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Understanding the Agricultural Pattern in Early Medieval Bengal: A Study Based on Epigraphy and Literature

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ABSTRACT:
Agriculture has always been the main factor contributing to the economy of Bengal. This article traces the agricultural pattern noticed in early medieval Bengal based on inscriptions and literary sources. To understand the agricultural pattern of a region, it is important to know the geography and climate of the area. Various historical texts talk about the geopolitical divisions and heavy rainfall in early medieval Bengal. So, it can be said that the fertile deltaic plains and the tropical monsoon climate contributed a lot towards the prosperous agricultural economy. The same can be witnessed from the epigraphical and literary sources of the time. The inscriptions talk about the different land grants and also provide information related to rights and responsibilities related to land, types of land, land measurements, etc. On the other hand, literary sources like *Rāmacaritam* written by Sandhyākaranandī, the *Saduktikarṇāmṛta* by Śrīdharadāsa, *Khanāra Bacana,* and others have information on the different crops like paddy, fruits, vegetables, flowers, spices, mustard; their growing seasons and conditions; different agricultural implements and others. Hence, the article will provide a general view of agriculture in early medieval Bengal.

KEYWORDS: Agriculture, Early Medieval Bengal, Inscriptions, Literary Sources, Geographical location, Climate, Land Grants, Paddy Cultivation, Cash Crop Cultivation, Spices, Agricultural Implements, Agricultural Trade.

The basis of any economy is agriculture. Agriculture is an all-encompassing term that includes cultivating crops, animal husbandry, forestry, fruit collection, fisheries, apiculture, processing of produce, etc. The English word ‘Agriculture’ comes from the Latin words *Ager,* meaning ‘field’, and cultura meaning ‘to cultivate’, which means the cultivation of crops in a field. Bengal has always been an agricultural land. Since the early times, agriculture has been the main source of livelihood for the people of Bengal. In ancient times, most people lived in villages and cultivated the lands surrounding those villages. Therefore, it will be right to say that the economy of Bengal was agricultural in nature.
To understand a community's agricultural life, one has first to understand the environment in which agriculture flourished. Therefore, to understand the various aspects of agriculture in early medieval Bengal, it is essential to briefly discuss the geographical background and the main physical features, such as the geographical location, area, geological formations, rivers, weather, climate, etc. of the region.

Geographical Location

Historically, the land of Bengal is known for its distinct 'regional entity'. According to the point of view of the geographers, Bengal with its distinct geological features has been considered a unique geographical entity in the subcontinent. It is interesting to note that the region's specific geographical features have been moulded by its location, geological settings, and climatic conditions. A major portion of South Bengal is a part of the Ganga-Brahmaputra Delta which is considered as the largest delta in the world. The deltaic portion of Bengal has been divided into 'new mud, old mud, and marsh'.

Bengal emerged as a distinct geographical location in the eastern part of the Indian subcontinent as early as the Pleistocene age. Bengal is encircled by natural girdles such as deep forests, highlands, mountains in the east, west, and north, and the Bay of Bengal in the south. The total area of the region of Bengal is approximately 80000 sq. miles (207,000 km). Different scholars have different opinions regarding the total area of Bengal. According to M. Harunur Rashid the total area is about 84,832 sq. miles, including 30,691 sq. miles in West Bengal and 54,141 sq. miles in present-day Bangladesh[i].

The view of Niharrajan Roy is very much relevant when discussing the importance of the geographical location of Bengal. The Himalayas encompassing Nepal, Sikkim and Bhutan in the north; the Brahmaputra River and the river valley in the northeast; the northern parallel plain land of Bhagirathi in the northwest till Darbhanga; Garo- Khasi-Jaintiya-Chittagong hilly tracts in the east stretching to the sea on the south; the mountainous highland and forest-laden plateau of Rajmahal-Santhal Parganas, Chhota Nagpur, Manbhum, Dhalbhum- Keonjar-Mayurbhanj in the west; and the Bay of Bengal in the south mark the region of Bengal. The territory encircled by these natural boundaries includes ancient Bengal's geopolitical divisions of Gauḍa, Puṇḍra, Varendra, Rāḍha, Suhmā, Tāmralipta, Samataṭa, Vanga, Vangala, Harikēla along with the Bhagirathi-Karotoya-Brahmaputra-Meghna-Padma and several other rivers and streams which run through the villages, towns, plains, forest and were divided by the hills[ii].

