Chapter 1

INTRODUCTION
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History being a 'science of man in time' cannot exclude the aspect of man's struggle against nature from its purview. In fact the traditional historiography has always included calamities and its impact on man as apart of its study. Bible has talked about the great flood; in the middle ages we have the Black death and the Bubonic Plague in Europe. It is only in recent times with the Rankean revolution in Germany and the Whig monopoly in historiography in England, the obsession with political and dynastic history relegated the study of calamity and man's day to day struggle for survival into the background. But the historiographical neglect could not minimize the importance of natural calamities in the making or breaking of civilizations. The Egyptian civilization, one of the earliest civilization
flourished along the river Nile. But the floods of the Nile often played havoc with them.\(^1\)

Rivers are the perennial source of water and life. That's why whether it is Nile, Tigris, Euphrates or Indus all great rivers even with their immense destructive potential were the source and the spirit behind the establishment of the great civilizations like Egyptian, Sumerian and even that of Indus Valley. But the process of establishment were not that simple. Here the calamities, i.e., floods continued to threaten man and desired to drive them away from the river banks. And man's constant struggle against nature, i.e., primarily against the calamities thereafter gradually made them wise, thus different human faculties could exhibit this ability in taming the nature and hence, the establishment of civilization. Floods must be checked, for which making dam only was not enough, one must know how did or when do they come, how did they grow. Stars in the sky immediately could help man as definite reference figure and in the understanding of season, years, months etc. The dams, as its byproduct in no time could gave birth to irrigation channel. Floods, a destroyer, with the development of Astronomy, Mathematics and irrigation soon became a creator and gradually led the humanity to a great height at the dawn of civilisation.

Their role in history is significant and can no way be ignored.\(^2\)

Calamities could be of several types: earthquakes, floods, volcanic

eruptions, landslides, avalanches, cyclones, hurricane, typhoon, storms, tornados, draught and famines.

Arnold Toynbee put forward the theory of challenge and response in the sustenance of human beings. Civilization flourished where mankind was able to respond to these challenges effectively and perished wherever it failed.

Although calamities like flood, diseases have been more reported as associated with the history of North East India, earthquake was a more devastating force. Conventional history has tended to ignore this aspect even though wars and battles have had less profound impact on the social history of the region. In this project, we attempt to study the nature of impact that calamities like earthquake caused to the history of North East India.

In an workshop of the earthquake engineers held at Honolulu, USA in the year 1978 North East India has been identified as one of the six most earthquake prone zones of the world. This identification has been for the contemporary period. While on studying the history of earthquake of the regions since Ahom period, it could be seen that in consistence with the modern scientific finding the region has been shocked quite a number of times severely affecting the region in very many ways. Earthquakes in the form of natural calamities had not only destroyed lives and property, thus as would be seen have

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become an obvious part of the history of the region because of its frequent nature and size of its occurrence in the region. In China in one earthquake in 1556, the total people killed were 8.30 lakhs.\(^4\) Thus, when a comparative study on loss of lives due to different natural calamities such as flood, volcanic eruption, land slide etc. and earthquake is done, it is found that loss of lives due to earthquake tops the list.\(^5\)

A recent statistics shows that in between 1900 and 1976 the total persons killed as a result of earthquake over the globe is 26,62,165 and the number of persons rendered homeless is 2,88,94,657. Compared to this other calamities like volcanic eruption killed 1,28,058 persons and left, 3,37,931 homeless, death due to flood 12,67,845 and homeless 17,52,20,220, land slides killed 3006 and homeless 44,673, cyclones 4,34,894 dead and 1,76,48,463 homeless, hurricane 18,513 dead and 11,97,353 homeless, avalanches 3059 dead 150 homeless, typhoons, 34,103 dead and 54,57,054 homeless, storms 7110 dead and 34,32,641 homeless and tornadoes 1175 killed and 3,42,459 homeless.\(^6\) Potential of earthquake as killer-most of natural calamities is thus seems to be amply evident. Other conservative estimate reveals that the people killed only due to earthquake exceeds 50,00,000 in which China's claim is for 21,00,00 when Japan shares more than 5,00,00, Italy

