Harendranath Bhattacharya

Department of Geology
Professor

ABOUT ME

I am teaching sedimentology, stratigraphy and economic geology for the last 30 years in UG and PG levels. My research interest is on ore geology, sedimentology and Precambrian crustal evolution. Presently I am working on (i) Paleoproterozoic sediment-hosted Pb-Zn deposits of Rajasthan, India, (ii) Precambrian crustal evolution of Singhbhum region, eastern India, (iii) evolution of Chitradurga Greenstone belt of Karnataka, southern India, and (iv) sedimentological and ichnological study of Paleozoic glacial deposits of Indian subcontinent. In addition, I am engaged in collaborative research on Precambrian crustal evolution with Dr. David Nelson of West Sidney University, Australia, and Dr. Wlady Altermann of Pretoria University, South Africa. I have

successfully supervised 10 (ten) Ph.D. thesis and currently guiding three fellows. I have published more than 50 research papers in peer reviewed International and National journals. I am a recipient of National Mineral Award, 2004 from Govt. Of India and Prof. N. N. Chatterjee Medal (1987) from The Asiatic Society, Kolkata for contribution to the knowledge of Economic Geology and Dr. P.N.Bose Medal (1975 and 1978) from Jadavpur University, for securing highest marks in Honours and Masters Examinations.

QUALIFICATION

Academic Qualifications:

Degree	Year	University/Institute
B.Sc., with Honours in Geology (Stood first class first)	1975	Jadavpur University, Kolkata
M.Sc. in Applied Geology (Stood first class first)	1978	Jadavpur University, Kolkata
Ph.D. in Ore Geology	1985	Jadavpur University, Kolkata

Field of Specialization: Ore Geology and Sedimentology

BIOGRAPHY

Biographical Note:

Institution	Year	Position
Jadavpur University	1980-82	Junior Research Fellow
Geological Survey of India	1982-83	Geologist (Junior)
Durgapur Government College, Durgapur, West Bengal	1983-96	Lecturer-Asst. Professor-Reader in Geology
Presidency College, /Presidency University Kolkata, West Bengal	1996-Till Date	Continuing Professor of Geology (1997)
		Remained Head of the Dept. (1999 - 2012)

I have visited as a visiting scientist Johannesburg University, Johannesburg, South Africa, 2003, for three months and also Center of Ore Deposit Research, University of Tasmania, Australia, 2003-2004 for six months. I was invited in the Department of Geology, University of Pretoria, South Africa (May-June, 2013) to deliver a series of lectures

on “Crustal Evolution and Metallogeny of India”. I served the Depart of Geology Kumaun University, Uttarakhand as visiting Professor to impart teaching on Economic Geology.

RESEARCH AND ADMINISTRATIVE EXPERIENCE

Contributions throughout the research career:

Research and Administrative Experience

1. Proposed evolutionary model for the Chitradurga Greenstone Belt on the basis of geochemistry of the volcanic-suits and analysis of the associated sediments.

2. Developed a comprehensive genetic model for the Copper Ore Mineralization in the Chitradurga Greenstone Belt.

3. Delineated facies types of Banded Iron-Formation in the Chitradurga Greenstone Belt and interpreted them in terms of basin bathymetry.

4. On the basis of the sedimentary parameters of the conglomerates of the Chitradurga Greenstone Belt, a stratigraphic classification and their correlation has been proposed.

5. Established a pyroclastic flow mechanism for the deposition of pyroclastic rocks that hosts the Copper Ore Mineralization in the Chitradurga Greenstone Belt.

6. Reinterpreted the sediments of the Chaibasa Formation as Tidal Flat deposits on the basis of their sedimentary attributes.

7. Established the pattern of tectonic behavior of the Chaibasa Basin during sedimentation on the basis of analysis of the seismic shock generated sedimentary structures.

8. Identified the occurrence of Tourmallinite in the Singhbhum Copper Belt – a first report of Tourmallinite from India, suggesting exhalative-sedimentary origin for the Copper ores.

