প্রত্নতত্ত্ব

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Professor Dr. Mostafizur Rahman Khan
Professor Dr. Sufi Mostafizur Rahman
Maliha Nargis Ahmed
Bulbul Ahmed

Executive Editor: Ayoub Khan

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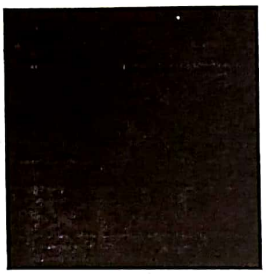
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Editorial

Pratnatattva, Journal of the Department of Archaeology of Jahangirnagar University of Bangladesh is a bilingual (English and Bangla) annual research publication. This volume contains nine research papers on various fields of archaeology, especially in prehistory, epigraphy, art & architecture, heritage management and preservation and even research methodology. We believe each article contain valuable information with new avenue of knowledge. The dignified redears of this journal will justify the contributions of some serious researchers who have rendered their invaluable contributions in their articles which we have published. The honourable scholers who have reviewed the articles of this volume are Professor Dr. A.K.M. Shanewaz, Professor Dr. Syed Md. Kamrul Ahsan, Professor Dr. Md. Mozammel Hoque and Mr. Bulbul Ahmed. They have done their painstaking jobs of reviewing the articles with their valuable comments and suggestions which enrich the standard of the articles and above all the journal. Teachers and students and even the staffs of the Department of Archaeology of Jahangirnagar University extended their hands of cooperation from their respective fields. M. Phil Researcher Mr. Nurul Kabir of this Department have extended his helping hands with his expertise in composing, page set up and printing. He was also responsible for the cover design of this volume. Mr. Mokter Ahmed, the owner of the Printing Network together with his Computer Operator Mr. Sukhendulal Bala is responsible for printing and publishing this volume with great care. We are greatful to all of them.

The most prominant founder of the Department of Archaeology of Jahangirnagar University was late Professor Abu Imam who always had taken care of each of the teachers and promising researchers of the Department. Recently he had demised and left his innumerable students and followers at home and abroad. Each member of the editorial Board of this volume is his direct student who remember him with great respect. We have dedicated this volume to Professor Imam.



শ্রদ্ধাঞ্জলি



গভীর বেদনা ও ভারাক্রান্ত হৃদয়ে অধ্যাপক আবু ইমামের অপ্রত্যাশিত অন্তর্ধানকে আমরা শ্রদ্ধার সাথে স্মরণ করছি। তিনি ছিলেন বাংলাদেশের একজন খ্যাতিমান ইতিহাসবিদ ও প্রত্নতাত্ত্বিক। বাংলাদেশে প্রত্নতত্ত্ব চর্চার ক্ষেত্রে তিনি ছিলেন একজন পথপ্রদর্শক। তাঁর নিষ্ঠা, জ্ঞান ও প্রচেষ্টায় এদেশে প্রাতিষ্ঠানিক প্রত্নতত্ত্ব চর্চার পথ সুগম হয়েছিল বিধায় তাঁকে বাংলাদেশ প্রত্নতত্ত্বের জনক বলে অভিহিত করা হয়। গত ২৭ ফেব্রুয়ারি ২০০৭ তারিখে খ্যাতিমান এই প্রত্নতাত্ত্বিক ও ইতিহাসবিদ হৃদযন্ত্রের ক্রিয়া বন্ধ হয়ে চিরনিদ্রায় শায়িত হন (ইন্না লিল্লাহে ... ... রাজিউন)। তাঁর এই আকস্মিক অন্তর্ধানে জাতি একজন জ্ঞানী ও পণ্ডিতকে হারিয়েছে। প্রত্নতত্ত্ব ভূবনে এরূপ খ্যাতিমানের অভাব সর্বক্ষণই অনুভূত হবে– এ কথা অনস্বীকার্য ।

অধ্যাপক আবু ইমামের পিত্রালয় ছিল বর্তমান পশ্চিম বাংলার হুগলী জেলায়। পিতা আলী মোহাম্মদ ছিলেন কলকাতা হাইকোর্টের সহকারী রেজিস্ট্রার। এই চাকুরীর সুবাদে তিনি কলকাতায় বসবাস শুরু করেন। অধ্যাপক আবু ইমামের জন্ম হয়েছিল এই শহরেই ৬ ডিসেম্বর ১৯২৯ সালে। হাওড়া জেলা স্কুলে হয়েছিল অধ্যাপক ইমামের প্রাথমিক ও মাধ্যমিক পর্যায়ের পড়াশোনার হাতেখড়ি। ১৯৪৪ সালে এই স্কুল থেকেই তিনি এন্ট্রান্স পাশ করেন। ১৯৪৬ সালে কলকাতা স্কটিশ চার্চ কলেজ থেকে তিনি উচ্চ মাধ্যমিক পরীক্ষায় অত্যন্ত সাফল্যের সাথে উত্তীর্ণ হন। এরপর তিনি কলকাতা প্রেসিডেন্সী কলেজে বি.এ. (অনার্স) কোর্সে ভর্তি হন। কিন্তু এই সময় অর্থাৎ ১৯৪৭ সালে দেশ বিভাগের রাজনৈতিক পট পরিবর্তনের কারণে অধ্যাপক ইমামের পরিবারবর্গ কলকাতা থেকে ঢাকায় অভিবাসন করেন। তাঁর পিতা আলী মোহাম্মদ পূর্বের মতোই ঢাকা হাইকোর্টে সহকারী রেজিস্ট্রার পদে যোগদান করেন এবং অধ্যাপক ইমামও ঢাকা বিশ্ববিদ্যালয়ের ইতিহাস বিভাগে ভর্তি হন। এ বিভাগ থেকেই তিনি অত্যন্ত সাফল্যের সাথে ১৯৫০ সালে বি.এ. (অনার্স) এবং ১৯৫১ সালে এম.এ. পাশ করেন।

এরপর তিনি ঢাকা বিশ্ববিদ্যালয়ে ইতিহাস বিভাগে প্রভাষক পদে যোগদান করেন। ১৯৫৩ সালে 'গভর্নমেন্ট ওভারসীজ স্কলারশীপ' নিয়ে লন্ডন বিশ্ববিদ্যালয়ে উচ্চতর ডিগ্রীর জন্য পড়তে যান। অধ্যাপক কে.ডি.বি. কোর্ডিংটনের তত্ত্বাবধানে এবং অধ্যাপক গর্ডন চাইল্ড ও স্যার মর্টিমার হুইলারের সহ-তত্ত্বাবধানে ১৯৫৬ সালে লন্ডন স্কুল অব ওরিয়েন্টাল এন্ড আফ্রিকান স্টাডিজ (এস.ও.এ.এস.) থেকে তিনি আরও একটি এম.এ. ডিগ্রী (থিসিসসহ) অর্জন করেন। অতপর তিনি অধ্যাপক এ.এল. বাসামের তত্ত্বাবধানে পি.এইচ.ডি. গবেষণায় ব্রতী হন এবং ১৯৬৩ সালে লন্ডন বিশ্ববিদ্যালয় থেকে তাঁর কাঙ্খিত ডিগ্রী অর্জিত হয়।

অধ্যাপক ইমামের পড়াশোনা ও গবেষণার প্রকৃত ক্ষেত্র ছিল ইতিহাস, বিশেষ করে প্রাচীন ভারতের ইতিহাস। কিন্তু অধ্যাপক এ.এইচ. দানী, অধ্যাপক কে.ডি.বি. কোর্ডিংটন, অধ্যাপক গর্ডন চাইল্ড, স্যার মর্টিমার হুইলার ও অধ্যাপক এ.এল. বাসামের সাহচার্যে তিনি প্রাচীন ভারতের শিল্পকলা ও আধুনিক প্রত্নতত্ত্ব বিষয়ে ব্যুৎপত্তি অর্জন করেন। প্রত্নতত্ত্ব বিষয়ে অধ্যাপক ইমামের প্রাগাঢ় পাণ্ডিত্য তাঁর লেখা বিভিন্ন প্রবন্ধ, গ্রন্থ ও বক্তৃতায় প্রত্যক্ষ করা যায়। সৃজনশীল এই পণ্ডিত মৃত্যুর পূর্ব পর্যন্ত এ বিষয়েই গবেষণা পরিচালনা করেছেন। দীর্ঘ কর্মজীবনে দেশে–বিদেশের অনেক বিশ্ববিদ্যালয়ে অধ্যাপক ইমাম পাঠদান করেছেন এবং বাংলাদেশের ইতিহাস ও ঐতিহ্য বিকাশে তিনি নিজেকে উৎসর্গ করেছিলেন।

১৯৫০ এর প্রারম্ভে অধ্যাপক ইমাম এবং অধ্যাপক দানী একত্রে ঢাকা বিশ্ববিদ্যালয়ে ইতিহাস বিভাগে এম.এ. শ্রেণীতে প্রত্নতত্ত্ব গ্রুপ চালু করেন। কিন্তু উচ্চ শিক্ষার জন্য অধ্যাপক ইমাম দেশের বাইরে চলে যাওয়ায় তাঁদের এই উদ্যোগ দীর্ঘস্থায়ী হয়নি। এছাড়া ১৯৬৬-১৯৭০ সাল পর্যন্ত তিনি অক্সফোর্ড বিশ্ববিদ্যালয়ের সেইন্ট অ্যান্থণী কলেজে ফেলো হিসেবে যোগদান করায় স্বাধীনতা পূর্বকাল পর্যন্ত উচ্চ শিক্ষা পর্যায়ে প্রত্নতত্ত্ব বিষয়ের ওপর পঠন-পাঠনের আর তেমন অগ্রগতি হয়নি। ১৯৭১ সালে অধ্যাপক ইমাম রাজশাহী বিশ্ববিদ্যালয়ে ইতিহাস বিভাগে যোগদান করেন। স্বাধীন এদেশের ইতিহাস ও ঐতিহ্য বিষয়ে মানুষের অবহেলা এবং এই বিষয়ে পণ্ডিত সমাজের উদাসীনতা তাঁর মনকে ভীষণ পীড়া দিয়েছিল। তিনি অনুধাবন করেছিলেন উচ্চতর পর্যায়ে স্বতন্ত্রভাবে প্রত্নতত্ত্ব বিভাগ চালু করার মাধ্যমেই কেবলমাত্র এদেশের ইতিহাস, ঐতিহ্য ও প্রত্নতত্ত্ব চর্চার বিকাশ সম্ভব। তাঁর চিন্তা বাস্তবায়নের লক্ষ্যে তিনি নানাভাবে চেষ্টা শুরু করেন এবং বিভিন্ন বিশ্ববিদ্যালয়ে স্বতন্ত্রভাবে প্রত্নতত্ত্ব বিভাগ চালু করার প্রয়াস নেন। কিন্তু প্রাথমিক পর্যায়ে তাঁর এই প্রচেষ্টা সফল হয়নি। তবে তাঁর নিরলস প্রচেষ্টা অব্যাহত থাকে। ১৯৮০ সালে অধ্যাপক ইমাম জাহাঙ্গীরনগর বিশ্ববিদ্যালয় ইতিহাস বিভাগে যোগদান করেন। আর এখানে তাঁর মনোবাসনা বাস্তবায়নের সুযোগ তৈরি হয়।

১৯৮৫ সালে ফোর্ড ফাউণ্ডেশন, ঢাকা অফিসের দায়িত্বে ছিলেন অধ্যাপক ভি.সি. যোশি। তিনি ছিলেন ভারতীয় ইতিহাসের অধ্যাপক এবং প্রাচীন ভারতের শিল্পকলা, ইতিহাস ও ঐতিহ্যের বিশেষ অনুরাগী। তিনি এদেশে বিশ্ববিদ্যালয় পর্যায়ে প্রত্নতত্ত্বের ওপর পঠন-পাঠনের সুযোগ নেই বিধায় এখানে স্বতন্ত্র প্রত্নতত্ত্ব বিভাগ খোলার জন্য উদ্যোগী হন। অধ্যাপক ভি.সি. যোশির ঘনিষ্ঠ বন্ধু ছিলেন বাংলাদেশের খ্যাতনামা ইতিহাসবিদ অধ্যাপক সালাউদ্দিন আহমেদ। অধ্যাপক আহমেদ অধ্যাপক ইমামেরও ঘনিষ্ঠ বন্ধু ছিলেন এবং অধ্যাপক ইমামের আগ্রহের কথা জানতেন। তিনিই তখন অধ্যাপক যোশিকে জাহাঙ্গীরনগর বিশ্ববিদ্যালয়ে অধ্যাপক আবু ইমামের নেতৃত্বে একটি স্বতন্ত্রভাবে প্রত্নতত্ত্ব বিভাগ চালু করার বিষয়ে পরামর্শ দেন। ১৯৮৫ সালে অধ্যাপক ইমাম ফোর্ড ফাউণ্ডেশন, ঢাকা অফিস থেকে জাহাঙ্গীরনগর বিশ্ববিদ্যালয়ে একটি স্বতন্ত্র প্রত্নতত্ত্ব বিভাগ চালু করার জন্য এক বিশেষ অনুদান লাভ করেন। অনুদান প্রাপ্তির পর অধ্যাপক ইমাম তাঁর ইতিহাস বিভাগের সহকর্মীদের সহযোগিতায় প্রথমে ইতিহাস বিভাগে এম.এ. পর্যায়ে প্রত্নতত্ত্ব গ্রুপ চালু করেন– যা ১৯৯২ সালে এদেশে প্রথম এবং বিশ্ববিদ্যালয় পর্যায়ে একমাত্র পূর্ণাঙ্গ প্রত্নতত্ত্ব বিভাগ হিসাবে আত্মপ্রকাশ করে। দুর্ভাগ্য এই যে প্রত্নতত্ত্বের জন্য পূর্ণাঙ্গ বিভাগ চালু করার দিনগুলোতে অধ্যাপক ইমাম বিশ্ববিদ্যালয়ে ছিলেন না। তিনি ১৯৯০ সালে ইতিহাস বিভাগ থেকে অবসর গ্রহণ করেন। কিন্তু প্রত্নতত্ত্ব চর্চাকে প্রাতিষ্ঠানিক রূপ দেয়া বা বিভাগ প্রতিষ্ঠার ক্ষেত্রে যে শিকড় তিনি প্রোথিত করেছিলেন পরবর্তী পদক্ষেপসমূহ ছিল সেগুলোরই ধারাবাহিকতা মাত্র। অবসরে গিয়েও অধ্যাপক ইমাম ছিলেন নবগঠিত বিভাগের পুরোধা। এই বিভাগের পলিসি নির্ণয়, পাঠ্যক্রম তৈরি এবং বিভাগকে আধুনিক প্রত্নতত্ত্বের বিভিন্ন শাখায় বিকশিত করতে তিনি অগ্রণী ভূমিকা পালন করেছিলেন। তাঁর শেষ নিঃশ্বাস ত্যাগের পূর্ব পর্যন্ত তিনি দেশের বিভিন্ন বিশ্ববিদ্যালয়ের প্রত্নতত্ত্ব ও ইতিহাস বিভাগসমূহকে সেবা দিয়ে গিয়েছেন।