\(^6\) Ibid.
3,70,000 and India 3,50,000. Total human lives lost due to earthquake during first eighty years (1901-1980) of 20th century in India amounts to 70,000 which means 900 lives per year. The corresponding global average is about 1800 lives per year. In many of the case destruction due to earthquake is insurmountable. In 1755 Lisbon earthquake killed over 50,000 lives. In Tokyo earthquake of 1st September 1923, the city was virtually destroyed and the people killed were 1,00,000 and millions rendered homeless. In the very recent past of the 2nd half of the 20th century three strongest earthquakes took place – 1950 Great Assam Earthquake, Gobi Altai Earthquake of 1957 and the Chilean Earthquake of 1960. The damage caused by these earthquake were many fold than those done by the wars and battles in respective areas fought over for a much loner period about which traditional history is so replete with. Thus, earthquake has been one of the most dreadful natural calamities known to mankind and he is continually reminded of its ruinous power virtually without warning.

Natural calamities often even destroyed civilization. The Sumerians established a number of cities, the most famous being the Ur. The civilization so developed on the bank of rivers was destroyed by flood only. The Indus Valley civilization similarly, was founded on

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the fertile valley of river Indus but archaeological excavation suggested that the civilization was destroyed by a sudden calamity, most probably flash flood or an earthquake.\textsuperscript{11} Thus, it is seen that this particular natural calamity happens to be the co-runner with human existence since the dawn of civilization, thereby shaping and reshaping human history in very many ways being an integral part of it.

Earthquake being a dreadful natural calamity was formed into myths in many of human recording long before historical recording came into being in North East India. Although there are no historical studies available most of the chronicles, gazetteers, memoirs, accounts, reports does mention earthquake prominently. In pre-colonial period a number of earthquakes are recorded in the \textit{Burunjis} the royal chronicle of Assam. A compiler of Ahom royal chronicle Lila Gogoi puts it this way

As Assam is lying in the earthquake zone she had faced a number of devastating earthquakes during the six hundred years. The \textit{Burunjis} recorded information relating to such earthquakes. There were a few tremors which not only caused collapse of buildings but also water, sand, fish had been found thrown up from below. The earthquakes of 1548, 1594, 1607, 1649, 1696 are note worthy.\textsuperscript{12}

Regarding earthquakes of the colonial period mentions are also available in Edward Gait's \textit{History of Assam}, Calcutta, 1905. A brief

\textsuperscript{11} Wallbank, T W, \textit{op. cit.}, p. 10.
list of earthquake of the North Eastern Region for the period of 1548-1962 has also been prepared by H K Gupta\textsuperscript{13} (Annexure - I).

Earthquake records of the region are better available since Nineteenth century, i.e., colonial period. First recorded event was of 1\textsuperscript{st} April, 1810. Similar tremors were felt during 12\textsuperscript{th} to 15\textsuperscript{th} May, 1816, further records of tremors could be traced in 1825, 1828, 1830, 1834, 1839, 1840, 1841, 1842. In 1843, the region was again rocked quite a number of times due to a series of earthquakes. Thereafter shocks are available again in 1845 to 1852 in every year. Again after a gap of six years earthquakes records for the region are available January, 1869.\textsuperscript{14} The earthquake made huge destruction in Cachar and Manipur Valley and a detail report of which was prepared by the Geological Survey of India for the first time.\textsuperscript{15} Records of quite a good number of shocks felt in the region are also there for the period between May 1874 to December 1877.\textsuperscript{16} Two earthquakes of 1876 and 1885 of the region deserve special mention.\textsuperscript{17} Then came the great Shillong earthquake of 12\textsuperscript{th} June 1897 thereby putting the region in the global seismic map. This particular calamity virtually destroyed

