A probe into the Calcutta earthquake of 1737

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Some doubts have been expressed in the recent literature about the occurrence of an earthquake that occurred simultaneously with a cyclonic storm during September/October 1737 near Calcutta. In this article an attempt has been made to probe into the historical documents with a logical analysis. Our study reveals that an earthquake did occur undoubtedly near Calcutta in 1737. However, the death toll reported in the catalogue of significant earthquakes by the US Department of Commerce needs to be corrected. It was also found that the Encyclopedia Britannica has missed to make entry of the earthquake, in addition to making inadvertently a wrong entry of the date of occurrence of the cyclonic storm. This study has led to the conclusion that an earthquake did occur near Calcutta during the passage of a severe cyclonic storm on the Bengal coast on the night of 11 October 1737 as per the Gregorian equivalent calendar, or on 30 September 1737 as per the then-existing Julian calendar. The death toll due to the combined disaster could have been about 3000.

The United States Department of Commerce in their catalogue1 of significant earthquakes for the period 2000 BC–1979 has made an entry of an earthquake occurrence near Calcutta on 11 October 1737. Recently, some scientific groups2,3 have expressed doubts about the occurrence of this event. The suspicion was mainly due to the death toll reported in this document and the mismatch of the dates of occurrence in other sources of literature. Due to the coincidence of the earthquake event with a severe cyclonic storm that crossed the Bengal coast4, it is felt necessary to investigate further to make the picture more transparent. In the process, the author has reviewed all the available literature related to the earthquake from the recent to the historical times5. An independent approach was adopted and reported briefly earlier6. In this article, an attempt has been made to give detailed information on the event. The author was fortunate to get all the necessary literature at the University of East Anglia, UK.

Main reports

The US Department of Commerce in their catalogue1 of significant earthquakes, published in 1981, have included the occurrence of an earthquake on 11 October 1737 near Calcutta. The location was given as 22.5°N, 88.4°E and the number of deaths reported was 300,000. The damage caused has been rated as ‘moderate’, corresponding to a property loss of 1–5 million US dollars of 1979.

Encyclopedia Britannica of 1974 (ref. 7) mentioned only the occurrence of a cyclonic storm on 7 October 1737, causing a 12 m storm surge and killing about 300,000 people, and termed it as the most catastrophic cyclone.

Blanford, a meteorologist working in India, in his catalogue8 of 1877 has included the occurrence of the cyclone storm on 7 October 1737 and described it as follows: ‘This storm is ranked among the worst, if not the worst, tropical cyclone disasters in recorded history.’ The death toll given by him was 300,000.

In 1848, Peddington9 in his Hornbook stated clearly about the simultaneous occurrence of an earthquake and a cyclonic storm on 11 October 1737. He did not make any entry about the casualty figures. Earlier, in 1837, Martin10, in his Medical Topography of Calcutta, writes:

‘The earliest notice I can find of a storm and earthquake occurring together is — On the night between 11 and 12 October 1737, there happened a furious hurricane at the mouth of the Ganges which went 60 leagues up the river. There was at the same time a violent earthquake, which threw down a great many houses along the riverside in Golgota (i.e. Calcutta) alone, a port belonging to the English .... Dutch ships in the river, three were lost, with their men and Cargoes: 300,000 souls are said to have perished. The water rose 40 feet higher than usual in the Ganges.’

Gentlemen’s Magazine of June 1738 describes about the damage caused due to a furious hurricane in the Bay of Bengal and a violent earthquake on 30 September 1737. However, no death toll was included (a copy of the report from the magazine is given in Appendix 1). Bengal Public Consultations, dated 15 October 1737, published in another source in 1906, states as follows:

‘The late violent storm laid the whole black towns, quite throughout the honourable company’s (The East India Company) bounds, insomuch that hardly twenty thatched houses were standing the next day, and the inhabitants lost the little they had and were rendered incapable of paying the rents ... what still adds to the calamity is that by the violent force of the wind the river overflowed so much that a great quantity of rice was quite spoiled ... and nearly 3000 inhabitants were killed, and a great number of large cattle besides goats and poultry destroyed.’

