

The Language of Animals and the Signs of Calamity: Environmental Observation and Disaster Prediction in Varāhamihira's *Brhatsamhitā*

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Abstract

In the ancient Indian intellectual tradition, nature was regarded not merely as the backdrop against which human life unfolded, but as a companion to human existence, a source of warning, and a significant repository of signs pointing towards impending events. A particularly noteworthy testimony to this perspective is found in the *Brhatsamhitā* of the sage Varāhamihira. In its chapters dealing with *śākuna*, or omens, the natural and anomalous behaviour of birds, dogs, jackals, cattle, horses, elephants, crows, ants, as well as terrestrial and aquatic animals—their movements, calls, choice of habitat, feeding patterns, and seasonal behaviour—is correlated with possible future events and environmental changes. Animal behaviour is especially treated as an object of observation in the identification of signs preceding such calamities as excessive rainfall, drought, fire, famine, epidemics, violent winds, and the destruction of settlements.

Drawing upon Chapters Eighty-Eight to Ninety-Five of the *Brhatsamhitā*, the present study analyses this knowledge-system centred on animal behaviour and its underlying epistemological framework. The discussion demonstrates that, in Varāhamihira's mode of inquiry, animals are not conceived as isolated entities detached from the natural world; rather, they are understood as living indicators intimately responsive to subtle changes within their environment. Particular instances—including the behaviour of dogs during the rainy season, the infestation of cattle by flies, the nest-building patterns of crows, aberrations in the behaviour of terrestrial and aquatic animals, and the relocation of eggs by ants—reveal a discernible tendency towards systematic environmental observation. Yet, this corpus of *lakṣaṇa*-based knowledge cannot be equated with modern scientific meteorology or contemporary technologies of environmental prediction. It is from this perspective that the present article seeks to re-examine and critically reassess the *śākuna* tradition of the

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Bṛhatsaṃhitā as an important component of ancient Indian ecological and environmental thought.

Keywords: *Bṛhatsaṃhitā*, Varāhamihira, *śākuna* tradition, animal behaviour, natural disasters, environmental observation.

Introduction

A significant characteristic of the Indian knowledge tradition is its perception of the relationship between human beings and nature not in terms of separation, but through an awareness of their profound interrelationship. The changing seasons, the movement of clouds, the character of winds, the blossoming of trees, the behaviour of animals and birds, and changes in rivers and water bodies—all visible manifestations of nature formed part of the observational consciousness of ancient India. Such observation found expression variously in response to the needs of agrarian life, within the sphere of medical science, in astrology and traditional knowledge of seasonal cycles, and, at times, within the framework of *śākuna* or Omenology.

One such important testimony of this multidimensional corpus of knowledge is the *Bṛhatsaṃhitā* of Varāhamihira. The book is not only about astrology, but also about the weather, rain, winds, earthquakes, agriculture, plants, architecture, water resources, animals and other social issues. In modern scholarship too, the *Bṛhat Saṃhitā* has been acknowledged as an encyclopaedic work. Chapters Eighty-Eight to Ninety-Five, which are many on animal and avian behaviour, are especially significant in this context, and are referred to as the *Virutādhyāya*, *Śvacakrādhyāya*, *Śivārutādhyāya*, *Mṛgaceṣṭitādhyāya*, *Gaveṅgitādhyāya*, *Aśveṅgitādhyāya*, *Hasticeṣṭitādhyāya*, and *Vāyasavirutādhyāya*.

The modern relevance of such a discussion is that animals are not just seen as carriers of auspicious or inauspicious signs, but their movements are associated with seasons and rainfall, fire, famine, disease, winds, and potential disturbances to human life. As such, it is possible to recognize hints of an ancient culture of environmental observation behind these literary-astrological descriptions.

Animals live in environments particularly close to nature. Consequently, they may sometimes respond earlier than human beings to subtle changes in nature, imperceptible environmental signals, and indications of impending natural calamities. In certain instances, abnormal behaviour, restlessness, or a tendency to change their location may be observed even before a disaster occurs. The ancient Indian scholars, too, subjected this subtle responsiveness of animals and birds, and their behavioral changes, to careful observation.