The northern part of Bengal includes the Darjeeling and Jalpaiguri districts, which lie in the foothills of the Himalayas. In the northeast, the natural borders of Rangpur and Coochbehar stretches as far as the river Brahmaputra. The eastern boundary of Bengal comprises the Brahmaputra River in the north, and in between lies the Garo-Khasiya-Jaintiya hills; to the south are the Lusai-Chattagram and Arakan ranges. Bengal has been geographically separated from Myanmar and Lusai by the chain of mountains belonging to Tripura and Chittagong regions, and these mountains enisled Srihatta from Tripura and Chittagong. The western borders of Bengal are covered with dense forests and are surrounded by long chains of mountains. According to the *Bhaviṣya Purāṇa* the arid (ajala), salty wasteland (usara), and dense forest lands were located south of Rajmahal. In the 7th century A.D., Hiuen Tsang came to Bengal by crossing this area, and in the 11th century, the copper plate of Bhabadēbabhaṭṭa described it as arid, wasteland, and jungle land. One can say without any doubt that this area was a part of Rāḍha. The Bay of Bengal in the south played a crucial role in demarcating the boundary of Bengal. The coast of the Bay of Bengal is encircled by the southern portions of Medinipur, 24 Parganas, Khulna, Bagerhat, Barishal, Patuakhali, and the green forested land carpeted with lush and abundant grass of the Samatata sub-region of the southern area of Tripura, Chittagong, and Noakhali.

Climatic Condition

The geographical location of Bengal is indicative of its distinct climatic condition. The evolution of the

demographic history and the behavioural pattern of the people of this deltaic land has continued to be influenced by the monsoon wind system. The tropical monsoon climate prevalent in Bengal is warm, equable, and humid. Three factors, including the mountain wall of the Himalayas in the north and northeast, the Tropic of Cancer passing through the middle of the region, and the Bay of Bengal in the south, play a crucial role in accelerating this monsoon wind system[iii]. The monsoon wind brings heavy rainfall accompanied by a humid climate.

Right at the beginning of June, the warm and moisture-laden southwestern monsoon winds from the Bay of Bengal are hindered by the mountains in the eastern and northern portions of Bengal, bringing about heavy rainfall in eastern and northern Bengal. Frequent cyclones, heavy rainfall, and the peculiar phenomenon of 'Kalbaishakhi', indicate the beginning of the monsoon in Bengal. Rainfall varies from region to region. The western part of the region is drier compared to the other parts. Kamrunnesa Islam measures the annual average rainfall in Bengal as 75 inches[iv]. Dilip Kumar Chakrabarti has estimated the annual rainfall as 60 inches in the western part and 200 inches in the north of Sylhet[v]. The heavy annual rainfall and warm temperatures throughout the year are responsible for 'tropical semi-evergreen vegetation'.

Climatic and seasonal variations in ancient Bengal have been described in various texts, including the accounts of Hiuen Tsang, the *Rāmacaritam* written by Sandhyākaranandī, the *Saduktikarṇāmṛta* by Śrīdharadāsa, *Pavanadūta* of Dhoyī, *Gītagōbindam* by Jaẏadēba, and Abul Fazl. The Tirumalai inscription of the Cōla Dynasty talks about 'Vangaladesa where the rainwater never stopped'[vi]. Poet Yogesv́ara presents picturesque descriptions of Bengal's monsoonal rainfall. The south winds of February and the spring breezes of Bengal have been described in Dhoyī's *Pavanadūta*. Some verses on the winds have also been mentioned in the anthology of Śrīdharadāsa, *the Saduktikarṇāmṛta*. The *Rāmacaritam* points to large and swiftly moving clouds in Varendra and talks about the raining showers, which indicate abundant rainfall in the Varendra region[vii]. Jaẏadēba portrays the emergence of the monsoon in Bengal, indicating the over-clouded sky in the first verse of his well-known work, *Gītagōbindam*[viii]. Abul Fazl, in his monumental work named *Ain-i-Akbari*, also provided a vivid account of the heavy rainfall in Bengal. Apart from the literary sources, the description of the monsoon wind and heavy rainfall in Bengal has been mentioned in epigraphic sources also. The *Bangarh* copperplate inscription of Mahīpāla, *Khalimpur* copperplate of Dharmapāla, and *Monghyr* copperplate of Dēvapāla speak of the heavy rainfall in Bengal.