9. Suggested possible origin of the Phosphate deposits of the North Singhbhum Fold Belt.

10. Established a petro-tectonic evolutionary model for the South-Delhi Fold Belt in the Aravalli Mountain Belt.

11. Framed a genetic model for the Copper Ore mineralization in the South-Delhi Fold Belt.

12. Suggested possible genetic model for the major banded iron formation hosted iron ore deposits of India

13. Reported silver bearing sulpho-salts from Agucha Pb-Zn deposit.

14. Identified two genetically contrasting mineralization types from Zawar Pb-Zn deposits and erected a sedimentary basin model on the basis of sedimentary attributes of the host sediments.

15. Identified for the first time storm-laid sediments in the Aravalli sedimentary succession, and interpreted the basin dynamics on the basis of the sedimentation pattern.

16. Established glacio-marine sedimentary model for Talchir sediments of different coal basins of Damodar valley on the basis of sedimentological, ichnological and paleontological attributes.

17. Identified tide-storm interactive sedimentation for the first time from Talchir Formation and evaluated storm evolution pattern in an ice-marginal shallow marine setting.

18. Identified the source and cause of fluoride pollution of groundwater in the hard rock terrains of Purulia and Bankura districts of West Bengal and suggesting mechanisms for proper management and mitigation options.

TEACHING AND OTHER EXPERIENCE

Teaching:

UG level

I teach sedimentology of clastic sediments and sedimentation in relation to tectonics, Precambrian stratigraphy of Indian subcontinent, metallogeny in the frame of crustal evolution and occurrences and genesis of metallic ore deposits.

PG level

In the PG level, I cover metallogeny, tectonics and mineralization, mineralogy of metallic ores, origin of ore fluids and their characters, and genesis of well known metallic ore deposits of India and abroad.

I also supervise post-graduate dissertations on different aspects of clastic sedimentary deposits, and Fe-Mn and base metal deposits in various geological setting.

On-Going Research Projects:

1. "*Evolution of the Chitradurga Greenstone Belt in t5he frame of Archean granite-greenstone terrain of Karnataka*". Total cost of the project Rs.18.5 Lakh, Sponsoring Agency DST, New Delhi.

2. "*Hydrogeological study of the sub-surface water flow / storage characteristics for creation of sustainable source on rain-fed Kumari river for water supply to semi-arid and fluoride affected blocks of Purulia, West Bengal*". Total cost of the project Rs.32.4 Lakh. Sponsoring Agency: Department of Public Health and Ingineering, Govt. of West Bengal

DOCTORAL & POST GRADUATE SUPERVISION

Ph.D. thesis supervised (awarded):

Name	Year and University	Title
Srimanta Gupta	2001 Jadavpur University	Evolution of Pyrite mineralization around Amjhor, Bihar.
Barendra Purkait	2002 Calcutta University	Evolution of the point bars – a case study in the Usri river section, Jharkhand, India.
Abhijeet Chakraborty	2003 Jadavpur University	Sedimentology and ichnology of the Talchir Formation in Saharjuri, Bihar, India.
Sharadindra Chakraborty	2003 Burdwan University	University Of Burdwan Study to determine acceptability of septic field sewage disposal at mine colonies.
Bhabani Prosad Mukhopadhyay	2004 University of Burdwan	A study on the evolution of Precambrian Mobile Belt, covering parts of Singhbhum and Purulia districts, Jharkhand and West Bengal.
Samiran Mahapatra	2004 University of Burdwan	Study of metasediments of the Southern marginal part of the north-singhbhum fold belt and its bearing on the basin evolution,
Sandip Bandopadhaya	2007 Jadavpur University	A study on the Pb-Cu -zn sulphide ore Mineralisations of Agnigundala sulphide Belt, Cuddapah basin, Andhrapradesh, India.
Soma Bhattacharya	2007 University of Calcutta	A study on the quarternary sediments of the foothills of the Darjeeling Himalaya in the interfluve of Balason and Tista rivers and their land use pattern.
Biplab Bhattacharya	2009 University of Calcutta	Sedimentological Analysis of the rocks of Talchir Formation (Permo-Carboniferous) of Gondwana Supergroup in Raniganj Coalbasin, India and it's bearing on the Palaeogeography
Anadi Gayen	2011 Jadavpur University	Groundwater problem with reference to the pollution perspectives in the Attapaddy tribal area, Palghat district, Kerala.