Knowledge, however, possesses an essentially enduring character. Even when a particular knowledge tradition declines in one region, its underlying insight may be rediscovered elsewhere through new observations, methods, or scientific interpretations. A somewhat similar development may be observed in the use of animal behaviour as a means of anticipating natural disasters. Forms of observation discussed long ago within the ancient Indian knowledge tradition did not, for a considerable period, become the subject of systematic scientific investigation within modern science.

Towards the close of the twentieth century, however, experiences in China drew scientific attention to this subject. In 1975, in the Haicheng region of China, unusual behaviour among various animals, particularly reptiles and other living organisms, was

observed and an advance warning concerning the possibility of an earthquake was issued. Many local inhabitants were evacuated from vulnerable areas. Shortly afterwards, a powerful earthquake of approximately magnitude 7.3 occurred there. Since the event was believed to have saved a large number of lives, it subsequently assumed considerable importance in scientific discussions of animal behaviour and possible earthquake precursors.¹ is relevant to this field of inquiry. The Haicheng episode opened the way for renewed consideration of anomalous animal behaviour as a possible precursor of natural disasters. Thereafter, researchers in different countries began investigating relationships among animal behaviour, seismic activity, meteorological changes, and other natural calamities. Scientists sought to determine whether behavioural abnormalities observed before earthquakes, tsunamis, storms, excessive rainfall, and other disasters were merely coincidental or resulted from animals' sensitivity to subtle environmental changes.

This topic has now evolved into a fascinating interdisciplinary one, which combines geology, zoology, environmental science, seismology and behavioural studies. Studies are ongoing to see if the animals can detect changes that are outside the normal sensory capabilities of a human, including weak vibrations, changes in the air, gases under the earth, and shifts in electric and electromagnetic energies. It is therefore not proper to dismiss the observations, forecasts and predictions of animal behaviour, referred to in ancient Indian scriptures, as mere superstitious or supernatural phenomena, nor to compare them with what is now known as scientific prediction. To see them rather as expressions of the knowledge gained by long observation of nature and environmental awareness and experience of the behavior of living beings is more reasonable. Read from this angle again, the reports of animal and bird behaviour in the *Bṛhat Saṃhitā* can perhaps provide some insight into the ancient Indian concept of observing their surroundings and foretelling disaster.

Animal Behaviour as an Omen of Calamity and Natural Disaster in the Śākuna Tradition

One of the most significant features of the *śākuna* tradition represented in the *Bṛhatsaṃhitā* is its treatment not only of the normal behaviour of animals but also of deviations from their ordinary patterns as meaningful signs. In the Eighty-Eighth Chapter, the nocturnal movement of diurnal creatures and the daytime movement of nocturnal creatures are identified as forms of behavioural abnormality. In other words, animal behaviour is evaluated in relation to its customary temporal rhythm. This perspective is particularly significant because the 'sign' does not reside merely in the presence of an animal; rather, it is located in the animal's deviation from its normal behavioural pattern. The chapter states that when diurnal creatures move about at night and nocturnal creatures during the day, such behaviour is regarded as an ominous indication for the country or its ruler.

“श्यामाश्वेनशशघ्नवज्जुलशिखिश्रीकर्णचक्राह्वयाश्चाषाण्डीरकखञ्जरीटकशुकध्वाङ्क्षाः

कपोतास्त्रयः ।

भारद्वाजकुलालकुक्कुटखरा हारीतगृध्रौ कपिः फेण्टः कुक्कुटपूर्णकूटचटकाः प्रोक्ता दिवासञ्चराः ॥