Agricultural Activities

Early and early medieval Bengal witnessed three main occupations – agriculture, animal husbandry, and trade. Among these, agriculture was the most important. Almost all the major ancient Indian texts on economy treat the land as the primary source of wealth and agriculture as the most fundamental aspect of the economy. These agricultural activities met most of the food requirements of the people in the villages or towns. The remaining produce was supplied as raw materials for industry or exported, thereby strengthening the base of the economy. Mukundaram Chakraborty, the medieval poet of Bengali literature, talked about the 'Daminyaya Chasha Chashi' who used to cultivate the land of Talukdar Gopinath Nandi. The poet himself used to cultivate the land in spite of being a Brahmin[ix]. If this type of arrangement was seen in the medieval period, it can only be assumed that it could have also existed in the early medieval period, without any direct evidence in this context. In a Sanskrit work called *Parāsaŕa-Samhitā,* the Brahmins are encouraged to take up agriculture[x]. Some scholars are of the

opinion that all classes of people were involved in this profession.

The farmer's relationship with the soil dates back to the prehistoric times. Almost the whole of ancient Bengal was an alluvial plain with sufficient rainfall. The three major rivers-Padma, Brahmaputra, and Meghna, and their numerous tributaries were responsible for prosperous agriculture since ancient times, and the pressure of population on agriculture was very high. From the time of the Guptas, due to various reasons like population growth, the demand for agricultural land increased to such an extent that even the uncultivable lands were being cultivated.

All the copperplate inscriptions or inscriptions related to the land system in ancient Bengal can be divided under two phases: firstly, the 5th to 8th century C.E. inscriptions and the 8th to 13th century C.E. inscriptions. The 5th to 8th century C.E. inscriptions speaks mostly about land grants. In these inscriptions, the practice of land grants is also discussed. Various information related to rights and responsibilities related to land, types of land, etc. are also found in these inscriptions. Records of land grants by kings to Brahmins or gods are not unknown in ancient India, but the inscriptions belonging to this period in ancient Bengal show that the grants made were not exactly the typical Brahmadēẏa or Dēbadāna land grants[xi]. A more detailed analysis of these inscriptions reveals much information about the land system of ancient Bengal.

As seen in the inscriptions, the kings made land grants everywhere. But in the earlier scripts of the 7th-8th century C.E., the exact opposite picture can be observed. At that time, the householders used to donate land to meet the expenses of religious institutions, and before donating, they bought the land from the king after paying the price. In some cases, the king also donated the land on behalf of the buyer; in that case, he would get only one-sixth of the merit of charity. This means that till the seventh century, the householders mostly donated lands to religious institutions. The underlying reason for this was that the 'Purjanpadavasi' (city dwellers) householders were personally responsible for establishing and maintaining these religious institutions. Ramakrishna Mukherjee (1957)[xii] identified two reasons behind this-

- It was not difficult for an individual to become a self-owned and self-employed farmer within the village community system. Because of this, sharecroppers and agricultural laborers could not supply much produce despite the demands of the landlords. At that time, land was the main factor of agricultural production, and there was no private land ownership and only a little capital was required for agricultural equipment and cattle like plough, cow, buffalo, etc. Hence the peasants did not prefer to work as sharecroppers or agricultural laborers.
- People in rural areas generally produced for their own consumption, and there was no local or external trade system for agricultural production. Because of that, the landowners were not focused on increasing the production.

In some cases, the Brahmins and Kshatriyas used the land allotted to them for production through sharecropping. However, the practice of sharecropping by Brahmins and Kshatriyas was so insignificant that it could not significantly affect the basic production of the society. So, it can be said that, despite the sharecropping system, the main characteristics of the rural community of ancient Bengal were self-ownership, self-employment, and self-reliance.

From the various inscriptions and copper plates, a lot of information is known about the land of Bengal in the ancient and early medieval period. Most of the inscriptions describe land sold or donated as aparada (unsettled), aprahata (uncultivated), and khila (fallow)[xiii]. Vainyagupta's *Gunaighar* grant mentions that he donated five plots of land to the Buddhist Vihara and these lands were 'sunaẏa

pratikāra-hājjikā-bhūmi' (waterlogged wasteland exempted from any taxation)[xiv]. From later inscriptions, it is known that a king named Lōkanātha donated to some Brahmins a forest area full of deer, buffaloes, tigers, snakes, etc. for their maintenance.