অধ্যাপক ইমাম ছিলেন বিশিষ্ট জ্ঞানী, সৃজনশীল, উদ্যমী, মৃদুভাষী এবং সর্বজন বরেণ্য ব্যক্তি। মাতৃভাষা বাংলা ছাড়াও ইংরেজী, ফরাসী, সংস্কৃত ও হিন্দি ভাষায় তিনি সমধিক পারদর্শী ছিলেন-- যা তাঁর পেশাজীবনকে সমৃদ্ধ করেছিল। তিনি উল্লেখযোগ্য সংখ্যক প্রবন্ধ ও গ্রন্থের রচয়িতা। তাঁর গবেষণার মধ্যে উল্লেখযোগ্য হলো ভারতীয় প্রত্নতত্ত্বে স্যার আলেকজান্ডার কানিংহামের অবদান পর্যালোচনা। ১৯৬৬ সালে এশিয়াটিক সোসাইটি অব পাকিস্তান তাঁর গ্রন্থ *Sir Alexander Cunningham and the Beginning of Indian Archaeology* প্রকাশ করে। তাঁর এই গ্রন্থটি *American Historical Review*-তে মূল্যায়িত হয় এভাবে-- "This study is a first-rate scholarship, well documented and organized.... The flavor of the book ... is one of excitement and discovery.... For his critical and excellent survey ... Imam has our gratitude" (June 1968)। তিনি সাবলীল অথচ দৃঢ় ভাষায় বিভিন্ন গবেষণা প্রবন্ধ আলোচনা ও সমালোচনা করতেন। প্রত্নতাত্ত্বিক ও ঐতিহাসিক উপাত্তসমূহকে তিনি গভীরভাবে অবলোকন করতেন এবং তাঁর পর্যবেক্ষণ ও ধারণাকে অর্থবোধক ভঙ্গিমায় ব্যাখ্যা করতেন। তাঁর সাম্প্রতিক প্রকাশনা *Excavations at Mainamati: An Exploratory Study* গ্রন্থটি একই সাথে বর্ণনা ও ব্যাখ্যামূলক-- যা ১৯৫৫ সাল হতে বর্তমান সময় পর্যন্ত ময়নামতিতে প্রত্নতত্ত্ব অধিদপ্তর কর্তৃক প্রাপ্ত ও আবিস্কৃত স্থাপত্য ও নিদর্শনের আলোকে সুলিখিত। শিক্ষকতা জীবনের সোনালী সময়ে তিনি বিভিন্ন বিশ্ববিদ্যালয়ের বিভাগীয় সভাপতি, ডিন, সিন্ডিকেট সদস্য, সিনেট সদস্য ও প্রাধ্যক্ষের মতো গুরুত্বপূর্ণ প্রশাসনিক দায়িত্ব পালন করেছিলেন। এছাড়া বিভিন্ন শিক্ষা প্রতিষ্ঠানের সদস্য, সভাপতি ও উপদেষ্টা হিসেবেও তিনি দায়িত্ব পালন করেন। একাডেমিক ক্ষেত্রে তাঁর সম্মানসূচক অর্জনগুলো হলো অক্সফোর্ড বিশ্ববিদ্যালয়ের সেইন্ট অ্যান্থণী কলেজে পাকিস্তান স্টাডিজ এর ফেলো, মধ্য এশিয়ার ইতিহাস ও প্রত্নতত্ত্ব বিষয়ক ইউনেস্কোর প্রকল্পের পরামর্শক এবং ইউনেস্কোর ইন্টারন্যাশনাল কাউন্সিল অব মিউজিয়ামস (আই.সি.ও.এম.) এর পাকিস্তান জাতীয় কমিটির সদস্য।

একজন ছাত্র হিসেবে তাঁর অপার স্নেহ-ভালবাসা পাওয়ার সৌভাগ্য আমাদের হয়েছিল। তিনি তাঁর চিন্তা-চেতনায় আমাদের অংশীদার করতেন। আমরা তাঁকে বন্ধু, দিকনির্দেশক ও দার্শনিক হিসেবে পেয়েছি। তিনি সবসময়ই তাঁর বন্ধু ও ছাত্রদের নতুন চিন্তাধারা ও জ্ঞানকে স্বাগত জানাতেন। তাঁর জীবদ্দশায় দেশের সকল প্রত্নতাত্ত্বিক একই ছাতার নিচে আশ্রয় পেয়েছিলেন। তাঁর আকস্মিক মৃত্যুতে দেশের অপূরণীয় ক্ষতি হয়েছে। বিশেষ করে প্রত্নতত্ত্ব জগতে এই অভাব পূরণ হবার নয়। সর্বোপরি আমাদের শিক্ষা ও ব্যক্তি জীবনের প্রতিটি পদে তাঁর অভাব তিলেতিলে অনুভূত হবে।

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Two Stone Inscriptions of Paharpur Museum: A Study of their Contents and Calligraphic Art

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Due to the non availability of contemporary written materials sufficiently for writing or reconstructing the history of Bengal Sultanate in its multidimensional aspects the contents of the coins and epigraphs as being vital archaeological sources come to the rescue. Besides unearthing the materials of socio-political history of the period, the epigraphs especially deserve consideration for their calligraphic niceties and decorative motifs. This paper aims at presenting two epigraphs, one belonging to the reign of Sultan Rukn al-Din Barbak Shah and the other to that of Sultan 'Ala al-Din Husayn Shah, with the deciphered texts, translations and pertinent discussion.

Backdrop

Both the stone slabs engraved in Arabic, and containing new materials for investigation belong to the period of Bengal Sultanate (1204-1576 A.C.). These two inscriptions, one belonging to the reign of Sultan Rukn al-Din Barbak Shah (1459-1474 A.C.) and the other to that of Sultan 'Ala al-Din Husayn Shah (1493-1519 A.C.), are now preserved and displayed in the gallery of the Paharpur Museum of the district Naogaon, Bangladesh. The sponsors of the 7th International Congress of Bengal Art held in Bogra & Dhaka on February 7-12, 2007 arranged a tour for the delegates in the archaeological sites of Mahasthan and Paharpur on February 10 to facilitate their visual observations. As one of the delegates I did not miss the opportunity of accompanying the group. However, in this short visit to Paharpur Museum the two epigraphs referred to above arrested my attention to investigate into their contents with a view to searching new materials for historical reconstruction and also to pointing out their calligraphic niceties. The Museum records show that the epigraph of Barbak Shah's reign was procured from the debris of the dilapidated mosque of Mahisantosh and that of Husayn Shah's time was collected from an unspecified spot of Gaur area of Bangladesh. So far my knowledge goes these two epigraphs have not yet been deciphered or published in the journals or books. Hence I do exhert my endeavours to decipher and get them published in reputed research journal for those interested in the historical and archaeological study of the epigraphs. As deciphered the texts, the translations and pertinent comments of these two inscriptions are given underneath.

1. Mahisantosh Inscription (Plate No. 1)

Mahisantosh, an important site of antiquarian relics is situated in the Dhamorhat police station of Naogaon district about 70 kilometers from the district headquarters to the north. Potsherds and brickbats are reported to have had scattered over a large expanse the circumference of which seems to have been 10 to 15 kilometers. As an urban settlement of the Muslims at the initial period of their rule in the early 13th century A.C. it, in the subsequent period, contained famous educational seminary, fort, Jami mosque and mint-town to keep its mark on the history of medieval Bengal. Several architectural units and inscriptions having been collected from this site are kept in the various museums of Bangladesh. The inscription understudy belongs to this category.

The inscription slab is of sand stone divided into two lines by a band running horizontally from right to left. The inscription as deciphered stands the following.

1st Line

لا اله الا الله محمد رسول الله قال النبى عليه السلام من

بنى مسجدا فى الدنيا بنى الله سبعين قصرا فى الجنة

عمر المسجد الملك العادل ٭

2nd Line

السلطان ابن السلطان ركن الدنيا والدين ابو المظفر باربكشاه

ابن محمود شاه السلطان البانى خان الاعظم وخاقان

المعظم الغ حبس خان سنة سبع وستين وثمنماية

Translation

1st Line: There is no divinity, but Allah, Muhammad is the apostle of Allah. The Prophet (peace be on him) said: He who builds mosque in this world Allah builds seventy castles in the paradise. Built the mosque the just monarch.

2nd Line: Sultan son of Sultan Rukn al-Dunya wa al-Din Abul Muzaffar Barbak Shah, the Sultan, son of Mahmud Shah, the Sultan. The builder (at the behest of Sultan) Khan al-Azam, Khaqah al-Muazzam Ulugh Habas Khan (completed it) in the year 867 A.H./1462 A.C.

Pertinent Discussion

Though the mosque referred to in the epigraph can not be exactly located yet its procurement from the debris of the dilapidated mosque of Mahisantosh can reasonably tend us to take the mosque of Mahisantosh for the mosque indicated in the inscription. In this connection it is to be mentioned here that of the several inscriptions procured from this place three inscriptions studied beforehand, two[1] belonging to the reign of Sultan Rukn al-Din Barbak Shah and the third one[2] to that of 'Ala al-Din Husayn Shah, all related to the construction of mosque. This fourth one also belongs to the reign of Sultan Rukn al-Din Barbak Shah with the same purpose of the construction of mosque. Taking all these inscriptions regarding the construction of mosque into consideration the epigraph understudy fits well to ascertain the date of construction of the mosque of Mahisantosh during the reign of Sultan Rukn al-Din Barbak Shah in 867 A.H./1462 A.C., and the plan of construction was executed by Ulugh Habas Khan, the executive head of the Barbakabad region identified with Mahisantosh. It is substantiated by the numismatic evidence[3] that Barbakabad mint alias Mahisantosh was founded by Sultan Rukn al-Din Barbak Shah, and the earliest date of mintage from this mint appears to be 864 A.H./1459 A.C.[4] That the city officially used as Barbakabad is supported by an epigraph dated 876 A.H./1471-72 A.C.[5] It may, therefore, be presumed that after developing as an urban settlement with the foundation of mint all necessary steps were taken for the flourishment of the city including the construction of mosque, a place of assemblage for the Muslims besides the daily and congregational Jum'a prayers, during the time of Rukn al-Din Barbak Shah. From this epigraph is unearthed the name of Ulugh Habas Khan, a military personnel and executive head appointed to look after the overall affairs of Barbakabad region.

Caligraphic Style and Decorative Motif

The letterings belong to the cursive group of Arabic writing and are included in the *al-Aqlam al-Sittah* invented by Ibn Muqlah in 310 A.H./922-23 A.C.[6] In proportion of the elongated shafts of barbed *alif* and *lam* to the clustered letters beneath (three-fourth elongated shafts and one-fourth clustered letters with thin character) the style of writing may be regarded as *Raihan*. As a simple *Tughra* the epigraph in its ornamental design may be postulated as a rural fencing around the corn field to give protection from outside attacks of the domestic and wild animals. In more clear term it may be said that all he elongated shafts of the letters resemble the sticks of the bamboo fencing and the clustered letters beneath the corn stalks and seeds kept for protection.

2. Gaur Inscription (Plate No. 2)

As recorded in the Paharpur Museum's Accession Register the inscription understudy was procured from any place falling in the Gaur area of Shibganj Police Station of Chapai Nawabganj district. As no specified place is mentioned, so to avoid confusion of the provenance it is better to call it Gaur Inscription.

The inscription slab is of black basalt engraved in two lines divided by a band running from right to left. As deciphered the text stands the following.

1st Line:

قال الله تعالى من جاء بالحسنة فله عشر امثالها بنى هذه

السقاية فى عهد السلطان المعظم والمكرم علاء الدنيا

والدين ابو المظفر حسين شاه

2nd Line:

السلطان ابن سيد اشرف الحسينى خلد الله ملكه وسلطانه

بانيه خان المعظم والمكرم سعديخان فى التاريخ سنة

سبع عشر وتسعماية

Translation

1st Line: Allah, the Great said: He who does good shall have ten times as much to his credit. This water reservoir was built in the time of the honoured and respected Sultan 'Ala al-Dunya wa al-Din Abul Muzaffar Husayn Shah

2nd Line: the Sultan son of Sayyid Ashraf al-Husayni, may Allah perpetuate his Kingdom and Sultanate. The builder of the water course is honoured and respected Khan Sa'di Khan by name in the date, the year being 917 A.H./ 1511 A.C.

Search for Materials of Historical Interest

This inscription carries importance for containing information of the *siqayah* construction of Sultan 'Ala al-Din Husayn Shah's time by Sa'di Khan, an executive head of an administrative zone in the year 917 A.H./1511 A.C. *Siqayah* in Arabic terminology is meant to take proper step to supply water for the people, the animals, the plants and other objects of Allah's creation on this earth. The term *siqayah* has got its

reference in the Quranic verse[7] where its utility is acknowledged along with other virtuous deeds. There is no denying the fact that water is the life blood of all creations. This notion is echoed in the holy Quran where it is stated that "We (Allah) created everything with life from water."[8] To give water to drink is praiseworthy and is indeed virtuous deed of human beings. The Prophet of Islam in many of his sayings gave good tidings of salvation in the world hereafter for those who give to drink water for thirsty. Being imbibed with this spirit of Islamic idealism the votaries of Islam and the followers of Prophet Muhammad (sm) in all times take initiative in making waters available for the use of the people in the areas of scarcity.

The Muslim rulers in all ages took adequate step for water supply, as the necessity demanded, all over their conquered territories. The Muslim rulers of Bengal in medieval times especially of Bengal Sultanate did not lag behind in this respect. From the epigraphical sources we come across ten *siqayah* or watercourses including the new addition of the epigraph understudy.

Of these watercourses one belongs to the region of Sultan Rukn al-Din Barbak Shah of the date 871 A.H./1466 A.C.[9], seven to the reign of Sultan 'Ala al-Din Husayn Shah of the dates 910 A.H./1504-5 A.C., 916 A.H./1510 A.C. (three in number), 917 A.H./1511 A.C., 1511 A.C., 921 A.H./1515 A.C., 922 A.H./1516 A.C. respectively[10] and two to the reign of Sultan Nasir al-Din Nusrat Shah of the dates 929 A.H./, 1522 A.C. and 938 A.H./1531-32 respectively.[11] Pertinently it may be pointed out here that the term *siqayah* is directly used in all the epigraphs with the exception of two, one belonging to the reign of Sultan Rukn al-Din Barbak Shah dated 871 A.H./1466 A.C. and the other to that of Sultan Nasir al-Din Nusrat Shah dated 929 A.H./1522 A.C. In the former the word *Nahr*, the meaning of which is river, is used while in the latter the term *Bayt al-Siqayah* or the house of drinking water is used. Except these two epigraphs all the inscriptions referred to above start with the Quranic verse "He who does good shall have ten times as much to his credit"[12]. This verse clearly indicates that any good word or deed has its reward ten times, and the *siqayah* is included in such virtuous deed which will be rewarded ten times for the undertakers.