लोमाशिका पिङ्गलच्छिपिकाख्यौ वल्गुल्युलूकौ शशकश्च रात्रौ ।

सर्वे स्वकालोत्क्रमचारिणः स्युर्देशस्य नाशाय नृपान्तदा वा ॥

हयनरभुजगोष्ट्रद्वीपिसिंहर्क्षगोधातीलवृकनकुलकुरङ्गश्चाजगोव्याघ्रहंसाः ।

पृषतमृगशृगालश्चाविदाख्यान्यपुष्टा द्युनिशमपि बिडालः सारसः सूकरश्च” ॥²

Thus, *śyāmā*, *śyena*, *śasaghna*, *vañjula*, *śikhī*, *śrīkarṇa*, *cakrāhvaya*, *cāṣa*, *aṇḍīraka*, *khañjarīṭaka*, *śuka*, *dhvāṅkṣa*, and three varieties of *kapota* are enumerated among the diurnal birds. The passage further includes *bhāradvāja*, *kulālakukkuṭa*, *khara*, *hārīta*, *grdhra*, *kapi*, *phenṭa*, *kukkuṭa*, *pūrṇakūṭa*, and *caṭaka* among creatures regarded as active during the daytime.

The *lomaśikā*, *piṅgala*, two creatures designated *chippikā*, *valgulī*, *ulūka*, and *śaśaka* are described as nocturnal. If these creatures move about at times contrary to their customary periods of activity, such behaviour is interpreted as an indication of the destruction of the country or the downfall of its ruler.

The text then identifies the horse (*haya*), human being (*nara*), serpent (*bhujaga*), camel (*goṣṭra*), leopard or panther (*dvīpin*), lion (*simha*), bear (*rkṣa*), *godhā*, wolf (*vṛka*), mongoose (*nakula*), deer (*kuraṅga*), goat (*aja*), cow (*go*), tiger (*vyāghra*), swan (*haṁsa*), spotted antelope (*prṣata*), deer (*mṛga*), jackal (*śrgāla*), and porcupine (*śvāvid*) among those whose activity may extend across both day and night. The cat (*biḍāla*), crane (*sārasa*), and boar (*sūkāra*) are likewise included among creatures capable of moving about during both periods.

Accordingly, in each region, the names of the various animals should be ascertained from persons well versed in the local signs and characteristics. For a proper understanding of the significance of their calls and vocalisations, these regional names should then be duly correlated with, and applied in accordance with, the prescriptions laid down in the *śāstra*. The chapter concludes with an important methodological instruction:

“एवं देशे देशे तद्विद्भ्यः समुपलभ्य नामानि ।

शकुनरुतज्ञानार्थं शास्त्रे सञ्चित्य योज्यानि”³

The Behaviour of Birds

Varāhamihira, in his *Brhatsaṃhitā*, observes that the cries uttered by birds while facing the sun in the evening may be regarded as an ominous portent of the destruction of a country. Likewise, if such birds, while facing the sun, utter their cries towards the southern quarter, this is interpreted as an indication of impending calamity for a city or fortified settlement (*pura*), suggesting the possibility of its being seized or overrun by an enemy. In this connection, Varāhamihira states:

“दीप्तमृगाण्डजविरुता प्राक् संध्या देशनाशमाख्याति ।

दक्षिणदिक्स्थैर्विरुता ग्रहणाय पुरस्य दीप्तास्यैः”⁴

That is to say, the ominous or portentous cries of animals and birds during the early part of twilight are regarded as foretelling the destruction of a country. If birds situated in the southern quarter utter dreadful or inauspicious cries, this signifies the impending seizure or occupation of a city by hostile forces.

Varāhamihira further states that the cries of ominous birds, the terrifying calls of animals dwelling in forests, and the appearance of phenomena such as a *daṇḍa* (rod-like formation), dust, and encircling clouds, when accompanied by an abnormal appearance of the sun and recurring solar distortions, may constitute portents of the destruction of a country, its ruler, and prosperity or agricultural abundance:

“दीप्तविहङ्गशिवामृगघुष्टा दण्डरजः परिघादियुता च ।

प्रत्यहमर्कविकारयुता वा देशनरेशमुभिक्षबधाय”⁵

Here, diverse deviations in the natural environment and unusual behaviour among animals are brought into relation with larger forms of social calamity. From the standpoint of ancient Indian observational consciousness, therefore, the behaviour of birds and animals was not viewed merely as a collection of isolated zoological characteristics; rather, it could be interpreted as a possible manifestation of subtle changes taking place within the wider environment.