\textsuperscript{16} Keatinge, R H, Chief Commissioner, 'XI-Record of the Occurrence of Earthquakes in Assam during the years 1874, 1875, 1876', \textit{Journal of Asiatic Society}, No. 3, Calcutta, 1877, pp. 296-297 and 306-09.
\textsuperscript{17} Maxwell, H Sr, P, 'R'port by the Commissioner of the Assam Valley District', Appendix – III in E A Galt's Report on the Earthquake of the 12\textsuperscript{th} June, 1897, Proceedings of the Chief Commissioner of Assam, Home, March, 1898, p. 7.
Shillong, and many other township as well as places were severely affected. After 1897, till the end of colonial period the region was affected by around fifteen major earthquakes including those two destructive earthquakes of 1918 Srimangal earthquake and 1930 Dhubri earthquake.¹⁸

Just by the onset of the post colonial era the region was again shocked by the Great Assam Earthquake of 15th August 1950. The loss due to this to the region and society was enormous and unfathomable. Aftershocks of 1950 earthquake continued for few more years and till 1960 the end period of this study the region though was shocked quite a number of times by a number of major shocks but could not bring in much devastation to the region.

North East India as has been from the historical time being highly seismic with its two great recent events of 1897 and 1950 has also been paying its toll in the form of lives and property. The region also incurred a great loss in the field of agriculture. Records of collapse of buildings in the region due to earthquakes are very much there since Ahom period. In the colonial period as has already been mentioned that recording far improved and the first detail report was made for the Cachar earthquake of 10th January, 1869. The earthquakes virtually ruined Silchar particularly the bazaar area. Death toll was 5 to 6. though the earthquakes go by the name of Cachar, it also made considerable damage to the Manipur Valley.

Manipur king's loss in property was very great. Damage to structures took place in Sylhet, Shillong, Guwahati, even at Sibsagar, Goalpara happened to be the western boundary up to which loss to structures were visible.\(^\text{19}\)

The Great Shillong Earthquake of 1897 brought in an unbelievable massacre to the lives and property of the region. Shillong being almost the seat of that earthquake, at Shillong it was a scene of complete destruction. In K&J hills people killed were 916. Loss of Government property in K&J hills district was enormous. The loss incurred by only Welsh Mission in the K&J hills was estimated to be Rs. 10,000 to Rs. 11,000 at that time. Next district which suffered most by this calamity was the adjacent Sylhet district where death count was 545. At Guwahati all the government buildings were buried to the ground. Death toll at Garo hills was 27. Loss of lives were reported from many places of the region. Total loss of lives as recorded was 1500. Damage to pucca constructions and road were almost universal between Nowgang in the east and Goalpara in the west while Darrang in the north and Sylhet in the south. Even considerable damage was done on the road between Dimapur and Golaghat. Though shock was felt but Manipur Valley and Aizawl was almost unhurt. Srimangal earthquake of 1918 and Dhubri earthquake of 1930 though smaller in comparison with that of 1897 had their

\(^{19}\) Oldham, R D (ed.), \textit{op. cit.}
considerable devastating impact around their respective places of occurrences.²⁰

The great Assam earthquake of 1950 was a devastating blow to the region. Once more the damage caused was of unparallel dimension. About this the famous seismologist C F Richter remarked "this shock was more damaging in Assam, in terms of property loss than the earthquake of 1897".²¹ Reported loss of lives was 1526 which had been doubted as much under recorded figure.²² Oil company as well as tea companies suffered huge loss in terms of property. Estimated loss by the oil company was Rs. 11,00,000/-²³ by the tea companies was £ 1,84,000/- and the loss incurred by Assam was estimated to be £ 20 million.²⁴ The loss in agriculture due to earthquakes in the region was also substantial. Records of ejection and spraying of sands though fissures were very much a part of many of the shocks recorded in Ahom period. In Cachar earthquake also reports of loss of agro products were there which was of course little. But countable loss in this field by 1897 earthquakes was very much a part of distinct separate district record. Ejected sand during the

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quakes over a large area had destroyed a considerable amount of crop due to sand cover on them. Apparently, the loss due to flood which accompanied the 1897 earthquake was also ultimately accounted against that earthquake on analysis. Floods which mostly destroyed agriculture in Assam happen to visit the region in the form of calamity in a very close interval after 1950 earthquake.