Land measurement was based on one or more standards. In the early medieval period, important land values were 'kulyā', 'drōṇa', 'ādhaka'[xv], etc. The term hāla was used to measure land. This finds mention in the *Dhulla* copper plate of Śrī Candra[xvi]and the *Bhatera* copper plate of Gōbindakēśaba[xvii].

The dynamic nature of trade and commerce in ancient Bengal has to be understood in the overall background of the ancient trade system of the entire subcontinent. Like the entire subcontinent, the economic life of ancient Bengal was based on the agricultural economy. When, trade in Bengal began to decline after the Gupta period, agriculture became the main livelihood of the majority of the population from the 7th century C.E. onwards. Based on the epigraphic and literary sources, it can be said that Bengal's fertile soil and the diverse crops grown here contributed hugely to Bengal's agriculture. In the 7th century C.E. when the Chinese traveler Hiuen Tsang came to Bengal, he noticed regular intensive cultivation of the land and the production of crops, fruits, and flowers in abundance[xviii]. Hiuen Tsang's statement is also supported by *Rāmacaritam* written by Sandhyākaranandī. Again, in some poems of *Saduktikarṇāmṛta*, the village life after the harvest is over is depicted[xix]. The *Mainamati* copper plate of Raṇabaṅkamallā Harikeladēva also mentions Bengal's 'crop-rich agriculture'[xx]. Various other inscriptions from the period of the Sēnas, also indicate the prosperous condition of agriculture in Bengal.

Though the agriculture in Bengal was mainly monsoon-oriented still it required irrigation. Besides, not all the lands of Bengal were fertile and suitable for cultivation in the early medieval period. There were some lands that were unfit for cultivation. Moreover, failure of timely rainfall often was behind the miseries of the farmers. In ancient inscriptions and literary sources, there are repeated mentions of dams. Apart from these dams, the water stored in reservoirs like 'jola', 'khadi', 'khadika', 'ganginika', canals[xxi], etc. was also used for irrigation. Each of these words related to reservoirs is mentioned in the inscriptions from Bengal. The mention of 'jola', 'khadi', 'khadika', 'ganginika', canal, in the inscriptions indicate that, although Bengal was watered by several rivers and monsoon rains twice a year, some areas still required irrigation, mainly for growing crops during the winter. Just as the farmers used irrigation to increase crop yields, they also used organic fertilizers. Earlier they used animal dung on the land and let it dry for some time. Later, they started using liquid fertilizers and various organic compost made from animal and vegetable remains[xxii].

The last two of the twelve types of land mentioned in the Amarakōṣa, written in the mid-6th century, are Nadīmāṭṛka and Dēbamāṭṛka. Such division of land largely proves the existence of irrigation. Sandhyākaranandī (1084-1155 C.E.) mentions in *Rāmacaritam* that various types of very good rice were grown in the Varendra land. Besides, numerous tanks were constructed in various parts of North Bengal, such as Mahapal, Ramsagar, Pransagar, etc. All these tanks were built by the rulers for the purpose of irrigation. Apart from this, the names of various agricultural products, cultivation methods, and irrigation information have been mentioned in *Khanāra Bacana*. So, it seems that the role of irrigation was important in the prosperity of agriculture in ancient times. Great care was given to irrigation so that agriculture did not cease due to lack of rain. The common people were aware of the technique of sinking wells from deep-flowing rivers. Sometimes, they also diverted the course of the river to supply water to the canals-built dams, and cut canals from the river for irrigation.

