– Gh
– F
– K
– K
– G
– L
– M
– N
– U
و (long) – Ū
– H
ی – Y
ی (long) – Ī

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Sir William Jones
on the publication of the Asiatic Society

ISSN : 0368-3308