Natural calamities have multi faceted impact and the even affected nature itself and earthquakes thus have great role at times in changing the ecology of the respective places. There is no doubt that in shaping Cherrapunji as wet desert (as it is called now), earthquake of 12th June, 1897 has a cardinal role. Loosening the topsoil by gigantic shaking and then taking than down the hill by dense rainfall of Cherrapunji was the mechanism used for taking the topsoil down the hill in a great measure.

Topography of the region was visibly affected by this calamity. Both elevation and subsidence of land was recorded if not for others for the two great shocks of 1897 and 1950. The hills to the west of Mowphlong in the Khasi hills was reported to be elevated by the 1897 tremor. In the Garo hills as recorded a few hills sunk by feet while reports for upliftment of a few were also there. Ridges and furrows formed on the ground at several places in the Garo Hills district was another very interesting result of this earthquake. Topography of Nowgang at a number of places was significantly affected by 1897 earthquake. The landslide that followed the Great Assam Earthquake
of 1950 was of unbelievable dimension. The continuous area that suffered and landslide situated quite close to the epicentre of that shock in the erstwhile NEFA was estimated to be 12000 sq miles. Further estimate of the havoc was made from air reconnaissance survey. The volume of land debris those were slide down was found to be of the order of 60,000 million cubic yards.

In North East India flora and fauna also could not escape the devastation resulted out of this natural calamity. In Garo Hills in one go, 50,000 Sal trees were washed away by the flood water in a place, which was a high land prior to that earthquake of 1897. The enormous landslide of 1950 carried with it a good variety of flora and fauna of North East, of which a part could be recorded only.

In addition to that, a number of river course were also affected by the seismic behaviour of the region. Thus, not mere vegetation and mammals, fishes were also the worst victim in a number of effected rivers of the 1950 earthquake in particular. Streams and other water bodies were affected by earthquake in the region. Thus, it is seen that not only human beings or society or even animals, the earthquake has an overall impact on the ecology of the region.

As the study reveals, North East India is the seat bed of earthquakes of all sizes, if not forever at least since historical time, so, it is expected that it would have its ramification in social, cultural and may even in the religious life of the effected people in the region. The calamity destroys lives and property in no time and as it is known, has
a fearful impact on the society. The fear that it instilled has thus, resulted in the formation of a good number of folk stories in the region. In the K&J hills, as is expected a story nicely depicts the impact of this calamity in their psychic world. In Khasi hills ancestral belief is that this is an act of God. Certain community in Arunachal Pradesh also links it to the act of the creator.

Since earthquake greatly affects the society as a whole and so in all probability its institutions/heads would not remain isolated during this disastrous period. So was the situation here in the region during Ahom period. Major earthquakes of that period have thus found their mention in the royal chronicle. In the colonial period beginning with the Cachar earthquake of 1869, state directly came into the scene and as per the directive of the state Geological Survey of India prepared the first considerable detailed account of the impact of that shock. But it was only after the great loss due to the great Shillong earthquake of 1897 state had to think for alternative earthquake resistant structure. Japanese expert was brought for guidance. As by that time seismograph was already discovered and so after that quake at Alipur, Calcutta in the meteorological office one was installed. Colonial state did very little in this field for the region during their tenure and it were only after independence and the Great Assam earthquake of 1950, that the seismological observatory was installed at Shillong in the North Eastern Region in 1953. By sixties other
instruments were also installed in Shillong centre and it came under the World Wide Standard Seismological Network (WWSSN).

Thus, we can see, calamity like earthquake and its impact has not only been a part of its collective memory but also an inextricable aspect of its history.