Varāhamihira also addresses the question of when the consequences of such animal and avian portents were expected to become manifest. According to him, an omen displayed by birds could produce its result on the very day on which it occurred, whereas an omen manifested by wild animals was believed to mature within approximately a week:

“तस्मिन्नेव दिनेऽष्टमेऽथ विहगाः सप्ताहपाका मृगाः” ॥⁶

Thus, the consequence of an avian portent might become manifest immediately, or within the same day; in contrast, the portent of a *mṛga*, that is, a wild or forest-dwelling animal, was believed to require a somewhat longer period—approximately seven days—to reach fruition. Even in this determination of the temporal interval between the occurrence of an omen and the manifestation of its consequence, one finds evidence of a systematic observational framework within the ancient Indian traditions of astrology and *śakunaśāstra*.

The *Bṛhatsaṃhitā* further indicates that the consequences associated with an aggregation of vultures (*gr̥dhra*) were expected to manifest within ten days. This suggests that, in establishing a relationship between animal behaviour and impending calamity, ancient Indian thought considered not only the nature of the observed sign but also the interval between the occurrence of the sign and the anticipated manifestation of its consequence.

Crow's Behaviour, Nest-Building, and Portents of Famine

Among birds, the *Bṛhatsaṃhitā* devotes particularly extensive attention to the behaviour of the crow. Even the seemingly ordinary act of where a crow chooses to construct its nest is interpreted by Varāhamihira as a possible indicator of either agricultural prosperity (*subhikṣa*) or famine (*asubhikṣa*).

“नीडे प्राक्शाखायां शरदि भवेत् प्रथमवृष्टिपरस्याम् ।

याम्योत्तरयोर्मध्यात् प्रधानवृष्टिस्तरुपरि” ॥⁷

According to this passage, if, during autumn, a crow constructs its nest upon the eastern branch of a tree, the first rains of the season are expected to occur early. If the nest is built upon the western branch, abundant rainfall is anticipated. Nesting upon the northern or southern branches indicates rainfall during the intervening period, while the construction of a nest upon the summit or uppermost portion of the tree is regarded as a sign of plentiful rain.

The relationship between the crow's choice of nesting site and the condition of the environment is further elaborated in a verse. If a crow builds a nest during the month of Vaiśākha on a tree which is intact, healthy and strong, this is considered to be auspicious and a sign of prosperity and plenty in that area. But if it constructs its nest on a thorny, dry, rough tree, that means that there will be famine and danger in the neighborhood.⁸

What is particularly noteworthy here is the manner in which the crow's nesting behaviour is correlated with the broader environmental condition. Another passage

extends this observation to a variety of locations in which crows may construct their nests:

“शरदर्भगुल्मवल्लीधान्यप्रासादगेहनिम्नेषु ।
शून्यो भवति स देशश्चौरानावृष्टिरोगार्त्तः” ॥⁹

According to the text, if a crow builds its nest among *śara* grasses, *darbha*, shrubs, creepers, grain-fields, temples or sacred structures, houses, or low-lying ground, the corresponding country is said to become depopulated and to suffer from thieves, deficient rainfall, and disease. The *Brhat Samhitā* also regards unusual aggregations of crows and their incessant, causeless cries as ominous signs. It states:

“अनिमित्तसंहतैर्गाममध्यगैः क्षुब्धं प्रविरुद्धिः ।
रोधश्चक्राकारैरभिघातो वर्गवर्गस्थैः” ॥¹⁰

Thus, if numerous crows, without any apparent cause, gather in the midst of a village or settlement and repeatedly utter loud cries, this is interpreted as an omen of hunger and famine. The *Brhatsamhitā* further combines the crow's place of habitation with the character of its call. A crow that takes shelter within the hollow of a tree and emits a dreadful or terrifying cry is considered a portent of great danger (*mahābhaya*).¹¹

Thus, the significance attributed to the crow does not rest merely upon the sound of its call. The location from which the call is uttered is itself treated as an essential component of the prediction. The text consequently presents a remarkably detailed system of observation in which the bird's habitat, nesting behaviour, direction, movement, congregation, and vocalisation are all considered together in the interpretation of environmental and social signs.