Discussion

It is evident from these reports that an earthquake did occur during September–October 1737. However, unfortunately, for reasons not known, reports earlier to 1974 do not provide the sources from where the information on the disaster was collected. If we analyse in the reverse order, i.e. from the historical times, we find that Martin10 has nowhere indicated that he had collected his data from a journal published in 1738. He had added and exaggerated the information on death toll (from 3000 to 300,000) from an official source, Bengal Public Consultations, dated 15 October 1737. A close comparison of these sources clearly reveals that Peddington9 reproduced the occurrence of the events from Martin’s book16. In both Martin’s and Peddington’s reports, the date of occurrence of the storm and the earthquake was given as 11 October or the night between 11 and 12 October 1737. Blanford, without referring to any earlier reports, has reported the occurrence of a cyclonic storm on 7 October 1737, without any explanation regarding the date of the event. Literature study reveals that he has taken the information from Peddington9 and altered...
Appendix I

THE Gentleman's Magazine:

AND Historical Chronicle.

VOLUME VIII.

For the YEAR M.DCC.XXXVIII.

CONTAINING,

I. Proceedings and Debates in the Senate of Lilliput.
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By SYLVANUS URBAN, Gent.

LONDON:

Printed by Edw. Cave, jun. at St John's Gate.
The above description enriches the knowledge for supporting the occurrence of an earthquake along with the storm. Further, in an economic study of Bengal, Bhattacharya\(^18\) mentions that only after the great disaster of 1737 was widespread masonry construction considered desirable. These observations give a fairly good qualitative idea that destruction to buildings might have occurred partly due to ground motion. Bilham\(^2\), while concluding that 'the listing of this event in the catalogues of disastrous earthquakes is indefensible', writes that 'the possibility that an earthquake-induced tsunami caused the flood damage cannot be completely excluded'.

Population estimates range from 10,000 to 12,000 between 1705 and 1720 (ref. 19). It has been documented\(^20\) based on the report by Ray\(^3\) that the population of Calcutta was 120,000 in 1757. It was further mentioned that 'the early nineteenth century may not have held for the 200,000 or so who were living in Calcutta, in an environment largely of British creation'. From these facts it is clear that the number of people dead in the disaster cannot be 300,000 as reported by the Encyclopedia Britannica and by the US Department of Commerce. The author, therefore, feels that the official figure of 3000 might have been exaggerated to 300,000 by Martin\(^10\).

**Conclusion**

After spending sufficient time in reviewing the literature from the historical past to the present, the author feels confident in stating that an earthquake did occur in the vicinity of Calcutta on the night of 11 October 1737 as per the Gregorian equivalent calendar, or on 30 September 1737 as per the then-existing Julian calendar. Exaggerating the death toll figures is a human psychology, even today, for drawing the attention of the targeted groups. It is also evident that the earthquake occurrence was during the period of landfall of a cyclonic storm on the Bengal coast. The concerned authorities of the Encyclopedia Britannica and the US Department of Commerce may consider issuing a modification to their reports, after another independent study, if felt necessary.

\(^2\) Bilham, R., Bull Seismol Soc Am., 1994, accepted.
\(^3\) Hecht, J., New Scientist, 1994, 142 (1921) 7.
\(^7\) The New Encyclopedia Britannica, Chicago, USA, 1974, vol. 9, p. 58.
\(^8\) Blanford, H. F., J. Asiatic Soc Beng, 1877, 46 (Pt II), 328.
\(^10\) Martin, J. R., Notes on the Medical Topo.
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ography of Calcutta, Gutman, Calcutta, 1837, pp. 7–8.
\(^15\) Municher Ruckversicherungs-Gesellschaft (MRG), World Map of Natural Hazards, Munich, 1978.
\(^19\) Hamilton Alexander, A New Account of the East Indies, 2, Edinburgh, 1927.

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