**SURVEY OF LITERATURE**

As has been mentioned, there has been no calamity study in the North Eastern Region except for a lone article by Shyamadas Bhattacharjee on one such earthquake (Bhattacharjee, S., *Proceedings of North East India History Association*, Doimukh Session, 1994). Apart from this there are general history available where earthquake does find mention. *The History of Assam : 1681-1826 AD* (Tungkhungia Buranji), comp., Tr. and Ed. By S K Bhuyan, OUP, 1933, records an earthquake event in a very distinct manner:

In the month of Puh, 1618, Bandar Phukan of the Chetia family constructed a fort at Pungdang under the orders of the king which took two months. In the same year there was an earthquake which continued for six months in an abortive fashion from Phagun to Saon of the following year. The earth was rent asunder at Sadiya, and magur and kawai fish appeared in the breaches. As sands and water appeared at that place the sides of the hills crumbled down.

Lila Gogoi, a prominent historian and compiler of royal chronicles of Ahom remarked:

As Assam is lying in the earthquake zone she had faced a number of devastating earthquakes during six hundred years. There were a few tremors, which not
only caused collapse of buildings but also water, sand, fish had been found thrown up from below. The earthquakes of 1548, 1594, 1607, 1649, 1696 are noteworthy.

Though Edward Gait (*History of Assam*, Calcutta, 1905) mentioned earthquakes a number of times (pp. 21, 99, 103, 123, 139, 182, 350) yet he did not go beyond the little details. The great earthquake of 1897 was discussed in J H Morris *The History of the Welsh Calvinistic Methodists' Foreign Mission to the End of 1904* and C Baker's *History of the Catholic Mission in North East India*. The report on the earthquake of 12th June, 1897 by R D Oldham, though was an official report, it subsequently emerged to be the handbook of all seismologists. Similarly, a compilation of papers on the Assam Earthquakes of August 15, 1950, publication no. 1, by the Central Board of Geo-Physics is also a valuable report.

Recently an effort was made to list a few earthquakes in the region from the Ahom records by Hem Chandra Goswami (1984). But it is an unpublished thesis. In another such attempt H K Gupta prepared a list of earthquakes from 1548 to 1962. Apart from these there are other studies on natural calamities in the form of books such as *Civilisation: Past and Present*, USA, 1987 by Wall Bank, T W et al., *Catastrophe in the Earth's History*, Moscow, 1980 by Rezanov, I A, *Earthquake: Animal and Men*, Pune, 1997 by Deshpande, B G, *Earthquake and Urban Environment*, Florida, 1980 by Lennis Berlin, G. Also there are a number of particular studies like Dali, L. Yang, *Calamity and Reform in China*, OUP, 1999, Roy Parter, *Disease
**OBJECTIVES**

The basic objective of the present proposal was to show that calamities like earthquake, though natural phenomena are inextricable part of man’s social life and hence a part of the collective past, which cannot be excluded from their general history. With this aim in view the study investigates the frequency of earthquake in North East India and its impact on the people and their lives in all its dimensions. In doing so we would first list the number and dates of the earthquakes, in the Ahom period, British period and post-independence period up to 1960. This enabled us to verify the claim of the geophysicists that the region forms a part of the most active seismic zone. We then investigated into the extent of devastation on the lives and properties of the people from the records. It then reconstructed an account of the changes on the geography of the region, impact on the society, economy and the environment. It also enquired into the nature of responses of the people to these calamities and how they managed to adapt to these challenges. Such a recurring phenomena obviously had an influence on the culture and tradition of the people too. The
study enquired into this aspect by examining their religion, myth making, legend formation and the manufacture of traditions. Lastly it investigated into the role of the state – pre-colonial, colonial and post-colonial in helping the people to withstand these natural attacks. It also examined the nature of participation of the Non-Governmental Organizations like Christian Missionaries, Brahmo Mission and Hinduist Voluntary Organization in aiding the people in such times of crisis.

ORGANIZATION

The report of the investigation thus undertaken has been organized into seven connected chapters.