The *siqayah* referred to in the epigraphs can be taken, in the broader perspective, for any type of watercourse be it a reservoir, tank or canal. The watercourses referred to in the epigraphs can not exactly be located as they are found loose from the *si tu*. The epigraph of the present paper falls in this category. In the absence of positive evidence and not being in *si tu* the epigraph understudy when procured from Gaur area of Bangladesh, the *siqayah* in question may be taken for any tank or *dighi* located in close proximity to the religious and secular edifices of the area mentioned above. The builder of this *siqayah* is Sa'di Khan, the honoured and respected Khan who appears to have been a ranked official of Sultan 'Ala al-Din Husayn Shah posted in the area of administrative importance of Gaur. In this epigraph the parentage of Sultan 'Ala al-Din Husayn Shah is traced, the name of his father being mentioned as Sayyid Ashraf al-Husayni. The suffix 'al-Husayni connects his parental linage to Hazrat Husayn son of Hazrat 'Ali', the fourth caliph of Islam. Thus the dynasty founded by 'Ala al-Din Husayn Shah may reasonably be regarded as Sayyid dynasty in Bengal.

Calligraphic Style and Aesthetic Aspects

The letterings belong to the cursive group of Arabic writing and represent the *Naskh* style being included in the *al-Aqlam al-Sittah.* Because here in this epigraph the elongated shafts of the letters seem to be two-thirds of the cursive and clustered letters across the body and underneath of the shafts with *Khafi* or thin character. The epigraph in its ornamental design is indeed nice to look at. In the knotless setting and unobstructed motion the letters are very soothing to the eyes of the onlookers creating a sort of aesthetic feeling in the minds. The abstract scheme of the ornamentation may be postulated as the *chala* houses of rural Bengal with inmates living within. The elongated shafts of the letters may be taken for the poles of the bamboo cottage, the concave letters upward for the roofs and the clustered letters beneath for the inmates of the cottages. This type of decorative motifs acquaints us with the indigenous *chala* roof in making the dwelling houses of rural Bengal in medieval times. Hence this epigraph carries significance in making addition to the domain of knowledge regarding the historical and aesthetic aspects of Bengal Sultanate.

Concluding Remarks

No historian and researcher can deny the importance of epigraphs as an archaeological unit in reconstructing the socio-political and cultural history of Bengal Sultanate due to the non-availability of contemporary written materials. The two epigraphs understudy bring forth some points of consideration in this regard. First, both the epigraphs convey information of two executive heads or the ranked officials of the sultans in whose reigns the inscriptions were engraved. Thus two names as executive personnels are added in the list of the respective sultans' officials. Of these two, the honoured Khaqan Ulugh Habas Khan belongs to the reign of Sultan Rukn al-Din Barbak Shah mending the affairs of Barbakabad region and the honoured Khan Sa'di Khan

belongs to the reign of Sultan 'Ala al-Din Husayn Shah destined to look after the affairs of the place of his posting in the suburb of Gaur from where the epigraph understudy was procured. Secondly, the last mentioned epigraph attracts our attention to investigate into the location of the *siqayah* built during the time of Husayn Shah. Thirdly, in this epigraph the parental linage of Husayn Shah can be traced. Lastly, both the epigraphs understudy testify to the excellence of calligraphic nicety along with the decorative motifs of indigenous origin.



Fig. 1: Inscription of Sultan Rukn al-Din Husayn Shah



Fig. 2: Inscription of Sultan Ala al-Din Husayn Shah

সারসংক্ষেপ

লিখিত উপাদানের অপ্রতুলতার কারণে বাংলার সুলতানি শাসনপর্বের ইতিহাস রচনা ও পুনর্গঠনের ক্ষেত্রে মুদ্রা ও শিলালিপির বিশেষ ভূমিকা আছে। উক্ত সময়ে কোন নতুন মুদ্রা কিংবা শিলালিপি আবিস্কৃত হলে তার পাঠোদ্ধার থেকে একদিকে যেমন ইতিহাস কোষে অজানা তথ্য যুক্ত হতে পারে অপরদিকে তার অলঙ্কার শৈলী নান্দনিক শিল্পের গণ্ডি সম্প্রসারিত করতে পারে। পাহাড়পুর প্রত্নতাত্ত্বিক যাদুঘরে সংরক্ষিত ও প্রদর্শিত আলোচ্য শিলালিপি দু'টি এই অনুসন্ধানের আওতাভুক্ত। দু'টি শিলালিপির পাঠ থেকে দু'জন প্রশাসনিক কর্মকর্তার নাম অবগত হওয়া যায়। আবার সুলতান আলা আলা-দীন হুসাইন শাহের আমলের শিলালিপির সূত্রে 'সিকাইয়া' বা জলাধার নির্মাণের তথ্য পাওয়া যায়। প্রস্তর লিপি দু'টির ক্যালিগ্রাফি ও অলকরণ মটিফ বাংলার সুলতানি শাসন পর্বের নান্দনিক শিল্পের উৎকর্ষের কথা স্মরণ করিয়ে দেয়।

End Notes

1. Ahmed, Shamsud-Din, 1960, Inscriptions of Bengal, Vol. IV, pp. 73-75 and 90-91, Rajshahi: Varendra Research Museum.
2. Ibid., p. 179.
3. Wright, H.N. 1907, Catalogue of the Coins in the Indian Museum, Calcutta, Vol. II, p. 171, Coin No. 162, London: Oxford University Press.
4. Karim, A. 1960, Corpus of the Muslim Coins of Bengal, p. 162, Dhaka: Asiatic Society of Pakistan.
5. Ahmed, op.cit., p. 90.
6. Ahmed, Qadi, 1959, Gulistan-e-Hunar, Trans. T. inorsky, Calligraphers and Painters, p. 49, Washington.
7. al-Quran, 9:19.
8. al-Quran, 23:30.
9. Ahmed, op.cit., pp. 85ff.
10. Ibid., pp. 167, 185ff, 194.
11. Ibid., pp. 209, 232.
12. al-Quran, 6:160.

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Bengal Copperplates: Provenances and Preservation Data

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Bengal is a land, comprising West Bengal state of India and independent Bangladesh (Map 1-4). Bengal was ruled by many kings and dynasties together with their subordinate rulers and feudal chiefs. They issued several land grants engraved mostly in copperplates. Land grants in stones and copper vases are not unknown. However, copperplates of the imperial Gupta period, Post-Gupta Vanga, Gauda, and Samatata rulers who ruled in the 6th-7th centuries AD were found in Bengal. The Pala dynasty of Gauda-Varendra and Magadha issued land grants and most of their copperplates were found in north Bengal. The Deva, Chandra, Varman dynasties ruled in Southeast Bengal and their plates were found in the same region. Land grants of the Harikela kings were also found in Southeast Bengal. The Sena kings ruled the whole of Bengal and their land grants were found almost all over Bengal.

The data of the find places and the present position or location of these documents are not found in a single book or article and it seems nobody studied them in those perspectives. Previous scholars studied the text of the copperplates and used its information in reconstructing history of the land and its people. Morrison (1970) prepared a catalogue of copperplates but that was more or less incomplete. Paul & Shamsuddin (2001) prepared and published an article on the provenances of the inscriptions of Pre-Muslim Bengal but many errors and even some misinformations are noticed in their publication. In present paper an attempt has been made to complete the incomplete facts and correct the erroneous information of the previous researchers. Secondly, we have gathered some fresh inform ation from the fields and added in this paper. Thirdly, we have prepared maps and tables for better and deeper understanding of our information.

The main aims of this paper are to locate individual provenance of the copperplates found in Bengal with its present location and search its preserving institution where it is housed now on the basis of previous publications as well as our own field works. Our second objective is to draw map to show provenances of the plates by using and correcting the earlier maps. We also propose to draw find places of copperplates of various dynasties to mark its extents of empires and prepare some statistical data on its provenances; we have also recorded preservation status of these copperplates in various museums and institutions and even private collections at home and abroad. But we have some obvious limitations because we could not visit all the locations of the findplaces; we could not also verify the previous information about the preservation data of copperplates in various museums and institutions. To overcome these limitations further research is needed.

The subordinate rulers and offices of the Gupta Bengal issued land grants, which are known in the name of the reigning emperors. Imperial Gupta dynasty ruled the whole of the northern India in the 4th-6th centuries AD. Chandragupta I established the dynasty. His son Samudragupta was the greatest ruler of the dynasty; Samudragupta extended his empire over Bengal. Samudragupta's grandson Kumaragupta I and other ruler Budhagupta are recorded as reigning king in the copperplates found in north Bengal. The last Damodarpur copperplate records the name of a reigning king whose proper name is broken and missing. Scholars tried to reconstruct *Purvapada* of his name as Bhanu, Visnu, Damodara and conjoin with the *Uttarapada* of the dynastic name Gupta as Bhanugupta/Visnugupta/Damodaragupta and assign him to the Gupta or later Gupta dynasty. Chhabra & Gai (1981: 360-62) and Sircar (1985: 19) lately reported him as Visnugupta. However, Gupta rulers ruled north Bengal directly with their appointed rulers. All of the Gupta period land grants of Bengal were found at north Bengal and its provenances and preservations are discussed here.

Gupta Copperplates (5th -6th Centuries AD)

At least 10 copperplates of the Gupta period were discovered in Bengal and they are as follows:

1. Kumaragupta I's Dhanaidaha Copperplate (GE* 113): It was found at Dhanaidahapara Mauza within Duaria Union in Lalpur Upazila of present day Natore district. Basak (1923-24:345) writes that it was found about 15 years before i. e.1908AD. RD Banerji (1909a: 459) writes that Akshaya Kumar Matreya sent it to Bangiya Sahitya Parisat for the Calcutta Industrial Exhibition of 1906-07. Therefore, it was discovered in about 1906 AD (Chhabra & Gai 1981: 273). After discovery it came in the possession of Maulvi Muhammad Ershad Ali Khan Chaudhuri Khan Bahadur, a land lord of Natore. Akshaya Kumar Maitreya, Director of Varendra Research Society, obtained this plate from the land lord and deposited it in

* Gupta Era

Varendra Research Museum (VRM) (Sen 1942: xii). Dhanaidaha plate is very worn out and fragile. Banerji (1909a), Basak (1923-24) and Chhbara & Gai (1981: 273-74) edited and re-edited it. Basak also published it in Bangla (Basak 1323BSa, 1323BSb).

2. Kumaragupta 1's Sultanpur- Kalaikuri Copperplate (GE 120): It was discovered in north Bengal. DC Sircar (1943:12) called it Kalaikuri copperplate and Sanyal (1955-56: 57-66) termed it Sultanpur copperplate. Sircar (1943) writes, "As early as the year 1935, Mr. Rajanimohan Sanyal of Nawgaon in the Rajshahi Dist. purchased an inscribed copperplate from a Muslim house holder originally belonging to the village of Kalaikuri in the Bogra Dist. the village about 8 miles from the Nawgaon town." Sanyal (1955-56) writes that this plate was handed over to him by Rajanimohan Sanyal of Nawgaon, but it was originally preserved in an old wooden box for a very long time as an heirloom in the family of Namiruddin Khondkar of Sultanpur in the suburb of Nawgaon town. His family originated from Kalaikuri village in Adamdighi Police station. According to Sanyal (1955-56: 57) the grand father of Namiruddin Khondkar came over Sultanpur with his ancestral property about a century earlier i.e. mid 19th century (Sircar 1943: 12ff; 1965: 352ff; 1350BSa; 1350BSb). At present Adamdighi Upazila of Bogra district is an adjacent area of Nawgaon district Sadar Upazilla.

3. Kumaragupta 1's Damodarpur Copperplate I (GE 124): It was one of the five documents of the Guptas. The five Damodarpur Copperplates were discovered in April, 1915 at Uttar Damodarpur village in Eluari Union within Fulbari Upazila of Dinajpur district. The whole set of five plates was found by some labors employed by a villager Chamiruddin Mandal in leveling a heap of earth between two tanks, locally known as Haripukur and Kholatipukur, during making a road (Basak 1919-20a: 113). These plates were made over to JA Ezekiel, the District Magistrate of Dinajpur. Ezekiel sent them to VRM for preservation.

4. Kumaragupta I's Jagadishpur Copperplate (GE 128): This plate was discovered at a depth of about 15 feet while digging a well at Jagadishpur village within Silmaria Union in Puthia Upazila of Rajshahi district. A Hindu gentleman of Jagadishpur donated it to VRM in 1961. His ancestors discovered it. S Siddhanta deciphered and edited it (Siddhanta 1972). Sircar (1973: 8-14) also edited it.

5. Kumaragupta I's Baigram Copperplate (GE 128): It was discovered while excavating a tank near an old well within a wooden structure at Baigram village near Hilli in 1930 (Basak 1931-32: 78). DC Sircar mentioned Baigram in Bogra district (Sircar 1985: 16). We have visited Baigram village within Boaldar Union in Hakimpur Upazila of Dinajpur district in September 30, 2004. Baigram is also known for a Gupta period temple. Saraswati (1943: 5-11) also discussed the Baigram plate together with the temple. However, Baigram copperplate is deposited in Gauda Research Society, Howrah (Sen 1942: xiii).

6. Kumaragupta I's Damodarpur Copperplate II (GE 128): This plate (Fig. 1-2) was discovered at Uttar Damodarpur village mentioned above and deposited in VRM (Basak 1919-20a).

7. Budhagupta's Paharpur Copperplate (GE 159): It was recovered from an excavation. KN Dikshit found this plate on November 26, 1927 during the excavation of the central temple of Paharpur monastery at Paharpur village within Jagadishpur Union in Badalgachhi Upazila now in Nawgaon district. It was recovered from the debris on the northwest side of the circumambulatory passage on the second terrace of the temple (Dikshit 1929-30: 59). Originally it brought down from a higher level along with the bricks and mud. It was covered with a thick coating of rust and vedigris which have been cleaned (Dikshit 1929-30: 59). However, Paharpur monastery is the ruins of 'Dharmapala Mahavihara' built at Somapura by Pala ruler Dharmapala in the late 8th or early 9th century AD. Paharpur copperplate was issued in 479 AD, but it was preserved in the 8th -9th centuries AD or later.

8. Budhagupta's Damodarpur Copperplate I (GE 163): It was discovered at Uttar Damodarpur village mentioned above and deposited in VRM (Basak 1919-20a).