Guided more than hundred M. Sc. Dissertation

ACADEMIC MEMBERSHIP

Membership of Academic/Professional Bodies:

1. I am a Life Member, Geological Society of India, Bangalore.
2. I am a Member of International Association of Sedimentaologists.
3. I am a Fellow, West Bengal Academy of Science and Technology.
4. Member of the Editorial Advisory Board of the India Journal of Geosciences, A journal of the Geological Survey of India.

PUBLICATIONS

Seismites in a Proterozoic tidal succession, Singhbhum, Bihar, India

HN Bhattacharya, S Bandyopadhyay - Sedimentary Geology, 1998 - Elsevier

Early Proterozoic metasediments of the Chaibasa Formation (Galudih–Ghatsila–Dhalbhumgarh region, Singhbhum, Bihar, India) comprise a number of cyclic fining-upward prograding successions of tidalites. The tidalites show indications for earthquakes in the **...**

Cited by 72 Related articles

A reappraisal of the depositional environment of the Precambrian metasediments around Ghatshila-Galudih, eastern Singhbhum

HN Bhattacharya - J. Geol. Soc. India, 1991

Cited by 18 Related articles

Geochemistry of some banded iron-formations of the Archean supracrustals, Jharkhand-Orissa region, India

HN Bhattacharya, I Chakraborty, KK Ghosh - Journal of Earth System ..., 2007 - Springer

Abstract Banded iron-formations (BIF) form an important part of the Archean supracrustal belts of the Jharkhand-Orissa region, India. Major, trace and REE chemistry of the banded iron-formation of the Gandhamardan, Deo Nala, Gorumahisani and Noamundi sections of **...**

Cited by 17 Related articles

Sole marks in storm event beds in the permo-carboniferous Talchir formation, Raniganj basin, India

HN Bhattacharya, B Bhattacharya, I Chakraborty... - Sedimentary ..., 2004 - Elsevier

Sole marks in storm event beds are described for the first time from Talchir Formation (Permo-Carboniferous) of Raniganj Basin, India. Gutters and grooves trending subparallel to wave ripple crests were formed by shore-parallel geostrophic flow at the initial phase of **...**

Cited by 14 Related articles

The Chitradurga greenstone succession in south India and evolution of the late Archaean basin

PK Bhattacharyya, **HN Bhattacharya**... - Geological ..., 1988 - Cambridge Univ Press

Abstract The Chitradurga greenstone succession of south India comprises a thick pile (~ 10 km) of late Archaean volcanic flows and terrigenous clastic sediments, metamorphosed from greenschist to low-grade amphilobite facies. An older near-shore sedimentary sequence **...**

Cited by 12 Related articles

Ichnology of a Late Paleozoic (Permo-carboniferous) glaciomarine deltaic environment, Talchir Formation, Saharjuri Basin, India

A Chakraborty, **HN Bhattacharya** - Ichnos, 2005 - Taylor & Francis

Abstract The storm-influenced prodeltaic offshore succession of the Saharjuri Basin sits in a glaciomarine deltaic setting of the Permo-Carboniferous, Talchir Formation, Gondwana Supergroup, India. It offers the opportunity for study of relationships between **...**

Cited by 11 Related articles

Implications of trace fossil assemblages from late Paleozoic glaciomarine Talchir Formation, Raniganj basin, India

B Bhattacharya, **HN Bhattacharya** - Gondwana Research, 2007 - Elsevier

The trace fossil assemblages of the ice-marginal shallow marine sediments of the Talchir Formation (Permo-Carboniferous), Raniganj Basin, India, record the adverse effect of extreme climatic conditions on biota. The glaciomarine Talchir succession starts with **...**

Cited by 11 Related articles

HUMMOCKY CROSS-STRATIFICATION AND ITS HYDRAULIC AND CLIMATIC IMPLICATIONS IN TALCHIR FORMATION, DUDHI-NALA, HAZARIBAGH, ...