In present-day Bengal, numerous crops are being produced on a huge scale. But only a few finds are

mentioned in inscriptions or literary materials of ancient Bengal. As the soil and climate in Bengal were most suitable for rice cultivation, it is certain that rice has been the staple food grain since ancient times. The first mention of rice is found in the *Mahāsthāna Brahmi* inscription which is dated on palaeographic grounds to the 2nd or 3rd century BCE. In the 5th century CE, Kālidāsa mentions paddy cultivation in the Bengal region[xxiii]. Later, *Rāmacaritam* mentions a variety of paddy in the Barendri region of Bengal, and in another context, he mentions threshing oil where the cut corns were spread and threshed by means of bullocks which moved around the machinery in circles[xxiv]. Other literary sources, such as Shivā's Kāsapālā song. The *Saduktikarṇāmṛta* [xxv]and the *Khanāra Bacana*[xxvi] contain many references to the main staple crops that were cultivated at that time in Bengal. According to Ibn Baṭṭūṭah, Bengal was a vast country and there was plenty of rice[xxvii].

The paddy lands of Bengal were beautifully described in the writings of the Sēna kings. From Laxman Sēna's *Anuliya* copper plate, it is known that paddy was harvested in autumn[xxviii]. Paddy is mentioned in the *Idilpur* Copperplate of Keshav Sēna also[xxix]. In all these inscriptions, paddy is referred to as 'shali', which is the best among all the varieties grown in different parts of Bengal. Some terracotta plaques found at Paharpur have drawings depicting paddy fields[xxx]. Generally speaking, three types of rice crops are produced in Bengal. The first is 'Aman' rice, which is sown in May month and June month and harvested in November month or December month. The second is the 'Aus' paddy crop, which is second in importance. It is sown in April and reaped in August or September. The third is known as 'Boro' rice and is sown in November and reaped in February. Kālidāsa's *Raghuvaṃsa'* has indirect descriptions of rice cultivation in Bengal. Talking about Raghu's conquest of Bengal, the poet says that Raghu uprooted and transplanted the enemies like rice plants.

Another important produce and cash crop of ancient Bengal is sugarcane. The sugarcane cultivation has been going on for centuries in Bengal. Sugarcane is generally cultivated in December or January and harvested after five to six months. Hide says that the Indians used to extract the sweet sap from the tender reeds of the sugarcane near the Ganges and drink it. Susŕuta and Caraka refer to sugarcane as 'paundraka'. Most commentators on Sanskrit lexicons agree that the crop got its name from the Puṇḍra region[xxxi]. *Rāmacaritam* mentions that Varendi had excellent varieties of sugarcane[xxxii]. The later *Saduktikarṇāmṛta* contains a poem that describes the sweet aroma of new jaggery made from sugarcane juice and also mentions the 'iksu-yantra' with which the sugarcane was pressed and the juice was extracted from the sugarcane plant[xxxiii].

Apart from the above crops, other crops were grown in Bengal too. The inscriptions refer to the cultivation of many other crops in early medieval Bengal such as cotton, barley, mustard, sugarcane, etc. There is no mention of pulses in inscriptions or various literature. Whether pulses were cultivated in early medieval Bengal is a matter of debate. However, there is a mention of 'dal' in *Khanāra Bacana* which speaks of a 'sarsapa yanaka' (mustard channel) in the Audambarika Visaya of Karnasuvarna[xxxiv]. In order to ensure a prosperous production Khanā advised sowing kalai and mung in the same field where mustard had been sown before. Dal was known as kalai, like peas (kalai) and kidney beans (mung),[xxxv] etc. We get various information about mustard cultivation in Bengal also. However, there is no direct evidence about how mustard was cultivated. Mustard is mentioned indirectly in the *Vappaghosavat* grant of Jaỳanagara. Barley is mentioned in a poem in *Saduktikarṇāmṛta*[xxxvi]. So, it can be inferred that barley was also produced in Bengal at that time.

Another important cash crop of Bengal is maize. Evidence of maize harvest in ancient times can be obtained from a saying of Khanā. Khanā said, "If you want to earn money and become rich, sow corn in

the month of Chaitra (March-April)[xxxvii]". So, it can be said that the period of corn sowing was March-April and at that time it was sold at a really high price. Apart from these crops, many vegetables and fruits were produced in Bengal during the early medieval period. Different types of fruits such as mango, jackfruit, pomegranate, banana, mahua, date, lemon, fig, tamarind, coconut, etc. were grown in abundance. Mango and jackfruit are mentioned in many inscriptions of the Pāla and Sēna periods[xxxviii]. All the vegetables mentioned by Khanā are brinjal, green onion, radish, arum, trichosanthes, chili, turmeric, etc. Notable fruits produced in the early medieval period were mango, jackfruit (pansa), pomegranate (dalimba), banana, Bassia latifolia (mahua), date palm (khejur), citron, fig (dumur), tamarind, coconut, etc. Also, from the Pāla and Sēna inscriptions, it is known that mango and breadfruit were widely cultivated at that time. Hiuen Tsang in his account mentions that jackfruit was grown in abundance in Puṇḍrabardhana at that time and he gives a list of notable fruits of the time.