9. Budhagupta's Damodarpur Copperplate II (GE -): This plate (Fig.3-4) was also discovered at Uttar Damodarpur and deposited in VRM (Basak 1919-20a).

10. Visnugupta`s Damodarpur Copperplate (GE 224): It was found at Uttar Damodarpur and deposited in VRM. Basak (1919-20a) deciphered its date as124 GE and Dikshit (1923-24: 193) corrected it and mentioned its date as 224 GE.

The above ten Gupta copperplates were discovered in north Bengal (map. 5). All of them were issued from local offices of the same region. All of the ten plates were discovered accidentally by the local people except one. The exceptional one was discovered at Paharpur excavation by KN Dikshit. All of the Gupta period copperplates of Bengal were found at Rajshahi Division only of Bangladesh. Not a single one of the Gupta period plates was found at West Bengal. The following table-1 shows the distribution pattern of the Gupta period copperplates of Bengal:

Table-1 Location of Provenance and deposition of Gupta Copperplates

Name of Plate	Union	Upazila	District	Deposited
Kumaragupta I's Dhanaidaha	Duaria	Lalpur	Natore	VRM
Kumaragupta I's Sultanpur-Kalaikuri		Adamdighi	Bogra	
Kumaragupta I's Damodarpur I	Eluari	Fulbari	Dinajpur	VRM
Kumaragupta I's Jagadshpur	Silmaria	Puthia	Rajshahi	VRM
Kumaragupta I's Baigram	Boaldar	Hakimpur	Dinajpur	Gauda Research Society, Hawrah
Kumaragupta I's Damodarpur II	Eluari	Fulbari	Dinajpur	VRM
Budhagupta's Paharpur	Jagadishpur	Badalgachhi	Nawgaon	
Budhagupta's Damodarpur I	Eluari	Fulbari	Dinajpur	VRM
Budhagupta's Damodarpur II	Eluari	Fulbari	Dinajpur	VRM
Visnugupta`s Damodarpur	Eluari	Fulbari	Dinajpur	VRM

The above table shows the distribution pattern of the Gupta copperplates found in Bengal (map. 5). Among the ten plates six were found in Dinajpur district. The rest four plates were found at Natore, Bogra, Rajshahi and Nawgaon districts. All of them were found in Rajshahi division of Bangladesh and issued from north Bengal by the local rulers.

Post-Gupta Copperplates (6th-7th Centuries AD)

Vanga, Samatata and Gauda kingdoms emerged in the post-Gupta period in Bengal. Gopachandra, Dharmaditya and Samacharadeva were known as Vanga rulers who ruled in the independent Vanga country in the sixth century AD probably from Kotalipara of present day Gopalganj district. But their dynastic identities are unknown and their successions of ascendancy are also not beyond doubt. Seven copperplates of them were found. Among them Gopachandra's Jayarampur plate was found in Orissa, India. Other six were found in Bengal. However, Vainyagupta of Samatata was preceded by these kings. At first we would like to discuss about the copperplates of Gopachandra, Dharmaditya and Samacharadeva. Their copperplates are as follows:

1. Gopachandra's Mallasarul Copperplate (RY* 3/33): It was found at Mallasarul village, 1.5 mile north of Damodar river within Galsi PS in Burdwan district in West Bengal, India in 1929 (Majumdar 1935-36: 155-61; 1344BS: 17-21, Chhabra 1953-54: 161-63, Morrison 1970: 159). Mallasarul copperplate is also known as Vijayasena's copperplate because it was issued from the office of a feudal chief named Vijayasena with his seal containing his name. However, it is deposited in VSP (Vangiya Sahitya Parisat) in Kolkata (Sen 1942: xv).
2. Gopachandra's Kotalipara Copperplate (RY 18): It was found in Kotalipara region of present day Gopalganj district of greater Faridpur district in 1891. But its exact find spot is unknown (Pargiter 1911, Morrison 1970: 159). It is also known as Faridpur Copperplate. It is deposited in the Library of RASB (Royal Asiatic Society of Bengal) in Kolkata (Sen 1942: xvi).
3. Dharmaditya's Kotalipara Copperplate I (RY 3): Its find place and deposition are as the above one.
4. Dharmaditya's Kotalipara Copperplate II (RY 18?): Its find place and deposition are also as the above two.
5. Samacharadeva's Kurpala Copperplate (RY 7): It was found at Kurpala village about 2 miles north of Ghugrahati village within Kandi Union in Kotalipara Upazila of Gopalganj district. It is still unpublished (Sircar 1985: 20).
6. Samacharadeva's Ghugrahati Copperplate (RY 14): It was found at Gugrahati village within Kandi Union in Kotalipara Upazila of Gopalganj district in 1908 (Pargiter 1911: 475, Banerji 1910: 429-36; 1911: 429-34, Bhattasali 1925-26: 74-86; 1920a; 1920b; Block 1907-08: 255-59). It is deposited in Dhaka Museum alias Bangladesh National Museum (BNM), Dhaka (Sen 1942: xvi).

The provenances and distribution patterns of the Vanga rulers' copperplates are shown in map and table (Map 6 & Table 2).

Table-2 Provenances and deposition of copperplates of Vanga kings

Name of Plate	Union	Upazila/ PS	District	Deposited
Gopachandra's Mallasarul		Galsi	Burdwan	VSP, Kolkata
Gopachandra's Kotalipara		Kotalipara	Gopalganj	RASB, Kolkata
Dharmaditya's Kotalipara I		Kotalipara	Gopalganj	RASB, Kolkata
Dharmaditya's Kotalipara II		Kotalipara	Gopalganj	RASB, Kolkata
Samacharadeva's Kurpala	Kandi	Kotalipara	Gopalganj	
Samacharadeva's Ghugrahati	Kandi	Kotalipara	Gopalganj	BNM, Dhaka

* Regnal Year

The above table shows the distribution pattern of the provenances of the Vanga rulers' copperplates. Five were found at Kotalipara in Gopalganj district and one was found at Galsi PS* in Burdwan district, West Bengal (Map 6). Kotalipara was the heart land of Vanga.

After the fall of the Gupta and later Gupta rule, Gauda emerged incorporating Varendra and Radha as an independent kingdom in the 6th-7th century AD. Jayanaga and Sasanka were its known rulers under whose rule land grants were issued. Jayanaga ruled from Karnasuvarna in the 6th or 7th century AD. Sasanka also ruled from Karnasuvarna in early 7th century AD. At least one copperplate of the time of Jayanaga and four plates of the time of Sasanka were found in Bengal. One of the plates of the time of Sasanka was found at Ganjam in Orissa. After the demise of Sasanka, Kamrupa king Bhaskaravarman occupied important portions of Gauda and issued land grants from its capital Karnasuvarna. These copperplates are our concern here.

1. Jayanaga's Vappaghoshavata Copperplate (RY-): It was found at Indigo estate in Mallia. It could not be identified by Barnett (1925-26: 61) who writes that Vappaghoshavata alias Ghoshapara village was donated with this grant. This is why Barnett termed it as Vappaghoshavata plate. Ghoshavata alias Ghoshapara is a village in the southern region of old Nadia district on the eastern bank of the Bhagirathi in West Bengal. According to Morrison (1970: 160) this plate was found at the Indigo estate of Mr. James Smith at Mallia, about 30 miles south of Burdwan district in 1855. The finders presented the plate to Mr. J Greig of Kolkata. Greig presented it to the Museum of Perth in Australia (Barnett 1925-26: 60, Sircar 1985: 22). Banerji (1925-26, 1927-28) also discussed the inscription.
2. Sasanka's Midnapore Copperplate (RY 8): It was found in Midnapore in West Bengal. Collector of Midnapore collected it from an inhabitant of his district in 1937. Exact find spot is unknown (Pargiter 1911: 475-502, Majumdar 1945: 9, Sircar 1983: 24-25).
3. Sasanka's Midnapore Copperplate (RY 19): It was found in Midnapore in West Bengal. Collector of Midnapore collected it from an inhabitant of his district in 1937. Exact find spot is unknown (Majumdar 1945: 7-8, Sircar 1983: 26-27).
4. Sasanka's Egra Copperplate (RY-): It was found in a house of Pancharul village near Khargapur and Egra PS of Midnapore district in West Bengal. Ashish Roy Chowdhury of Egra collected it and hence it is named as Egra plate. Sircar (1982a: 59-64) edited and published it.
5. Bhaskarvarman's Nidhanpur Copperplates (I-VII) (RY-): These copperplates were a set of seven plates stringed with a ring attached to a heavy royal seal was found about 2.5 feet (76.2 cm) below the surface of the plinth of a whilom house at Nidhanpur village of Sylhet district in December 1912. A peasant named Masarraf discovered the set while leveling down a mound there for making a buffalo-shed (Bhattacharya 1913-14, 1927-28a, 1927-28b). Masarraf sold the plates and its seal to different persons. A local landlord Pavitranath Das purchased the seal as well as the first, second and last plates. Pavitranath sent these materials to his friend Professor Padmanath Bhattacharya of Cotton College in Gauhati (Gupta 1967: 8). Bhattacharya (1913-14) deciphered these three plates and edited its text. He got another three plates which he also edited and published (Bhattacharsya 1927-28a, 1927-28b). PN Bhattacharya visited Sylhet in April 1926 and purchased one of these plates at Rs 20 (Bhattacharya 1927-28b). The first, second and the seventh plates of the set were deposited in Anipandit Library near Beanibazar in Sylhet, fourth/fifth were preserved in the Library at Gauhati (Gupta 1967: 8). The sixth plate is probably deposited in INM (Indian National Museum) at Kolkata. One of the plates is lost (Gupta 1967: 8). Bhattasali (1935) tried to locate lands granted with the plates. One of the plates was discussed by PD Chaudhury (1949: 16-33).

The provenenaces of the Gauda rulers' copperplates and of Bhaskaravarman's copperplates are shown in maps and table (Map 7 & Table 3).

Table-3 Provenances & deposition of copperplates of Gauda kings and of Bhaskaravarman

Name of Plate	Union	Upazila/PS	District	Deposited
Jayanaga's Vappaghoshavata			Old Nadia	Museum of Perth, Australia
Sasanka's Midnapore (RY 8)			Midnapore	VSP at Kolkata
Sasanka's Midnapore (RY 19)			Midnapore	VSP at Kolkata
Sasanka's Egra		Egra	Midnapore	
Bhaskaravarman's Nidhanpur (1-7)	Mollapur	Beanibazar	Sylhet (Srihatta)	Anipandit Library (1rst, 2nd, 7th plates & Seal); Gauhati Library (4th /5th plate); INM at Kolkata (6th plate).

* Police Station

The above table shows that the find places of the copperplates of Jayanaga and of Sasanka in West Bengal. Not a single one was found in Bangladesh. Only the Nidhanpur copperplates of Bhaskarvarman were found in Bangladesh proper. The copperplates of the kings of Gauda and Kamrupa were found in West Bengal in India and Srihatta in Bangladesh respectively (Map 7).

Now we are going to describe the land grants of Post-Gupta kings of Samatata and Vanga-Samatata (6th-7th Century AD).Vainyagupta was the earliest known historic king of Eastern Bengal who issued land grants. We have the information of three copperplates of Vainyagupta. One of them is published; another with doubtful authenticity and the other is unpublished. Morrison (1970: 98) mentioned its existence from an officer of the Mainamati Museum; but the excavator of Salban Vihara MH Rashid denied its existence (Zakariah 1997: 208-09). Therefore, its authenticity is doubtful. Dr. Enamul Haque of ICSBA (International Centre for the Study of Bengal Art) at Dhaka has the information of an unpublished copperplate of Vainyagupta. Its provenance and present position is very difficult to know for our part. Vainyagupta ruled Samatata region in the early 6th century AD. Natha and Rata dynasty were contemporary or a little later rulers. The Nathas ruled a portion of Samatata and Srihatta region in the 6th century AD. Lokanatha and Murundanatha were two known rulers of the Natha dynasty. The Rata dynasty ruled Samatata in the same century. The Khadga dynasty ruled Samatata and a portion of Vanga in the 7th century AD. However, the copperplates of these kings and dynasties are as follows:

1. Vainyagupta's Gunaighar Copperplate (GE 188): It was found at a tank in Gunaighar Village near Devidwar Upazila town of Comilla district in 1925. A villager found it while taking out mud from the tank (Bhattacharya 1930: 45). This villager handed it over to Baikunthanath who again gave it to DC Bhattacharya for its decipherment (Bhattacharya 1930: 45). It is now preserved in BNM, Dhaka (Sen 1942: xiv).

2. Lokanatha's Tippera Copperplate (GE 244): It was discovered somewhere in 1905 in the then Tippera district (Basak 1919-20b: 301; Morrison 1970: 160). Mr. CW Mc Minn presented it to RASB (Basak1919-20b: 301). Basak (1321BSa, 1321BSb) also discussed it in Bangla. Block (1907-08: 255-59) first noticed it and reported that the plate had been taken by GM Laskar for decipherment (Basak 1919-20b: 301). Unfortunately he died before deciphering it. His father tried to sell it to VRM authority who denied buying it considering that the RASB possessed it; VRM authority had taken it for the time being and made it over to Radhagovinda Basak for decipherment (Basak 1919-20b: 301). Basak kept its photographs and retuned it to the family of GM Laskar. But Basak found it again in the then Dhaka Museum in October, 1914; however, its Curator NK Bhattasali returned it to RASB (Basak 1919-20b: 301). It is preserved in RASB (Sen 1942: xli).

3. Murundanatha's Kalapur Copperplate: It was discovered by a ploughman in an earthen pot in an agricultural land of Kalapur village in Union no 5 of Srimangal Upazila now Maulvibazar district in 1963 (Sircar 1973: 14). Afterwards, it was unearthed by digging earth but unfortunately the earthen container of the plate was broken. The state of preservation of the plate is bad with its broken portion. KK Gupta (1967: 68) deciphered and edited it.

4. Sridharanarata's Kailan Copperplate (RY 8): It was originally in the possession of a cultivator of Kailan village within Daksin Barakarai alias Joag Union of Chandina Upazila in Comilla district. PB Chakravarti secured it from the cultivator in c 1940 and handed it over to BM Barua for decipherment. Barua again handed it over to DC Sircar for its decipherment in February 6, 1946 (Sircar 1947: 221-41; 1983: 36-40; 1354BSa: 15-17; 1354BSb: 21-24; Bhattasali 1946: 169-71). DC Sircar deciphered and published it and returned the plate to PB Chakravarti from whom DC Bhattacharya took it for writing an article which was published in Sahitya Parisat Patrika *(SPP)* (Bhattacharya 1353BS). However, we have visited Kailan village on May 18, 2005. Kailan is known as Kailain. It is about 15 km south from Madhaiya Bus-stand on the Dhaka-Comilla Highway.