An Auspicious and Inauspicious Reading of Animal Behaviour

In the *Brhatsamhitā*, Varāhamihira provides a more elaborate classification of canine behaviour and its presumed consequences. Such vocal and postural deviations were interpreted within the traditional omenological framework as possible indications of forthcoming danger:

“सूर्योन्मुखः श्वानलदिक्स्थितश्च चौरानलत्रासकरोऽचिरेण ।
मध्याह्नकालेऽनलमृत्युशंसी संशोणितः स्यात् कलहोऽपराह्णे” ॥¹²

So if a dog howls when it is facing the sun, or when turning towards the south-east quarter (*agni*), the sign is that the dogs are a warning of impending thieves or fire. When a dog barks at midday towards the sun, the sign is said to foretell fire and death. Likewise, if, during the third watch of the afternoon, a dog howls while facing the sun, it is regarded as a sign of an impending violent conflict accompanied by bloodshed. Varāhamihira also mentions other canine activities:

“खंखैति चोच्चैश्च मुहुर्मुहुर् रुवन्ति दण्डैरिव ताड्यमानाः ।
श्वानोऽभिधावन्ति च मण्डलेन ते शून्यतां मृत्युभयञ्च कुर्युः” ॥¹³

If dogs repeatedly utter strange and unusually loud sounds, such as *khankha*, as though crying out after being struck with sticks, or if they run about collectively in a circular formation, such behaviour is regarded as an omen of the depopulation of a city or settlement and of impending danger from death. Another verse states:

“ग्रामस्य मध्ये यदि वा पुरस्य भवन्ति संहत्य मुहुर्मुहुर् ।
ते क्लेशमाख्यान्ति तदीश्वरस्य श्वारण्यसंस्थो मृगवद्विचिन्त्यः” ॥¹⁴

If dogs gather together in the centre of a village or city and repeatedly bark, their behaviour is interpreted as a portent of distress or misfortune for the ruler or lord of

that settlement. The text thus accords to the behaviour of domestic dogs a significance comparable, in its interpretive method, to the careful observation of animals dwelling in the wilderness. An unusual deviation in canine behaviour becomes, therefore, a meaningful sign within the traditional system of *śakuna* interpretation.

The Behaviour of Jackals

In the interpretation of the behaviour of jackals, there is considerable similarity with that of dogs¹⁵; nevertheless, the jackal is distinguished by a particular seasonal characteristic, namely the manifestation of a state described as *mada*, or a kind of agitation or frenzy, during the *śisīra* season. A jackal whose cry produces horripilation in human beings, whose piercing sound causes horses to discharge urine and faeces, and whose voice generates fear and terror in the human mind is never considered auspicious. Such a cry is understood as carrying an unequivocally ominous significance:

“या रोमाञ्चं मनुष्याणां शकृन्मूत्रं चण्डवाजिनाम् ।
रावात् त्रासं च जनयेत् सा शिवा न शिवप्रदा”॥¹⁶

The *śivā*—that is, the jackal—whose cry produces horripilation among human beings, causes violent horses to void their urine and faeces, and generates terror through its howling is declared to be not a giver of auspiciousness. Its cry is therefore interpreted as a distinctly ominous portent. The text, however, also recognizes a contrary form of behaviour. If a jackal, after responding to the calls of human beings, elephants, and horses, becomes silent, that silence itself is regarded as auspicious. Such a behavioural response is considered beneficial for an army or a city:

“मौनं गता प्रतिरुते नरद्विरदवाजिभिः ।
शिवा सा शिवं सैन्ये पुरे वा सम्प्रयच्छति”॥¹⁷

Here, the contrast is particularly significant. The same animal whose terrifying cry may be interpreted as an omen of danger becomes a bearer of auspiciousness when, after responding to the calls of humans, elephants, and horses, it falls silent. The transition from vocal agitation to silence is consequently interpreted as a favourable sign, suggestive of security, welfare, and success for an army or settlement.