HN Bhattacharya... - JOURNAL OF ..., 1989 - ... SOC INDIA BBD PRESS SM LANE ...

Cited by 11 Related articles Cite SaveSaved More

Facies analysis of Talchir Sediments (Permo-Carboniferous), Dudhi Nala, Bihar, India-A glaciomarine model

G Mukhopadhyay, **HN Bhattacharya** - Ninth Internat. Gondwana Symp, 1994

Cited by 11 Related articles Cite SaveSaved More

New SHRIMP U-Pb dates from Singhbhum Craton, Jharkhand-Orissa region, India

DR Nelson, **HN Bhattacharya**, S Misra, N Dasgupta... - International Conference on ..., 2007

Cited by 10 Related articles Cite SaveSaved

Significance of transition between Talchir formation and Karharbari formation in lower Gondwana basin evolution—a study in West Bokaro Coal basin, Jharkhand, ...

HN Bhattacharya, A Chakraborty... - Journal of earth system ..., 2005 - Springer

Abstract Basal part of the Gondwana Supergroup represented by Talchir and Karharbari Formations (Permo-Carboniferous) records an abrupt change-over from glacio-marine to terrestrial fluviolacustrine depositional environment. The contact between the two is an **...**

Cited by 9 Related articles

A Permo-Carboniferous tide-storm interactive system: Talchir formation, Raniganj Basin, India

HN Bhattacharya, B Bhattacharya - Journal of Asian Earth Sciences, 2006 - Elsevier

Sandstone/siltstone-mudstone interbedded facies of the Permo-Carboniferous Talchir formation, Gondwana Supergroup, is exposed in

the Raniganj Basin and records the activities of tidal currents in a terminoglacial, storm-influenced shallow marine setting. **...**

Cited by 8 Related articles

Soft-sediment deformation structures from an ice-marginal storm–tide interactive system, Permo-Carboniferous Talchir Formation, Talchir Coalbasin, India

HN Bhattacharya, B Bhattacharya - Sedimentary Geology, 2010 - Elsevier

Permo-Carboniferous Talchir Formation, Talchir Coalbasin, India, records sedimentation during a phase of climatic amelioration in an ice-marginal storm-affected shelf. Evidences of subtidal processes are preserved only under thick mud drapes deposited during waning **...**

Cited by 8 Related articles

Fossil Polyplacophora (Mollusca) from upper Talchir sediments of Dudhi Nala, Hazaribagh, Bihar

..., **HN Bhattacharya** - JOURNAL OF ..., 1999 - GEOLOGICAL SOC INDIA # 64 ...

Cited by 8 Related articles Cite SaveSaved More

Sedimentary facies analysis of a Permo-Carboniferous terminoglacial succession, Saharjuri basin, Jharkhand

HN Bhattacharya, A Goswami... - JOURNAL- ..., 2002 - GEOLOGICAL SOC OF INDIA

Cited by 7 Related articles Cite SaveSaved More

Storm event beds in a Paleoproterozoic rift basin, Aravalli Supergroup, Rajasthan, India

HN Bhattacharya, B Bhattacharya - Gondwana Research, 2005 - Elsevier

Storm event beds in the Paleoproterozoic riftogenic sedimentary succession of Aravalli Supergroup are described from a 12.8 m-thick sandstone-mudstone interbedded unit in Zawar area, Rajasthan, India. The storm event beds include different primary structural **...**

Cited by 6 Related articles

Tectono-sedimentary setting of the Paleoproterozoic Zawar Pb–Zn deposits, Rajasthan, India