5. Sridharanarata's Uriswar Copperplates (I, II & III) were unearthed by the labors while excavating earth from an agricultural land beside an old tank of Sarkarbari in the western section of Uriswar village within Paharpur Union in Muradnagar Upazila of Comilla district in the seventy's of the 20th century. We have visited the site on May 26, 2005. The plates were securely wrapped together originally with two thin tiles tied with lime-surki mortar. Labors handed them over to the landowner Sundar Ali Sarkar and his son Shamsul Haque Sarkar. Dhaka Museum (now BNM) authority collected these plates in cooperation with the local Union Parisad (UP) Chairman late Fazlur Rahman alias Sudhan Sarkar at three thousand TK. Oriswar village is

located about 12 km northeast from Iliotganj Bus-stand on the Dhaka-Comilla Highway. However, the find spot is a low flat land near a swampy area. A large number of potsherds and some brickbats on the whole site together with the Sarkarbari homestead land were noticed. A pot containing gold and silver coins was also found at an old tank in Oriswar village in 1995 (Zakariahh 1997: 218). These plates are un-deciphered.

6. Devakhadga's Ashrafpur Copperplate I (RY 13): This one together with another plate and a bronze stupa model was discovered under earth near a tank at Chakbari of Bara Ashrafpur village within Chakradha Union in Shivpur Upazila now Narasingdi district in 1884-85 by Mia Baksha Khan. We have visited the site in 2004 and found the site situated on the bank of a tank with a mosque in a homestead of the descendents of Mia Baksha Khan. The whole homestead is a big archaeological site where a portion of an ancient brick wall is exposed. An 80 year old nephew of Mian Baksha Khan Mr Abdul Mannan Khan built his tin-shed house on the ruins of an ancient brick structure. Potsherds and terracotta beads are strewn on the site. It is edited by Laskar (1904-07: 85-91), Sircar (1983: 41-43) and its date was ascertained by Ganguli (1941-42: 125-26). However, the plate is preserved in RASB, Kolkata (Sen 1942: xvii).

7. Devakhadga's Ashrafpur Copperplate II (RY 13): It was found associated with plate I in the Bara Ashrafpur village mentioned above. It is also preserved in RASB, Kolkata (Sen 1942: xvii).

8. Devakhadga's Salban Vihara Copperplate I (RY -): It was found in situ in cell no 75 of Salban Vihara in the 8th century level in its excavation of 1955-56. Morrison termed it as Devakhadga C plate (Morrison 1974: 101). It is preserved in the Directorate of Archaeology of Bangladesh Government.

9. Devakhadga's Salban Vihara Copperplate II (RY -): This plate (Fig. 5) was found in situ associated with the above one in cell no 75 of Salban Vihara in the 8th century level in its excavation of 1955-56. Morrison (1974: 101) termed it as Devakhadga D plate. It is preserved in the Directorate of Archaeology of Bangladesh Government.

10. Balabhattakhadga's Salban Vihara Copperplate (RY -): It was found at 8th century level in cell no. 51 of Salban Vihara excavation in 1963-64. KK Gupta deciphered and published it (Gupta 1979: 141-44). It is deposited in the Directorate of Archaeology of the Bangladesh Government (Gupta 1979: 141).

Copperplates (6th -7th centuries) of Samatata and its adjacent areas are shown in maps and table (Map 8, 9 & Table 4)

Table-4 Location of the provenance & deposition of the copperplates of Samatata kings

Name of Plate	Union	Upazila/PS	District	Deposited
Vainyagupta's Gunaighar	Gunaighar	Devidwar	Comilla	BNM, Dhaka
Natha Dynasty				
Lokanatha's Tippera			Comilla	RASB, Kolkata
Murundanatha's Kalapur	Union no. 5	Srimangal	Maulvibazar	------
Rata Dynasty				
Sridharanarata's Kailan	Daksin Barakarai	Chandina	Comilla	
Sridharanarata's Uriswar I	Uttar Paharpur	Muradnagar	Comilla	BNM, Dhaka
Sridharanarata's Uriswar II	Uttar Paharpur	Muradnagar	Comilla	BNM, Dhaka
Sridharanarata's Uriswar III	Uttar Paharpur	Muradnagar	Comilla	BNM, Dhaka
Khadga Dynasty				
Devakhadga's Ashrafpur I	Chakradha	Sivpur	Narasingdi	RASB, Kolkata
Devakhadga's Ashrafpur II	Chakradha	Sivpur	Narasingdi	RASB, Kolkata
Devakhadga's Salban Vihara I	Vijayapur	Comilla Sadar	Comilla	Directorate of Archaeology
Devakhadga's Salban Vihara II	Vijayapur	Comilla Sadar	Comilla	Directorate of Archaeology
Balabhattakhadga's Salban Vihara	Vijayapur	Comilla Sadar	Comilla	Directorate of Archaeology

The distribution patterns of these plates show Comilla, Narasingdi and Maulvibazar districts of Bangladesh only. All of the Rata plates were found in Chandina and Muradnagar Upazillas of Comilla districts (Map 8). Khadga copperplates were found in Sivpur Upazila of Narasingdi and Sadar Upazila of Comilla districts (Map 9). Now we are turning towards Pala copperplates.

Pala Copperplates

Pala dynasty was a Buddhist royal family who ruled Varendra and even Radha region of Bengal together with Magadha in South Bihar. They also extended their empire beyond eastern India. However, most of their inscriptions were discovered in north Bengal and south Bihar. At least 20 copperplates issued by the Pala rulers were discovered. Among them, Devapala's Nalanda and Munger copperplates, Narayanpala's Bhagalpur copperplate and Vigrahapala III's Bangaon copperplate were found in Bihar. Surapala I's Mirzapur copperplate was discovered in UP. Lately, two copperplates of the reign of Gopala son of Surapala I and grandson of Devapala were found in a private collection in Los Angelos, USA. The collector had taken them to the Los Angelos County Museum for its treatment and decipherment (TA 10509.1 & TA 10509.2). The former Senior Curator of the Museum Dr. Pratapaditya Pal informed of its existence to Gouriswar Bhattacharya who visited the museum in September, 1995. The Museum authority provided him with two excellent photographs of the plates with the permission of its decipherment and publication (Bhattacharya 2000: 459-60). The original find place of these two plates is still unknown. However, we would like to discuss the provenance and present position of the Pala copperplates which were found in Bengal.

1. Dharmapala's Khalimpur Copperplate (RY 32): It was discovered by a Muslim peasant at the northern extremity of Khalimpur village near Gauda in Malda district of West Bengal when he was cultivating his paddy field (Batavyal 1894: 39). Batavyal purchased it from the peasant's widow Mori Bewa (Batavyal 1894: 39). Batavyal (1894: 39) and Kielhorn (1896-97: 243) wrongly mentioned Batavyal's name as the discoverer. Kielhorn re-edited the plate from the impression taken by Dr. Hultzch, to whom the original plate was sent by Dr. Grierson. KC Sing (1301BS: 499-519) and AK Maitreya (1912: 9-28) also discussed it in Bangla. It is preserved in RASB, Kolkata (Sen 1942: xviii).

2. Dharmapala's Murshidabad Copperplate (RY-): It was acquired by INM, Kolkata in 1990 from a villager of Murshidabad district in West Bengal, India and it is preserved there (Bhattacharya 2000: 441-42). Its accession number is 90/131. The villager had collected it from the ancient site of Karnasuvarna which is identified with the present Rangamati-Kansona area near Bahrampur on the Ganges, in Murshidabad district. Lately, Sureschandra Bhattacharya presented a paper on this plate in a conference at Bogra arranged by ICSBA in 7-11 February, 2007.

3. Mahendrapala's Jagjibanpur Copperplate (RY 7): It was discovered by Jagadish Gain and his father Mahendra Gain at their homestead land known as Tulabhita/ Simulbhita in Jagjibanpur village within Habibpur PS in Malda district, West Bengal. Mahendra Gain unearthed it at the depth of 40/50 meter bellow the surface by digging earth in front of his house (De 1993-94: 228). It is deposited in Malda Museum. It was studied by Bhattacharya (1988; 1992a), Gupta (1396BS), Mokhopadyaya (1386BS).

4. Gopala III's Jajilpara Copperplate (RY 6): It was found in the possession of a peasant of Jajilpara village within Gajol PS in Malda district and preserved in Malda Museum (Sen 1942: xxiii). Its information is recorded by Sen (1942: xxiii) and Misra & Majumdar (1951: 137-44).

5. Mahipala I's Belwa Copperplate (RY 5): It was discovered by a Santal householder named Khare Jzontal while digging earth for enlarging a fireplace in his homestead at Belwa village within Palsa Union in Ghoraghat Upazila of Dinajpur district in 1946. Mahipala's grandson Vigrahapala III issued another Belwa plate which was also discovered by the same person in the same provenance. We have visited the site in September 30, 2004 for further information; one can visit Belwa from Ghoraghat town via Raniganj Bazar Bus-stand on the Highway. Belwa is located about three km west from Raniganj Bazar. However, Mr. Monoranjan Gupta of Kolkata soon secured the Belwa plates with the help of Muhammad Bashir Sarkar who was an officer at the Zamindar's office in Kasigari village near Belwa and presented them to Vangiya Sahitya Parisat (VSP), Kolkata (Sircar 1951-52:1). Monoranjan Gupta published both plates in *SPP* (Gupta 1354BS: 41-56, 1356BS: 60-65). Sircar (1951-52: 1-13) also collected impressions of the plates with the help of TN Ramachandran and edited them.

6. Mahipala I's Bangarh Copperplate (RY 9): It was discovered at Bangarh ruins within Gangarampur PS now South Dinajpur district, West Bengal in the last quarter of the 19th century AD. Local land lord of Nawabbazar named Nrisingha Charan Nandi kept it in his office sometimes. The then Collector of Dinajpur named Nanda Krisna Basu probably sent the plate to VSP, Kolkata (Bannerji 1917-18b: 324). In 1886, Giridhari Basu sent several rubbings of the plate to *RASB*

in Kolkata. Raja Rajendralal Mitra examined these rubbings and found its importance. AFR Hornle sent these rubbings to F Kielhorn who published it in *JASB* in 1892. Nagendra Nath Vasu re-edited the record and published it in *SPP* (5). Maitreya (1912: 91-100) and Bannerji (1917-18b: 324-30) also improved its readings.

7. Mahipala I's Biyala Copperplate (RY 3): It was discovered by some villagers in June 29, 1982 when they engaged in digging a grave at the graveyard of Biyala village in Kalai Upazila of Joypurhat district (Bhattacharya 1987: 1). Biyala village is situated to the 16 km north from Kalai PS. The then Officer-in-Charge of Kalai PS recovered it in July 5, 1982 and handed it over to the then Custodian of Mahasthan Museum named SB Bhattacharya in March 2, 1983 (Bhattacharya 1987: 1). Therefore, it is preserved in the Directorate of Archaeology of Bangladesh Government. SB Bhattacharya (1987; 1394BS) first deciphered it.
8. Mahipala I's Panchbibi Copperplate (RY-): It was discovered from Panchbibi in Bogra district (Bhattacharya (1994: 195-224). Gauriswar Bhattacharya first noticed it. Now Panchbibi is a Upazila of Joypurhat district. It is still unpublished and deposited in the Directorate of Archaeology of Bangladesh Government (Bhattacharya 2000: 447).
9. Vigrahapala III's Belwa Copperplate (RY 11): Its information is discussed in connection with Mahipala I's Belwa copperplate. It is probably deposited in VSP, Kolkata (Sircar 1951-52: 1).
10. Vigrahapala III's Amgachhi Copperplate (RY 12): It was discovered in Dinajpur or Bogra district. According to RD Banerji (1919-20b: 293), it was found at Amgachhi village in Dinajpur district in 1806. Morrison (1970: 43) reports that Amgachhi village is about 16 miles west from Hilli-Santahar Railway. According to 1991 Census Report, Amgachhi village situated at the Nandigram Union and Upazila of Bogra district (Paul & Shamsuddin 2001: 20). It was also discussed by Maitreya (1912: 121-26). Amgachhi plate is preserved in RASB, Kolkata (Sen1942: xxviii).
11. Madanpala's Manhali Copperplate (RY 8): It was found at a pond's corner in Manhali village about 6 miles south of Bangarh in Gangarampur PS, now in South Dinajpur district of West Bengal, in 1875 while excavating a canal. Maitreya (1912: 147-48) and Vasu (1305BSa: 144-58; 1305BSb: 164-72) discussed it in Bangla. The land lord of Manhali named Jogesh Chandra Bannerji saved it which is deposited in RASB (Sen 1942: xxx).
12. Madanpala's Rajibpur Copperplate I (RY 2): It was discovered in Bangarh. Two copperplates of Madanpala were discovered in October, 1990 from the ruins of Bangarh in Shibbari village within Rajibpur Mauza of Gangarampur PS, South Dinajpur district (Bhattacharya 2000: 447). One of them was issued in Madanpala's regnal year 2 and the other in his regnal year 22 which are recorded here as his Rajibpur copperplate I and copperplate II. The plates were formerly kept in a local temple and now deposited in the Treasury of Balurghat under the custody of the District Magistrate. Both the plates have not yet been published, though Mukherji (1992: 173-74) and Bhattacharya (2000) reported its main theme.
13. Madanpala's Rajibpur Copperplate II (RY 22): It was discovered in Bangarh and its provenance and present position is described above.

Now we could turn into a table for concise understanding of the distribution pattern of the Bengal copperplates of the Pala kings.

Table-5 Provenances & deposition of the Pala copperplates found in Bengal

Name of Copperplate	Union	Upazila/PS	District	Deposited
Dharmapala's Khalimpur			Murshidabad	RASB, Kolkata
Dharmapala's Murshidabad			Murshidabad	INM, Kolkata
Mahendrapala's Jagjibanpur		Habibpur	Malda	Malda Museum
Gopala III's Jajilpara		Gajol	Malda	Malda Museum
Mahipala I's Belwa	Palsa	Ghoraghat	Dinajpur	VSP, Kolkata
Mahipala I's Bangarh		Gangarampur	South Dinajpur	VSP, Kolkata
Mahipala I's Biyala		Kalai	Joyapurhat	Directorate of Arch.
Mahipala I's Panchbibi		Panchbibi	Joyapurhat	Directorate of Arch.
Vigrahapala III's Belwa	Palsa	Ghoraghat	Dinajpur	VSP, Kolkata
Vigrahapala III's Amgachhi	Borail/ Nandigram	Nandigram	Bogra	RASB, Kolkata
Madanpala's Manhali		Gangarampur	South Dinajpur	RASB, Kolkata
Madanpala's Rajibpur I		Gangarampur	South Dinajpur	Balurghat Treasury
Madanpala's Rajibpur II		Gangarampur	South Dinajpur	Balurghat Treasury

* Vangiya Sahitya Parisat

The Table 5 shows that at least 13 copperplates of the Pala dynasty were definitely found in Bengal. Among them 8 were found in northern West Bengal, India and the rest 5 were found in northern Bangladesh. Therefore, all of the 13 plates of the Pala period were found in north-west Bengal (Map 10). The four copperplates of the Palas mentioned in the beginning of this discussion were found in Bihar and one in UP. The provenance of the two copperplates (now in Los Angelos) of Gopala II son of Mahendrapala and grand son of Devapala are still unknown. However, we are turning our concentration towards southeast Bengal during the Pala period.