Elephant Behaviour as an Omen of Impending Danger

Varāhamihira also gives considerable attention to the behaviour of elephants as a means of discerning indications of impending danger. He identifies a number of physical and behavioural abnormalities that are interpreted as ominous:

“स्खलितगतिरकस्मात् त्रस्तकर्णोऽतिदीनः श्वसिति मृदु सुदीर्घं न्यस्तहस्तः पृथिव्याम् ।
द्रुतमुकुलितदृष्टिः स्वप्नशीलो विलोमोभयकृदहितभक्षी नैकशोऽसृक्शकृत्कृत्”॥¹⁸

Thus, if an elephant suddenly develops an irregular or faltering gait; if its ears display signs of sudden fear and agitation; if its movements reveal profound dejection or weakness; if it places its trunk or limb upon the ground and repeatedly emits soft, prolonged sighs; if its eyes rapidly contract, become half-closed, or exhibit abnormal restlessness; if it remains excessively inclined towards sleep; or if it moves contrary to its normal direction—that is, proceeds in a direction opposite to that in which it has been directed—such behaviours are treated as significant deviations from its natural state.

Likewise, if the elephant consumes unsuitable or inedible substances and repeatedly defecates, these too are included among the ominous behavioural signs. Taken

collectively, these physical, physiological, and behavioural abnormalities are regarded as indications of some impending calamity or grave misfortune. The importance of this passage lies particularly in its detailed attention to changes in gait, posture, respiration, ocular condition, sleep, directional movement, feeding behaviour, and excretion. The elephant is not merely observed as an animal; its bodily and behavioural deviations are read as possible indicators of disturbances in the wider sphere of human affairs.

Modern zoological and behavioural studies have likewise devoted considerable attention to elephant behaviour. In particular, subtle changes in elephant behaviour preceding natural disasters, environmental disturbances, or unusual alterations in their surroundings have become subjects of scientific investigation. Consequently, the behavioural signs identified by Varāhamihira many centuries ago as possible indicators of impending danger provide an interesting comparative field for examining the historical development of animal-behaviour observation.

The Behaviour of Cows and Bulls

Varāhamihira's observations extend further to cattle, whose vocal and bodily behaviour is also interpreted as an indicator of forthcoming events:

“अकारणे क्रोशति चेदनर्थो भयाय रात्रौ वृषभः शिवाय ।

भृशं निरुद्धा यदि मक्षिकाभिस्तदाशु वृष्टिं सरमात्मजैर्वा” ॥¹⁹

If a cow cries out without any apparent cause, this is regarded as an omen of misfortune. A cow's cry at night is considered a portent of danger, whereas the bellowing of a bull at night is regarded as auspicious. Conversely, if cows are severely harassed or obstructed by flies or by dogs—the latter being referred to here as the *sons of Sarama* (*saramātmajāḥ*)—rain is expected to follow soon. Another verse presents a series of behavioural signs associated with cattle:

“गावो दीनाः पार्थिवस्याशिवाय पादेर्भूमिं कुट्टयन्त्यश्च रोगान् ।

मृत्युं कुर्वन्त्यश्रुपूर्णयताक्ष्यः पत्युर्भीतास्तस्कराणां रुवन्त्यः” ॥²⁰

Here, cows appearing dejected or languid are regarded as an omen of misfortune for the ruler. If they repeatedly strike or stamp the ground with their feet, the sign is interpreted as foretelling disease. If their elongated eyes become filled with tears, this is regarded as an indication of the death of their master; and if, being frightened of their owner, they repeatedly cry out, the behaviour is interpreted as a portent of danger from thieves.