HN Bhattacharya, S Bull - Precambrian Research, 2010 - Elsevier

The Paleoproterozoic Aravalli basin of Rajasthan, India hosts a number of Pb–Zn sulphide deposits. Various ore genetic models for these deposits are available in the literature, but none of them are backed by comprehensive basin models reconstructed on the basis of **...**

Cited by 6 Related articles

Archean seismites of the Ventersdorp Supergroup, South Africa

EA Schneiderhan, **HN Bhattacharya**... - South African Journal of ..., 2005 - GSSA

Abstract This contribution documents the discovery of seismites in pyroclastic lithologies of the Kameeldoorns Formation of the late Archean (2.8 to 2.65 Ga) Ventersdorp Supergroup, South Africa. A variety of well-preserved sedimentary structures document the seismites, **...**

Cited by 5 Related articles

Petrotectonics of a southern segment of the polymetallic sulfide-bearing Proterozoic Delhi mobile belt, Rajasthan, India and its implications

AD Mukherjee, PK Bhattacharya, **HN Bhattacharya** - ... mobile belts. Oxford & IBH Publ ..., 1992

Cited by 5 Related articles Cite SaveSaved More

Evolution of the Proterozoic rift margin sediments—North Singhbhum Mobile belt, Jharkhand-Orissa, India

HN Bhattacharya, S Mahapatra - Precambrian Research, 2008 - Elsevier

The Proterozoic North Singhbhum Mobile Belt (NSMB), a Proterozoic rift basin, registered a complex interplay of tectonism and sedimentation. The siliciclastic sedimentary succession developed along the southern margin of the NSMB offers a deep insight into the changing **...**

Cited by 5 Related articles

Strata-bound pyritic copper mineralization in a fore-arc setting in northwestern India-a proterozoic Besshi-type deposit

AD Mukherjee, **HN Bhattacharya** - Transactions of the Institution of Mining and ..., 1997

Cited by 5 Related articles Cite SaveSaved More

Geology and genesis of the major banded iron formation-hosted high-grade iron ore deposits of India

..., J Gutzmer, NJ Beukes, **HN Bhattacharya** - Banded iron formation– ..., 2008

Cited by 5 Related articles

Tourmalinite from Cu-U Belt of Singhbhum, Bihar, India

HN Bhattacharya, A Chatterjee... - Journal of the ..., 1992 - ... SOC INDIA BBD PRESS SM LANE ...

Cited by 5 Related articles

Analysis of the sedimentary succession hosting the Paleoproterozoic Zawar, zinc–lead sulphide ore deposit, Rajasthan, India

HN Bhattacharya - Sediment-hosted Sulphide Deposits, Narosa ..., 2004 - books.google.com

The Zawar Zn-Pb sulphide deposit of Paleoproterozoic Middle Aravalli Group of Rajasthan, India is a syngenetic sulphide ore mineralization that was later remobilized during deformation and low-grade metamorphism. The deposit contains two types of **...**

Cited by 3 Related articles

Conglomerates of the Chitradurga greenstone belt and their geological significance

HN Bhattacharya, S SARKAR, A MANDAL - Indian journal of earth ..., 1987 - cat.inist.fr

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Cited by 3 Related articles

Pb-Zn sulphide ore mineralization by basin dewatering in a Proterozoic intracratonic rift basin, Zawar, India: 29th IGC

HN Bhattacharya - Abstracts, 1992

Cited by 3 Related articles

Phosphate deposits in Purulia and Singhbhum, Eastern India—a study in similarity and contrast

HN Bhattacharya, A Bhattacharya - Memoir, Geological Society of India, 1989

Cited by 2 Related articles

Architecture of storm event beds from Late Paleozoic glaciomarine Talchir Formation, Talchir Coalfield, Orissa

HN Bhattacharya, B Bhattacharya, A Chakraborty - Vistas in Geological Research, 2009

Cited by 2 Related articles

Implications of Mud-Clast Conglomerates within Late Palaeozoic Talchir Glacio-Marine Succession, Talchir Basin, India