Copperplates of Southeast Bengal (Deva- Harikela-Chandra-Varman Kindoms)

Southeast Bengal had separate identity from the time of the Gupta period which continued before the Sena period. The land grants of Vanga kingdom, Vainyagupta, Natha dynasty, Rata dynasty and Khadga dynasty who ruled southeast Bengal before the Pala dynasty, are mentioned earlier. The Deva dynasty, Harikela kingdom, Chandra dynasty and Varman dynasty ruled southeast Bengal during the Pala period in northwest Bengal. The Khadga dynasty of Samatata-Vanga region was succeeded by the Deva dynasty who ruled in the 8th century AD from its capital Devaparvata. Santideva, Viradeva, Anandadeva and Bhavadeva were known rulers of this dynasty. We have the information of six copperplates issued by Anandadeva and his son Bhavadeva. One stone plaque of Deva dynasty is also recorded. Anandadeva and Bhavadeva issued gold coins also. Ananda Vihara and Salban Vihara in Lalmai-Mainamati are associated with the name of these two kings. Traditionally Ananda Vihara together with its adjacent large tank was named after the name of king Anandadeva; Salban Vihara was known as 'Bhavadeva Mahavihara' which is recorded in a clay seal found in excavation. It is interesting to note that all of the Deva inscriptions were unearthed from the Buddhist monasteries at Lalmai-Mainamati hill range in Comilla.

Harikela was a Janapada originally situated in Chittagong area and extended its sphere of influences over Samatata-Vanga and even Srihatta region. Harikela king's land grants were engraved in copperplate and Copper Vases. Land grants in copper vases were unique and unprecedented.

Scholars recorded eleven copperplates of the Chandra dynasty. It was the first dynasty of Southeast Bengal, which united the whole of Vanga, Samatata, Srihatta and even Harikela under a single umbrella. The Chandras established their Jayaskandhavara or capital at Vikramapura in Vanga and issued all of their land grants from here. All of their plates were found in Vanga-Samatata and Srihatta regions.

Varman dynasty succeeded the Chandra dynasty and ruled Vanga-Radha region. They were the Hindus and the follower of Visnu. Visnu-wheel was the emblem of their seals. They issued copperplates; at least two stone inscriptions of the Varman period were found. But stone inscriptions are not our relevant subject. We would like to mention the copperplates only. However, copperplates and land grants of the Deva dynasty, Harikela kings, the Chandra and Varman dynasties are referred here. The Deva copperplates are as follows:

1. Anandadeva & Bhavadeva's Salban Vihara Copperplate (RY 39 & 2/12): It was discovered during excavations at Salban Vihara in 1955. It was recovered from period V (10th -11th century level) in cell no. 114 of Salban Vihara (Rashid 2001: 204). KK Gupta deciphered and published it (Gupta 1979: 145f). It is deposited in the Directorate of Archaeology of Bangladesh Government. It records two land grants, one of Anandadeva and the other of his son and successor Bhavadeva. The first was issued in Anandadeva's regnal year 39 and the second was in Bhavadeva's regnal year 2 (Banik 1998: 183-84) or 12 (Khan 1963: 19).
2. Bhavadeva's Ananda Vihara Copperplate (RY 2): It was discovered by brick-hunters from the ruins of Ananda Vihara site in Lalmai-Mainamati in 1943-44 (Rashid 1979: 83). A local villager used it as the door of his poultry-pan and eventually sold it to a Hindu Businessman of Comilla, who migrated to Kolkata during the partition of 1947 (Rashid 1979: 83). According to the investigation of MH Rashid it is the same plate which was published by DC Sircar as Royal Asiatic Society Copperplate of Bhavadeva (Rashid 1979: 83). DC Sircar (1951: 83-94) published it as Devaparvata plate of Bhavadeva. Morrison (1970: 38, 162) termed it as Bhavadeva-Devaparvata plate. Zakariah (1997: 219) mentioned it as Ananda Vihara copperplate. Banik 1998: 184) identified it as Bhavadeva B. However, the above discussion clarified that this plate is deposited in RASB in Kolkata.
3. Deva dynasty's Salban Vihara (Cell 5) Copperplate (RY-): It was discovered in cell no. 5 of Salban Vihara, period III equivalent to 7th -8th century AD, in 1956 (Rashid 2001: 205). Morrison (1974: 103) termed it as Deva A plate.

Zakariah (1997: 221) mentioned it as the third copperplate of the Deva dynasty. It is not deciphered and probably not decipherable (Rashid 2001: 206).

4. Deva dynasty's Salban Vihara (Cell 29) Copperplate (RY): It was discovered in cell no. 29 of Salban Vihara excavation, period IV, in 1963 (Rashid 2001: 206). Morrison (1974: 103-04) termed it as Deva C plate. Zakariah (1997: 221) mentioned it as the 5th plate of the Deva dynasty. It is not deciphered; though considerably damaged; it is decipherable (Rashid 2001: 206).

5. Deva dynasty's Salban Vihara (Cell 85) Copperplate (RY-): It was discovered in cell no. 85 of Salban Vihara excavation, period III equivalent to 7th -8th century AD, in 1967 (Rashid 2001: 206). It is the smallest plate so far discovered from Mainamati (Rashid 2001: 206). Morrison (1974: 103) termed it as Deva B plate and Zakariah (1997: 221) mentioned it as the fourth copperplate of the Deva dynasty. It is not deciphered but is certainly decipherable (Rashid 2001: 207).

6. Deva dynasty's Itakhola Vihara Copperplate (RY-): It was discovered at Itakhola Vihara excavation in Lalmai-Maimati in 1999. Husain & Dewan (2004: 24) published its photograph in their Bangla booklet *Mainamati-Lalmai*. It is deposited in the Directorate of Archaeology of the Bangladesh Government.

The 6 copperplates of the Buddhist Deva dynasty were found in Lalmai-Mainamati hill range in Vijayapur Union of Comilla district Sadar Upazila (Table 6). All of the six plates were found in Buddhist monasteries of Mainamati-Devaparvata (Map 15). All except one are deposited in the Directorate of Archaeology of Bangladesh Government. One is preserved in ASB, Kolkata.

Table-6: Provenances & deposition of the Deva copperplates

Name of Copperplate	Union	Upazila/PS	District	Deposited
Anandadeva & Bhavadeva's	Vijayapur	Comilla	Comilla	Directorate of Archaeology
Salban Vihara				
Bhavadeva's Ananda Vihara	Vijayapur	Comilla	Comilla	ASB, Kolkata
Deva Dynasty's Salban Vihara I	Vijayapur	Comilla	Comilla	Directorate of Archaeology
Deva Dynasty's Salban Vihara II	Vijayapur	Comilla	Comilla	Directorate of Archaeology
Deva Dynasty's Salban Vihara III	Vijayapur	Comilla	Comilla	Directorate of Archaeology
Deva Dynasty's Itakholamura Vihara	Vijayapur	Comilla	Comilla	Directorate of Archaeology

Now we are going to refer Harikela king's land grants, which are as follows:

1. Devatideva's Harikela Copper Vase (715 AD): This vase (Fig. 6) was collected by Dhaka Museum in 1968 from a shop at Dhamrai in Dhaka district (Accession No. 68. 4). Gouriswar Bhattacharya deciphered and edited it (Bhattacharya1992b: 89-90; 1996b: 139-95). Its proper provenance was somewhere in Chittagong region which is identified as original Harikela Mandala (Bhattacharya 2000: 439-40, 471-80). It is a document of land grants in the Harikela Mandala. Therefore, we may reasonably term the document as Devatideva's Harikela Copper Vase.

2. Kantideva's Nasirabad Copperplate (9th century): It was found by Professor JN Sikdar at 'Bara-akhra temple' in Nasirabad of Chittagong district in 1920 (Majumdar 1941-42: 314). Now Nasirabad is a residential and industrial area of Chittagong port city. The plate is deposited in BNM, Dhaka. DC Bhattacharya and JN Sikdar first published it in *Modern Review*, Majumdar (1941-42: 313-18) also edited it. It is interesting to note that Kantideva's Nasirabad copperplate is an incomplete one containing only introductory inscription; it had no engraved land grant portion. Actually, it was not used for land grant deed.

3. Attakaradeva's Harikela Copper Vase (10th Century AD): It is now in the Sam Fogg collection of London (Bhattacharya 2000: 640, 643). It was noticed in Sotheby's Sale Catalogue of London. Gouriswar Bhattacharya got its four black-and-white photographs from Pratapaditya Pal the Senior Curator of Lose Angeles County Museum and deciphered it (Bhattacharya 1996a: 237-47, 2000: 471, 475). It is the land grants of Harikela Mandala during the reign of Attakaradeva. Therefore, we could reasonably term it as Attakaradeva's Harikela Copper Vase.

All of the land grants of the Harikela kings were originally found in Chittagong region (Table 7).

Table-7 Land grants of Harikela kings

Name of Copperplate/Vase	District	Deposited
Devatideva's Harikela Copper Vase	Originally from Chittagong (?)	BNM, Dhaka
Kantideva's Nasirabad Copperplate	Chittagong	BNM, Dhaka
Attakaradeva's Harikela Copper Vase	Originally from Chittagong (?)	Sam Fogg Collection, London

Harikela kings were supplanted by the Chandra kings of Rohitagiri and their copperplates are as follows:

1. Srichandra's Paschimbhag Copperplate (RY 5): It was discovered accidentally by Binode Bihari Chakravarti from Paschimbhag village within Panchagaon Union of Rajnagar Upazila now Maulvibazar district in about 1958 (Gupta 1967: 81). The discoverer traced it in a vacant plot or abandoned homestead; it was unearthed by digging. At first Shyamaprasada Kavyatirtha Bhattacharya of Bhumiura village near Paschimbhag took it in his custody and handed it over to Ameenur Rashid Chowdhury for the Museum under the Historical and Archaeological Society of Sylhet (Gupta 1967: 81). Sircar (1973: 19-40) also explained it.
2. Srichandra's Dhulla Copperplate (RY 8): It was discovered and collected by NK Bhattasali from Dhulla village within Saturia Union of Saturia Upazila in Manikganj district for his Dhaka Museum in 1925 (Majumdar 1929: 155; Sircar 1959-60a: 134). Therefore, it is deposited in BNM, Dhaka. Majumdar (1929: 155-56) and Sircar 1959-60a: 134-40) deciphered and edited it. Dhulla is located about 10 km east of the Jamuna and 6 km north of the Dhaleswari.
3. Srichandra's Kedarpur Copperplate (RY -): It was discovered at a ditch in Kedarpur village during its excavation in April 1919 (Bhattasali 1919; 1923-24: 188; Majumdar 1929: 10). Kedarpur is a village within Kedarpur Union of Naria Upazila now in Shariatpur district. Once, Naria PS was within Madaripur Sub-division of Faridpur district. NK Bhattasali obtained this plate for his Dhaka Museum with the help and cooperation of the local authorities (Bhattasali 1923-24: 188). Therefore, it is deposited in BNM, Dhaka. It is interesting to note that Kedarpur plate of Srichandra contains stereotyped genealogical portion of the king without land grant (Bhattasali 1923-24; 188). Bhattasali (1326BS: 230-40) also published it in Bangla.
4. Srichandra's Idilpur Copperplate (RY -): It was found in Idilpur Pargana of greater Faridpur district. Idilpur is a village of Idilpur Union within Goshairhat Upazila now in Shariatpur district. Once, Idilpur was a Pargana within the Zamindary estate of the Tagore's of Kolkata. Bhattasali (1953-54: 255) visited Samantasar village of the then Idilpur Pargana in 1920 and learnt that three copperplates had been found inside an earthen pot near the village on the bank of the Meghna. It is one of them; another one is known as Samantasar plate of Harivarman and the other is Idilpur plate of Kesavasena / Visvarupasena. However, GM Laskar made an abstract of Idilpur plate of Srichandra, which was published by JT Rankin in the *Dacca Review* (October 1912). The introduction of Srichandra's Idilpur and Kedarpur plates are identical. Bhattasali (1923-24: 189) writes about Idilpur plate, "This plate is reported to exist still; but it is in the custody of people who are unwilling to show it to anybody". It is held in private hands (Morrison 1970: 162). According to Basak (1949-50: 51) it was in the house of a rich man of the locality; but he failed to get it for detailed decipherment. However, its present position and condition are unknown.
5. Srichandra's Rampal Copperplate (RY -): It was unearthed by a Muslim cultivator from a dig in his land somewhere in Rampal village within present day Munshiganj district Sadar Upazila of greater Dhaka district in about 1838 AD (Basak 1913-14b: 136). Basak visited Rampal village and purchased it from Yadunath Vanikya in April 20, 1913 on behalf of VRM in Rajshahi (Basak 1913-14b: 216). Basak (1913-14b: 136-42) deciphered and edited the plate from the original. He also discussed it in Bangla (Basak 1320BSa: 293-300; 1320BSb: 400-410). It is deposited in VRM.
6. Srichandra's Madanpur Copperplate (RY 46): It was discovered in 1946 while a foundation trench of a wall was excavating in the land of Sekh Newajuddin in Madanpur village within Savar Union of Savar Upazila in Dhaka district. We have visited Madanpur of Savar in March 2005 in search of its find place. We found the whole Madanpur Mauza was occupied by the Radio Transmission and Military Diary Firm Authorities for their use. It situated adjacent to the Nayabari Mauza which is now an urban area under Savar Paurasabha. Basak (1949-50: 51-58) deciphered the plate. He also explained it in Bangla (Basak 1353BS).
7. Srichandra's Comilla Copperplate (RY 46): EM Mills (1993) deciphered and noticed this plate which is purchased and preserved by Bangladesh National Museum in Dhaka in 1977 from a dealer who, according to SK Biwas of the museum, reports its find spot as

somewhere in Comilla district in Bangladesh. So, we could reasonably call it as Srichandra's Comilla Copperplate.