Cotton was the most important commercial crop. Cotton cultivation in ancient Bengal is known from various sources. The yarn was an important material in the textile industry. The yarn was produced from cotton, and cotton was the main raw material for making cotton cloth. Cotton has been supplied worldwide from different parts of Bengal since the early times. Kautilya speaks very highly of *Karpasika*– a variety of cloth made of indigenous cotton in Vanga. The *Deopada* inscription of Bijaẏasēna states that the ordinary villagers were familiar with the seeds of cotton[xxxix]. The early Caryāpada also refers to cotton Plantation. It Mention the people of Bengal, Marco Polo said "They grew cotton in which they derive great trade[xl]". The flower cultivation in early medieval Bengal is beautifully described in *Rāmacaritam*. Sandhyākaranandī has beautifully illustrated in his writings that the Barendri land had beautiful flowers and he mentions flowers like Ashoka, Keshara, Madhuka, Kanaka Ketak, Mayati, Nagkesar, and Lephetus among the numerous varieties of flowers grown there[xli].

Humans have depended on various plants, leaves, flowers, barks, roots, and saps since ancient times to protect themselves from the attacks of diseases. Bengal was no exception to this. A variety of plants have been used to treat ailments since ancient times. The seeds like Amlaki, Sriphal, Haritaki, etc. are known to have been cultivated in ancient times, too[xlii]. Evidence of the cultivation of various spices in Bengal is found in the *Periplus*. The *Periplus* describes Bengal's extensive spice trade with Western countries[xliii]. Particularly notable among the spices produced in Bengal were Malabathrum (cinnamon-like aromatic plant) and Spikenard. According to the Periplus, these spices were exported in large quantities.

Dates were one of the very important crops of early medieval Bengal. Evidence pointing to the presence of dates in early medieval Bengal can be found in the *Khalimpur* copperplate[xliv]. Apart from dates, Madhuka (mahua) is also mentioned in *Rāmacaritam*[xlv]. It says that Madhuka was mainly cultivated in North Bengal. Another important cash crop of ancient Bengal is coconut. Bengal used to carry out coconut trade with other countries. From various writings of Kharga, Candra, Varman, and Sēna, it is seen that coconut was cultivated in the coastal region of Bengal. *Rāmacaritam* also mentions coconut cultivation in Bengal[xlvi]. The *Ashrafpur* copper plate of Dēvakharga gives information about areca cultivation in early medieval Bengal[xlvii]. The inscription specifically mentions that the land given by a donor was used for the cultivation of areca palm and coconut. The cultivation of betel vines in early medieval Bengal is known from the Sēna inscriptions, and it was a great source of revenue[xlviii]. The *Khanāra Bacana* contains detailed instructions for the cultivation of betel in Bengal. The above study has provided a general view of agriculture in early medieval Bengal. Undoubtedly, the information obtained from various sources, especially copper plates, inscriptions, ancient literature, etc. have

contributed to the history of early medieval Bengal. Various evidence suggests that the economy of Bengal became more strongly based on agriculture from the 8th century C.E. onwards so, the thoughts, knowledge, and activities of the inhabitants of this region were all centred around agriculture. During this period, Bengal continued to be a developed region because of its prosperous agriculture, industry, and trade. Cotton was the most important cash crop. From various sources, it can be seen that coconuts, betel nuts, and cotton were exported to different parts of India from early medieval Bengal. The king's share of agricultural produce was the primary source of state revenue. Though various names of taxes are mentioned in the available sources, it is unknown how much of the produce was collected by the state as revenue or other taxes. Most of the land revenue was determined in kind, but in the case of some crops, it was determined in cash due to the difficulty of distribution. This article provides a great insight into the agricultural situation of early medieval Bengal and tries to understand the different patterns of crop cultivation, the types of crops cultivated, land grants, trade in agricultural produce etc. based on inscriptions and literary sources.

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