B Bhattacharya, **HN Bhattacharya** - Indian Journal of Geosciences, 2012

Cited by 2 Related articles

Geology and genesis of the major BIF-hosted high-grade iron ore deposits of India: Reviews in Economic Geology, v. 15

..., J Gutzmer, NJ Beukes, **HN Bhattacharya** - 2008

Cited by 2 Related articles

Facies analysis of glaciomarine sediments of Talchir formation (Permo-Carboniferous), Dudhinala, Bihar, India

G Mukhopadhyay, **HN Bhattacharya** - Abstracts 9th Int. Gondwana Symp., Hyderabad, ..., 1994

Cited by 2 Related articles

Facies analysis of Talchir sediments (Permo-Carboniferous), Dudhi Nala, Bihar, India—a glaciomarine model, 9th Int. Gond. Symp. Hyderabad, Ind

G Mukhopadhyay, **HN Bhattacharya** - 1994 - Oxford & IBH, New Delhi

Cited by 2 Related articles

SILVER-BEARING SULFOSALTS FROM RAMPURA-AGUCHA MASSIVE SULFIDE DEPOSIT OF RAJASTHAN

..., S Glahiri, **HN Bhattacharya** - JOURNAL OF ..., 1991 - ... SOC INDIA BBD PRESS SM LANE ...

Cited by 2 Related articles

Facies analysis of Talchir sediments (permo-carboniferous), Dudhi Nala, Bihar, India—a Glaciomarine Model, 9th Int. Gond. Symp. Hyderabad, India vol. 2 ...

G Mukhopadhyay, **HN Bhattacharya** - Oxford and IBH Publishing Co., New ...

Cited by 2 Related articles

Bahgla Mahgalkavyera Dhara

HN Bhattacharya - 1970 - Calcutta: House of Books

Cited by 2 Related articles

Sediment Hosted Lead-Zinc Sulphide Deposits

M Deb, WD Goodfellow - 2004 - books.google.com

... hosted Lead-Zinc Deposits of Zawar, Rajasthan, in the Context of the World Scenario SC Sarkarand S. Banerjee 13-Analysis of the Sedimentary Succession Hosting the Paleoproterozoic ZawarZinc-Lead Sulphide Ore Deposit, Rajasthan, India **HN Bhattacharya** Index 290 304 **...**

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Sedimentology and Geochemistry of Paleoproterozoic Greywacke from the Zawar Mineralized Belt, Rajasthan, India—implications on ore mineralization

HN Bhattacharya - Indian J. Geochem, 2005

Cited by 1 Related articles

Sole marks in storm beds from a glacially influenced Late Palaeozoic shallow sea, Talchir Formation, Talchir Basin, India

HN Bhattacharya, B Bhattacharya - Indian Journal of Geosciences, 2011 - researchgate.net

Abstract: Gutter casts, present on sandstone bedding undersurfaces of the storm-laid sandstone-mudstone heterolithic facies within the Talchir Formation (Permo-Carboniferous), Talchir Basin, India, are oriented perpendicular to the wave ripple crest lines, and are **...**

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Crustacean burrow fills as obstacles for current crescents in permo-carboniferous Talchir formation, Raniganj Basin, Eastern India

HN Bhattacharya, B Bhattacharya... - ... SOCIETY OF INDIA, 2007 - geosocindia.org

Abstract: Current crescents genetically linked to exposed heads of the passively filled mud-lined tunneled crustacean burrows on the sandy substrate are being reported from the upper shelf sediments of glacio-marine Talchir Formation (Permo-Carboniferous), Raniganj **...**

Cited by 1 Related articles

Tectonostratigraphic and geochronologic reappraisal constraining the growth and evolution of Singhbhum Archaean craton, eastern India

AB Roy, **HN Bhattacharya** - Journal of the Geological Society of India, 2012 - Springer

Abstract Reappraisal of field relationships between the different lithological ensembles supported by available geochronological data, and taking due note of the tectono-metamorphic, magmatic and sedimentation history helped to build up a coherent crustal **...**

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