8. Kalyanchandra's Dhaka Copperplate (RY 24): It was collected by AH Dani from a scrap-shop of Dhaka city and published it in 1961 AD (Dani 1367BS: 24-34; 1966: 25). Its exact find spot is unknown. Kalyanchandra donated 120 Patakas of land at Kudgrama in Khatimandala of Paundrabhukti (Morrison 1970: 164). We have visited Kudgaon near National Martyrs Memorial in Savar Upazila of Dhaka district. Probably this Kudgaon is identical with Kudgrama recorded in Kalyanchandra's Dhaka copperplate. If so, the find spot of the plate might be archaeologically important Savar area. Morrison (1970: 164) writes that this plate is in the possession of AH Dani; but Dani (1966: 25) mentions that this plate is now preserved in Dhaka Museum (now BNM.).
9. Ladahachandra's Charpatramura Copperplate I (RY 6): It was discovered at Charpatramura temple in Lalmai-Mainamati hill in Comilla district during excavation in 1955-56 (Zakariah 1997: 222). This site, containing the ruins of a Chandra period Hindu temple, is now within the Mainamati Cantonment. In fact the site is known as Charpatramura because four plates (*Patras*) were found here. It is deposited in the Directorate of Archaeology of Bangladesh Government (?).
10. Ladahachandra's Charpatramura Copperplate II (RY 6): It was discovered at Charpatramura temple mentioned above.
11. Govindachandra's Charpatramura Copperplate (RY-): It was found in the above mentioned Charpatramura temple site in Mainamati. It was discussed by Khan (1963: 21; Sircar 1973: 48ff, 77ff; 1982a: 143-48; 1348BS: 748). It is preserved in the Directorate of Archaeology of Bangladesh Government.

Table 8 Provenances & deposition of Chandra copperplates

Name of Copperplate	Union	Upazila/PS	District	Deposited
Srichandra's Paschimbhag	Panchgaon	Rajnagar	Maulvibazar	Historical and Arch. Society of Sylhet
Srichandra's Dhulla	Saturia	Saturia	Manikganj	BNM, Dhaka
Srichandra's Kedarpur	Kedarpur	Naria	Shariatpur	BNM, Dhaka
Srichandra's Idilpur	Idilpur	Goshairhat	Shariatpur	Missing
Srichandra's Rampal	Rampal	Munshiganj	Munshiganj	VRM, Rajshahi
Srichandra's Madanpur	Savar Paurasabha	Savar	Dhaka	
Srichandra's Comilla	-	-	Comilla	BN M, Dhaka
Kalyanchandra's Dhaka			Dhaka	BNM, Dhaka
Ladahachandra's Charpatramura I	Vijayapur	Comilla	Comilla	Directorate of Archaeology
Ladahachandra's Charpatramura II	Vijayapur	Comilla	Comilla	Directorate of Archaeology
Govindachandra's Charpatramura	Vijayapur	Comilla	Comilla	Directorate of Archaeology

The above table shows the distribution pattern of the Chandra copperplates (Map 11 & Table 8). Their plates were found in the districts of Maulvibazar (1), Manikganj (1), Shariatpur (2), Munshiganj (1), Dhaka (2) and Comilla (4) in Bangladesh. Modern Maulvibazar was situated in Srihatta Mandala. Manikganj, Shariatpur, Munshiganj and Dhaka districts were situated in Vanga Janapada. Comilla was in Samatata Janapada. Therefore, these modern districts of Bangladesh include Ancient and Early Medieval Srihatta, Vanga and Samatata.

Chandra dynasty was supplanted by the Varman dynasty and its copperplates are as follows:

1. Harivarman's Samantasar Copperplate (RY -): It was found in an earthen pot near Samantasar village on the bank of the Meghna. Srichandra's Kedarpur plate and Kesavasena's/Visvarupasena's Edilpur plate were also found in the same pot. Harivarman's plate was secured by the Vaidikas of Samantasar village and was handed over to Kasicharan Vidyabagish of the same village (Bhattasali 1953-54: 255). This plate was preserved in a hut which was burnt accidentally and damaged the plate seriously (Bhattasali 1953-54: 255). Its seal is detached and lost. Bhattasali (1344BS) also published it in Bangla. Obverse of the plate is practically unreadable (Bhattasali 1953-54: 255). However, it is preserved in BNM, Dhaka (Sen 1942: xxxv).
2. Samalavarman's Vajrayogini Copperplate (RY-): It was found by some boys at 6 inches bellow the surface of the northern bank of a newly excavated tank in Somapara locality of Vajrayogini village within Vajrayogini Union

now in Munshiganj district Sadar Upazila (Bhattasali 1953-54: 159). Morrison (1970: 166) mentioned its discovery in about 1950. A local school teacher named Priyanath Banerji obtained it from the boys and presented it to the Dhaka Museum (Bhattasali 1953-54: 259). Therefore, it is preserved in BNM, Dhaka. Only a quarter of the plate was found (Morrison 1970: 166); it is a fragmentary one (Bhattasali 1927: 529). Bhattasali (1340BS) and Vasu (1319BS) also published it in Bangla.

3. Bhojavarman's Belavo Copperplate (RY 5): It was unearthed by a householder from a plot of land in the precincts of his cottage at Belavo village on the northern boundary of the then Rupganj PS, in Maheswardi Pargana of Narayanganj Sub-division in Dhaka district (Basak 1913-14a: 37). Basak (1319BSa: 319-22; 1319BSb: 381-99) also further discussed it in details. It was also discussed by Vasu (1319BS). According to JN Gupta (1998: 204), it was found in between old Brahmaputra and Sitlaksya rivers. In fact, Belavo plate was found at Belavo village within Amdia Union of Narasingdi district Sadar Upazila (Sarkar 2003: 12). It is interesting to note that another Belavo in Narasingdi district is known as Belavo Upazila headquarter. Sometimes, scholars confused about the real find place of Belavo plate. However, it is preserved in BNM, Dhaka (Sen 1942: xxxiv). Now we propose to discuss about the distribution pattern of the find places of the Varman copperplates.

Table-9 Provenances of Varman's copperplates

Name of Copperplate	Union	Upazila/PS	District	Deposited
Harivarman's Samantasar			Shariatpur	BNM, Dhaka
Samalvarman's Vajrayogini	Vajrayogini	Munshiganj	Munshiganj	BNM, Dhaka
Bhojavarman's Belavo	Bhuiyam Belavo	Narasingdi	Narasingdi	BNM, Dhaka

The above plates of the Varman dynasty include their kingdom only Vanga attached to Samatata. Their copperplates were found in Bangladesh only (Map12 & Table 9). The Varmans ruled Vanga-Samatata during the Pala period of Gauda-Magadha. TheVarmans and the Palas in Bengal were replaced by the Senas.

The Sena Copperplates

Sena dynasty was the famous Hindu ruling family who united almost the whole of Bengal under its yoke. Muslim expedition led by Bakhtiyar Khalji annexed north and west Bengal from Laksmanasena the last powerful Sena king in c.1204-1205 AD. After this happening Sena power existed about three decades in a portion of Southeast Bengal. However, the information of only 12 copperplates of the Sena kings were discovered and published. The provenances and present position of these plates are discussed below:

1. Vijayasena's Barrackpur Copperplate (RY 62): It was discovered at a village near Barrackpur cantonment in 24 Parganas district in West Bengal (Banerji 1919-20a: 278, Majumdar 1929: 57). An Assistant employed by Messers Bird & Company of Kolkata named GA Schumcher purchased the plate from the villager (Banerji 1919-20a: 278). RD Banerji examined the original plate in 1907-08 when a Bengali gentleman brought it to Kolkata Museum for decipherment and again in 1910 when Mr. Venkayyea obtained it from Mr. Schumcher. In 1915, Banerji (1919-20a: 278) found that the original plate had sent to England where probably it was under the possession of Mr. Schumcher. Probably it has gone for ever. However, Banerji (1919-20a: 278-86) edited and published it from its two pencil rubbings and two indifferent negatives. RG Basak (1328BSa, 1328BSb) also explained it in Bangla.
2. Vallalasena's Naihati Copperplate (RY 11): This plate together with a copper cup was unearthed by some labors in 1911 while digging Nairajar Bhita mound for repairing a road in Naihati village within Katwa Sub-division of Burdwan district on the western bank of the Ganges (Banerji 1917-18a: 156). KC Sing (1318Ba: 62-64) and DC Sircar (1361BS: 564-66) also discussed it in Bangla. Vasu (1318BS: 116) corrected it. It is deposited in INM, Kolkata (Majumdar 1929: 68).
3. Laksmanasena's Govindapur Copperplate (RY 2): It was discovered from the excavation of a tank at Govindapur village near Baruipur Railway station in 24 Parganas district in about 1919. Pandit Amulya Charan Vidyabhusan exhibited it in a meeting of VSP, Kolkata (Majumdar 1929: 92).
4. Laksmanasena's Sundarban Copperplate (RY 2): It was discovered in about 1868 in that portion of Sundarban which is now within 24 Parganas district (Majumdar 1929: 169). A writer in *Bharatvarsa* (1332BS: 622) says that it was found by the Landlord of Majilpur named Haridas Dutt while excavating a tank in Bakultala village to the south of Kadinagar in the Diamond Harbor Sub-division of 24 Parganas district. JN Gupta (1998: 259) records that it was discovered at Jayanagar village in 24 Parganas district and named it as Jayanagar copperplate. Marshman (1868: 4) first mentioned its information in his *History of Bengal*. Now it is lost (Majumdar 1929: 169, Sen 1942: xl).

5. Laksmanasena's Tarpandighi Copperplate (RY 2): It was discovered in course of re-excavating an old tank to the north of Tarpandighi in Gangarampur PS in Balurghat Sub-division of Dinajpur district during the scarcity of 1873-74 (Majumdar 1929: 99). Now Gangarampur PS is within South Dinajpur district of West Bengal. However, the plate came in the possession of Sir William-Le Fleming Robinson Birt of Gloucestershire in England. His nephew Sir Earnest Le Fleming Robinson bought it to Kolkata and sold it to VSP (Majumdar 1929: 99); it is preserved there (Sen 1942: xxxvii).

6. Laksmanasena's Anulia Copperplate (RY 3): It was unearthed in 1898 in Anulia village near Ranaghat in Nadia District, West Bengal (Majumdar 1929: 81). It is deposited in VRM (Majumdar 1929:81).

7. Laksmanasena's Saktipur Copperplate (RY 6): It was lying in the house of Siva Chandra Chatterjee at Saktipur village in the Sadar Sub-division of Murshibad district, West Bengal. It is said to have been worshipped by a widow for a long time (Ganguli 1931-32: 211). It is deposited in VSP, Kolkata (Sen 1942: xxxviii). Bhattasali (1938: 73-113; 1339BS: 73-104) also published it.

8. Laksmanasena's Madhainagar Copperplate (RY-): It was discovered by Raghunatha Bunia in Madhainagar village within Raiganj PS in Sirajganj Sub-division of Pabna district in about 1874 (Majumdar 1929: 106). Now Madhainagar is a village within Madhainagar Union of Tarash Upazila of Sirajganj district. The present map of Raiganj Upazila shows a Union named Dhamainagar. However, Raghunatha Bunia discovered it while clearing the jungle in his allotment for cultivation (Banerji 1909b: 468). Madhainagar is one of the borders of Nimgachhi forest (Banerji 1909b: 468). According to local tradition, the palace of Birat Raja was situated near Madhainagar. Now mounds with the remains of stone and bricks were found about two or three miles circumference in this neighborhood. The then land lord of this area was trying to settle aboriginal Bunias in the tract by clearing away the jungle (Banerji 1909b: 468). Raghunatha Bunia used to worship the ten-armed figure carved on the seal of the plate as the goddess Durga (Banerji 1909b: 468). A pleader named Durganth Talukdar of Sirajganj obtained the plate from Raghunatha Bunia in 1890 and gave it a Vaidya named Gopi Chandra Sen for decipherment. But the District Magistrate of Pabna named CA Radice requested Gopi Chandra to send it to the RASB or other similar institution. Gopi Chandra handed it over to SDO of Sirajganj who sent it to the District Magistrate of Pabna. It was again handed over to the Government Pleader of Pabna named Prasanna Narayan Chaudhury for decipherment (Banerji 1909b: 468). PN Chaudhury (1899: 431-36) published its reading in *Aitihasika Chitra* (I). The plate again has been lent to GM Laskar and after his death it found its way to RASB in Kolkata. It is preserved there (Sen 1942: xxxix). AK Matreya (1316 BS: 204) also commented on it.

9. Laksmanasena's Rajabari/Bhowal Copperplate (RY 27): It was unearthed by a Coach peasant while digging earth near Meghir Math and Dighi at Rajabari Mauza within Rajabari Union in Sreepur Upazila now in Gajipur district. Bhattasali mentioned Meghir Math and Meghir Dighi as Muggir Math and Muggir Dighi (Azad 2000: 61). The peasant presented it to his land lord of Bhowal named Laksminarayan Roy whose son and successor Golakanarayan Roy donated it to RASB in Kolkata. According to Sen (1942: xxxix), it is deposited in RASB, Kolkata. According to Nabin Chandra Bhadra, it had also been sent to England. (Azad 2000: 61) HNR London (1941-42) rediscovered it in the archives of the India Office Library in London. Bhattasali (1328BS: 383-89; 1349BSa; 1349BSb; 1349BSc; 1350) also published it in Bangla. He also termed it as lost plate (Bhattasali 1927: 89). Bhattasali (1942a; 1942b) edited and corrected its text too.

10. Visvarupasena's Madhyapara Copperplate (RY 13): It was discovered in 1925 from Madhyapara village within Sirajdikhan Upazila now in Munshiganj district. It came under the Susang Raj family who handed it over to VSP in Kolkata. It is also known as Sahitya Parisat Copperplate.

11. Visvarupasena's Madanpara Copperplate (RY 14): It was unearthed by a peasant while digging earth in Madanpara village within Pinjuri Union in Kotalipara Upazila now in Gopalganj district. The finder presented it to his land lord. Later in 1892, Pandit Laksmichandra Sankhyatirtha handed it over to NN Vasu (Majumdar 1929: 132). RASB in Kolkata received it and lost it also. But this plate reappeared at Dhaka Museum and deposited here (Sircar 1959-60b: 315).

12. Visvarupasena's /Kesavasena's Idilpur Copperplate (RY 3): It was discovered in about 1838 in Idilpur Pargana in greater Faridpur district. Now Idilpur is a village within Idilpur Union in Goshairhat Upazila of Shariatpur district. James Prinsep deciphered it as a plate of Kesavasena, son and successor of Laksmanasena and published it in *JASB* (VII, p. 43-51) in 1838 (Majumdar 1929: 118). But DC Sircar (1982a: 159-63) re-edited it as a plate of Visvarupasena son and successor of Laksmanasena. However, it was preserved in RASB in Kolkata, but now missing (Sen 1942: xli).