The introductory chapter has first of all analysed the possible role of certain devastating natural calamities in the making and unmaking of human history. In the process a brief comparative study of the devastation caused by the different natural calamities has been done to workout the status of earthquake among them. As revealed earthquake still topped the list as killer. Thus, the chapter has thereby introduced the problem with the necessary information gathered out of the investigation regarding the role of various natural calamities with special reference to earthquake.

The second chapter has, therefore, at the very outset located all possible earthquakes those have taken place in the region from the Ahom period till the end period of the study, i.e., 1960. Ahom
chronicles, archival records, colonial states reports, technical reports of Geological Survey of India and published list of earthquakes occurred in the region all have been consulted while identifying the shocks and preparing a list of earthquakes belonging to the North Eastern Region. The frequency of earthquakes along with the sizes has thus placed the region not only as one of the highest seismic prone regions of the world but also as a zone of highest seismicity. Epicentral map so made when superimposed on the geological map of the region, the two together very justifiably reveal the causality of the origin and distribution of seismic sources by the theory of plate tectonics. The scale of intensity as well as the Richter scale have been explained in details.

The third chapter examined the impact of those earthquakes on the topography, landslides, change of river course and on ecology of the region. The earthquakes particularly those two of 1897 and 1950 have had left a great mark on the eco-system of the region.

The fourth chapter depicted the direct as well as indirect impact of this devastating natural calamity on the overall society of the region. Even though highly sparse, the two great earthquakes together have killed more than 3000 people (a very conservative estimate).

Overall impact on the economy of the region forms the content of the 5th chapter. The loss of property were of very great dimension. Loss in communication, health care, even its loss in agriculture have
been discussed in this chapter ultimately summarizing the overall loss in economy of the region.

The different cultural impact of these earthquakes on the people of the region have also been worked out in the 6th chapter. The great fear that those shocks had impinged in the minds of the people of the region had very rightly left their traces in the myths and folklores of the different communities living in the region. Their role in the propagation of new faith and culture have also been investigated.

The 7th chapter has described the various roles that the contemporary States, NGOs had played in mitigating the event in the reign. The Ahom stage, i.e., the period of tribal state formation, the colonial stage and the post colonial phase, all the three periods have been discussed with possible interpretation to really find out the relevant role that they played or might have played in the region.

The last chapter is the conclusion which summarises the entire report.

The overall study thus has been done vis-à-vis the objective of finding the much expected impact of the earthquake in shaping and reshaping the course of history of the region has been in fact come out with a number of very significant conclusions.

DATA AND METHODOLOGY

The major sources of the study have been:
Archival materials

(a) Reports of the Geological Survey of India, Govt. of Assam, 1898.
(b) Memoirs in Geological Survey of India, 6 volumes.
(c) Proceedings of the chief commissioner of Assam, in State Archives, Govt. of Assam.
(e) Tour diaries of the Chief Commissioner in State Archives, Assam.
(g) Reports of the Medical Officer, Sanitary Officer, Government of Assam in State Archives;
(h) Report of the Missionaries of various denominations.
(i) Report of the Assam Rifles.

Asiatic Society


7. Hanny, W, 'Memoranda of earthquake and other remarkable occurrence in upper Assam from January', 1839 to Sept. 1843, 142-143.


**Published Reports**

(a) Gazetteer of Bengal and various districts of Assam, 1854;
(b) A J M Mill's report on Assam, 1854;
(c) Henry Cotton's Memoir;
(d) Statistical Account of Assam by W W Hunter;
(e) A compilation of papers on the Assam earthquake of August 15, 1950.
(g) East Siang and West Siang District Gazetteer, 1994.

In addition to these, all the available secondary sources have been utilized to corroborate and fill in the gaps in the archival and published source materials.

As far as methodology is concerned the empirical method has been generally used. The story of earthquake of the region from the pre-colonial period to the 20th century has been reconstructed on the
basis of documentary evidence preserved in the archives, record rooms and libraries which are then evaluated, collated and reproduced after relevant analysis.