The Behaviour of Horses and Omens Associated with Journeys

Within the ancient Indian tradition of *nimittaśāstra*, the normal and abnormal behaviour of animals used as vehicles during a journey was accorded considerable significance. The *Brhatsamhitā* prescribes close observation of horses, including their neighing, movement of the mane, sleep, vocalisation, consumption of dust, and bodily posture, in order to assess the auspicious or inauspicious consequences of a journey and to anticipate victory or danger.

If horses neigh excessively, scatter the hairs of their tails in different directions, or become excessively absorbed in sleep, such behaviours are interpreted as significant portents concerning the forthcoming journey. Conversely, if the hair of their bodies falls out, if they utter feeble and mournful sounds resembling the braying of a distressed ass, or if they are observed eating dust, these signs are interpreted as indications of impending fear or danger:

“अतीव हेषन्ति किरन्ति वालान् निद्रारताश्च प्रवदन्ति यात्राम् ।

रोमत्यजो दीनखरस्वराश्च पांशून् ग्रसन्तश्च भयाय दृष्टाः”²¹

The verse thus constructs a subtle system of behavioural diagnosis in which even seemingly minor physical or vocal abnormalities are incorporated into the assessment of the journey's prospective outcome.

A contrasting auspicious sign is described in the following verse. If a horse lies upon its right side with its body contracted like a vessel or enclosed container, and if it stands with its right foot slightly raised from the ground, such behaviour is interpreted as a favourable indication of victory for its master:

“समुद्रवदक्षिणपार्श्वशायिनः पदं समुत्क्षिप्य च दक्षिणं स्थिताः”²²

The passage illustrates once again the characteristic methodology of the omenological tradition: posture, direction, movement, vocalisation, and bodily disposition are treated as interconnected signs from which future possibilities are inferred.

Conclusion

Varāhamihira's *Brhatsamhitā* includes an important contribution of observational knowledge to the ancient Indian thought system, specifically the treatment of animal behaviour. It describes the behaviors of dogs, jackals, cattle, horses, elephants, crows, and other birds, as a way to teach about the environmental and seasonal changes. Special emphasis is placed on behavioural indicators related to rainfall and atmosphere. The accounts of the cattle and their reaction to flies and other occurrences of disturbance, and of crows' nesting and their calls, indicate an understanding of the interdependence of animals and environmental factors. The crow omens are particularly rich and are connected not just with rain and successful crops but with famine, fire, disease and disruptions to human settlements. The *Brhatsamhitā* therefore highlights the importance of animal behavior within an integrated system of understanding natural, ecological, agricultural, and social issues.

The experiential knowledge passed down through generations still views the behavior of birds and animals as one of several potential indicators of environmental and seasonal change, especially rainfall, in many rural communities in India today. Sometimes bird sounds, flight behaviour, nesting and abnormal animal activity is observed along with weather and wind conditions and temperature. However, with the advent of modern formal education and western oriented epistemological systems, much of this knowledge, which is gained through observation, has been gradually pushed to the margins and is now being forgotten.

This traditional knowledge, however, should not be taken at face value as the same as scientific knowledge or scientific means of prediction of disasters. Its main value lies in the cultural and historical tradition of focused, conscientious observation of the natural world. Ancient Indian scientists carefully observed the habits of animals, birds, insects and other creatures and used their changes in behaviour as a sign of larger changes in nature. So the long-term importance of this knowledge is not so that it can predict with certainty, but because it represents a deep understanding of the ecosystem and an attuned culture of observation.

In this sense, the *Brhatsamhitā* is not just a collection of auspicious and inauspicious omens. Moreover, it serves as a historical document of an intellectual tradition where humans, animals and nature were seen as interconnected parts of a greater whole. This is an old practice of careful observation of the natural world that

has gained new relevance in today's world facing climate change, extreme weather, eco-disruption and biodiversity loss. It is not the predictive power of each omen that makes it so significant, but instead the historical account it gives of humanity's centuries-old efforts to decipher the language of nature, through the actions of its living creatures.

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13. *Ibid.* 89/16
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15. *Brhatsamitā, Śivārutādhyāya*, 90.1
16. *Brhatsamitā, Śivārutādhyāya*, 90/12
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