Table-10 Provenance and preservation of Sena copperplates

Name of Copperplate	Union	Upazila/PS	District	Deposited
Vijayasena's Barrackpur			24 Parganas	Missing (?)
Vallalasena's Naihati			Burdwan	INM, Kolkata
Laksmanasena's Govindapur			24 Parganas	VSP, Kolkata
Laksmanasena's Sundarban			24 Parganas	Missing
Laksmanasena's Tarpandighi		Gangarampur	South Dinajpur	VSP, Kolkata
Laksmanasena's Anulia			Nadia	VRM, Rajshahi
Laksmanasena's Saktipur			Murshidabad	VSP, Kolkata
Laksmanasena's Madhainagar Laksmanasena's Rajabari/ Bhowal	Madhainagar Rajabari	Raiganj Sreepur	Sirajganj Gajipur	RASB, Kolkata RASB, Kolkata / India Office Library, London now lost
Visvarupasena's Madhyapara		Sirajdikhan	Munshiganj	VSP, Kolkata
Visvarupasena's/ Kesavasena's Idilpur	Idilpur	Goshairhat	Shariatpur	Missing from RASB, Kolkata
Visvarupasena's Madanpara		Kotalipara	Gopalganj	BNM, Dhaka

The above table shows the distribution pattern of the Sena copperplates. Seven were found in West Bengal and 5 in Bangladesh. Among the 12 plates, 4 from Dhaka division and 1 from Rajshahi division (Map 13 & Table 10).

Sometimes either the part or parts of the Pala and Sena empires were annexed by the usurpers or attackers who ruled for the time being and issued land grants as independent kings. Some of them were found and deciphered. The Kamboja kings, Isvaraghosha, Vaidyadeva were the rulers who emerged within the Pala Empire. Irda copperplate of Kamboja king Nayapala was found in the possession of Chaudhuri Mrityunjay Narayan Praharaja, land lord of Irda in Ballsore district in Orissa (Majumdar 1933-34: 150). Its actual find spot is unknown, But Majumdar reports that it must have come originally from a locality in southwest Bengal (Majumdar 1933-34: 150). Another copperplate of Nayapala of the Kamboja dynasty was found at Balesvara in Orissa and it was published in *Orissa Historical Research Journal (OHRJ)* (Roy 2001: 733). Vaidyadeva was a minister of Kumarapala and in course of time he established a kingdom in Assam and donated land in Kamrupa Mandala to a Brahman of Varendra with his Kamauli copperplate found in Kamauli village within Banaras in UP (Maitreya 1319BS: 127). *Ranavankamalla* Harikaladeva in Samatata region and Dommanpala in Sundarban region became independent during the reign of Laksmanasena of the Sena dynasty and issued land grants. However, we could definitely know about the following three copperplates which were issued from Bengal and its grants were situated in Bengal.

1. Isvaraghosha's Ramganj Copperplate (RY 35): It was discovered before 1833 in the vicinity of Ramganj within Ranisankail PS in undivided Dinajpur district (Majumdar 1929: 149). Now Ranisankail is an Upazila in Thakurgaon district. It was in the possession of Maldwar Raj family. INM in Kolkata has its estampages (Majumdar 1929: 149). AK Matreya (1320BSa; 1320BSb) also discussed it.
2. Dommanpala's Raksasakhlai/Sundarban Copperplate (Saka 1118): It was discovered during reclamation of virgin forest at Raksasakhali Island in the extensive western Sundarban tract on the Bay of Bengal (Ghosal 1947-48: 119). Raksasakhali is situated about 12 miles due east of the Sacred Sagar Island at the mouth of the river Hoogly. This Sagara Island area is known as the celebrated pilgrimage Ganga-Sagara-Sanghama at the mouth of the river Bhagirathi or Ganga now called Hoogly (Sircar 1953-54a: 44). This plate was found inside a brick built squarish chamber with heavily thick wall (Ghosal 1947-48: 119). BC Sen and DP Ghosh also discussed it (Sen & Ghosh 1947). Paul & Shamsuddin (2001) erroneously mentioned one and the same copperplate (Raksakhali/ Sundarban) of Srimaddommanpala/ Dommanpala as the separate plates of Raksasakhali copperplate of Madommanpala and Sundarban copperplate of Dommanpala. It should be corrected. However, it is deposited in Ashutosh Museum, Kolkata.
3. Harikaladeva's Kotbari Copperplate (RY 17/ Saka 1141): It was discovered in 1803 by labors while digging earth at Kotbari site for repairing road through Mainamati hills in the former Tippera district (Bhattacharya 1933: 282). The site is now at Lalmai-Mainamati hills in present day Comilla district. It is known as Mainamati copperplate. In fact, it could be termed as Kotbari copperplate, because it is its proper find place. The then Judge-Magistrate of Tippera Mr. Elliot sent it to ASB in Kolkata; but now it is

lost (Bhattacharya 1933: 282). Colebrooke (1807: 401-406) first published its facsimile. Now we are going to discuss the copperplates of Hindu Deva dynasty of Vanga-Samatata-Harikela region in the 13th century AD.

The Hindu Deva Copperplates (13th Century AD)

The Hindu Deva dynasty appeared with the downfall of the Sena dynasty in Vanga-Samatata and Harikela regions. At least six copperplates issued by this dynasty were found. Other inscriptions of this dynasty were not found. The Hindu Deva dynasty was overthrown by the Muslims in the last days of the 13th century or the beginning of the 14th century AD. With the advent of the Muslims, the system of land grants engraved in copperplates disappeared from Bengal. However, the Hindu Deva dynasty's copperplates are discussed bellow.

1. Damodaradeva's Mehar Copperplate (RY 4/Saka 1156): It was discovered at a depth of about 8 feet by Rahimuddin Pandit while, in February 1940, digging a ditch near his homestead at Mehar village within Uttar Mehar Union in Hajiganj PS (Barua & Chakravarti 1947-48: 182). DC Sircar (1953-54b: 51-58; 1983: 140-45) also discussed it. We have visited the site on May 18, 2005 and found the provenance of the plate in Nijmehar village within Shahrasti Paurasabha of Chandpur district. Shahrasti is also a PS and Upazila headquarter of the same name. The find spot is located about 150 meters south from the Shahrasti Paurasabha building on the Thana Road. Rahimuddin Pandit sold his homestead to Siraj and Shahjahan brothers. Now the ditch where the plate was found is filled up with earth and used as homestead. We have met one of the discoverers of the plate named Muslem Mia (90) who told us that the plate was originally between two thin bricks tied together with lime-surki mortar. However, Pulin Bihari Chakravarti collected the plate for Kolkata Ashutosh Museum in cooperation with the Police of Hajiganj and local land lord Nagendra Kumar Chowdhury.
2. Damodaradeva's Sobharampur Copperplate (RY 6/Saka1158): It was discovered by Ibrahim Bhuiyan at a depth of 2 or 3 feet bellow the surface while digging earth for storing his cow-dung near his homestead in 1950-51 at Sobharampur village in Comilla district. According to MH Rashid (2001: 215), the find spot of this plate is at Jahabari of Sobharampur village within Bihar Mandal Union in Burichang Upazila of Comilla district. Sobharampur is a village near Bharella (Rashid 2001: 215). The plate was within brickwork in situ and it was opened after breaking it (Dani 1953-54: 184). According to Rashid (2001: 215), the plate was within two thin tiles connected or tied with lime-surki mortar. We have visited Sobharampur on May 17, 2005 and found the find spot which is situated at the homestead of late Ibrahim Bhuiyan in the southern section of the village within Bharella Union in Burichang Upazila. Sobharampur village is adjacent to Rampur village and it is about 1.5 km west from Rampur Bus-stand on the Comilla-Brahman Baria Highway. However, Dani got the message from a teacher of Comilla Zilla School named Ali Ahmed and acquired the plate in cooperation with the then District Magistrate of Tippera in favor of East Pakistan Directorate of Archaeology. But Rashid (2001: 215) reports that the plate was taken to the present Pakistan and preserve there.
3. Damodaradeva's Nasirabad Copperplate (RY 13/Saka 1165): It was discovered by a Muslim householder while re-excavating a pond at Nasirabad village near Chittagong town in 1874 (Majumdar 1929: 158). It is also known as Chittagong copperplate. The then Collector of Chittagong Mr. AL Clay collected the plate and presented it to ASB in Kolkata. Prannath Pandit published it with the help of Isvarachandra Vidyasagar in *JASB* (XLIII): 318-24, in 1874. But Banerji did not mention it in his List of Copperplates published in *JASBNS* (VI). Now it is missing (Majumdar 1929: 158). But Paul & Shamsuddin (2001: 26) wrongly mentioned its preservation in ASB.
4. Dasarathadeva's Adabari Copperplate (RY 3): It was acquired by NK Bhattasali for his Dhaka Museum and it was discovered from Adabari village of Vikramapura in the then Dhaka district in 1924 (Majumdar 1929: 181). Now Vikramapura Pargana is known as Munshiganj district.
5. Dasarathadeva's Pakamura Copperplate (RY-): It was discovered in 1949 while excavating a water body named Tara Dighi near Pakamura site at Pakamura village within Kalirbazar Union of Comilla district Sadar Upazila (Rashid 2001: 214; Sircar 1982a: 166). We have visited Pakamura village on May 17, 2005. We found the site situated at the foot of Pakamura hillock on the western portion of Lalmai-Mainamati range in Comilla district Sadar Upazila. However, AH Dani acquired it in favor of Pakistan Directorate of Archaeology and sent it to West Pakistan for chemical treatment. It is now deposited there (Rashid 2001: 215).
6. Viradhradeva's Charpatramura Copperplate (RY 15): It was discovered at Charpatramura temple in the excavation of 1956, together with three other plates mentioned earlier. Viradharadeva donated land to Ladaha Madhava temple which is identified with Charpatramura temple situated in Lalmai-Mainamati hill range in Comilla district (Sircar 1973: 57-59, 81, Zakariah 1997: 230-31). It is preserved in the Directorate of Archaeology of Bangladesh Government.

The above information shows that the Hindu Deva dynasty ruled in modern Munshiganj district of Vanga, Comilla and Chandpur districts of Samatata and Chittagong district of Harikela in the 13th century AD (Map 14 & Table 11). Another Deva dynasty was known as Srihatta Deva dynasty.

Table-11 Provenances of Hindu Deva copperplates

Name of Copperplate	Union	Upazila/PS	District	Deposited
Damodaradeva's Mehar	Shahrasti	Shahrasti	Chandpur	Ashutosh Museum, Kolkata
Damodaradeva's Sobharampur	Bharella	Burichang	Comilla	Pakistan
Damodaradeva's Nasirabad			Chittagong City	Missing from ASB
Dasarathadeva's Adabari			Munshiganj	BNM, Dhaka (?)
Dasarathadeva's Pakamura	Kalirbazar	Comilla	Comilla	Pakistan
Viradharadeva's Charpatramura	Vijayapur	Comilla	Comilla	Directorate of Archaeology of Bangladesh Government

Govindakesavadeva and Isanadeva were two kings of Srihatta Deva dynasty. They had no connection with the Hindu Deva dynasty of Southeast Bengal in the 13th century AD. But their time span is controversial. KK Gupta (1967) placed them in the 11th century AD and Niharranjan Ray (2001:736) placed them in the 13th century AD. Their two copperplates were found at Bhatera.

1. Govindakesavadeva's Bhatera Copperplate (RY-): It was discovered under 8 feet of earth in Itertilla mound of Bhatera village within Baramchal Union in Kulaura Upazila of Maulvibazar district in 1872. It was associated with Isanadeva's Bhatera plate. Pandit Srinivas Sastri of Poona first deciphered both the Bhatera plates (Gupta 1967: 153, 159). In 1880, the then DC of Sylhet named Luttmon Johnson sent facsimiles of the plates to Dr. Raja Rajendralal Mitra of Kolkata. Rajendralal Mitra deciphered and published its reading in the Proceedings of the ASB in August, 1880 (Gupta 1967: 181). Govindakesavadeva's Bhatera plate was in the possession of Umesh Chandra Chaudhury of Bhatera in 1929-30 (Gupta 1967: 153). KM Gupta (1927-28: 277-86) deciphered it from UC Chaudhury and published. UC Chaudhury (1940: 73-77) comments on it. It is deposited in INM, Kolkata (Gupta 1967: 153).
2. Isanadeva's Bhatera Copperplate (RY-): It was also discovered in the above mentioned location. It is also in INM, Kolkata (Gupta 1967: 181).

Rulers and kings of Bengal issued copperplates from the 5th century AD to the 13th century AD. The practice of land grant in copperplate disappeared with the gradual expansion of Muslim rule in the country. A large number of copperplates were issued from their capitals or local administrations for the benefit of the Hindu Brahmans, Buddhist and Jaina monks and their religious establishments in early historic and early medieval periods of Bengal. Now these copperplates became archaeological materials and people started discovering and recording them from the 18th century onwards. The discovering and recording process is still going on. However, we had a plan to visit all of the find places of the copperplates under review, but due to acute financial crisis and inadequate time we could survey only a few sites. Almost all of the find spots visited by us provided some new information about archaeological contexts and in some cases we got new and easy locations and addresses. It will help future researchers and tourists who could save time and money in their research and pleasure.

Our Observations

Most of the copperplates of Bengal were found as chance finds. Some of them came out of regular excavations. Almost all of the copperplates under review were stray finds and most of them were unearthed by the local people from their provenances in association with other archaeological materials. Copperplates from regular excavations in Bangladesh are as follows:

Salban Vihara excavations - 7
Charpatramura excavations - 4
Itakhola Vihara excavations -1
Paharpur excavations - 1

Thus, only 13 (7+4+1+1) copperplates out of 77 found in Bangladesh were exposed in regular excavations and other 64 (77 - 13) grants were chance finds.

Three Copperplates of the Khadga dynasty of the 7th century were recovered from Period III (8th century level) of Salban Vihara. The Khadga Copperplates of the 7th century AD were found in the 8th century level, which indicate that the plates were preserved in the later century. Four Copperplates of the early Deva dynasty of the 8th century AD were recovered from Period III (8th century level), Period IV (9th century level) and Period V (10th 11th century level), which also indicate that the Deva plates were preserved in the later centuries. Copperplates of the Khadga dynasty were preserved in Salban Vihara at least up to 8th century when the early Devas ruled. The 8th century copperplates were also preserved in this Vihara up to 9th and 10th-11th centuries AD when the Harikela kings and the Chandra kings ruled. The strata where the copperplates found at Charpatramura,

Itakholamura and Paharpur excavations were not properly clarified in the excavation reports. As a matter of fact, Budhagupta's Paharpur copperplate of the 5th century was found in the Pala period level of the 8th -12th centuries AD. Thus, we could easily assume the preservation of copperplate in the religious establishment is a phenomenon in the Early Historic and Early Medieval Periods in Bangladesh. Now we are going to turn our discussion on statistical data for better and wider understanding of the distribution pattern of the land grants.

Table-12 Copperplates of Bengal

Dynasties/ Kings	Bangladesh	West Bengal	Total in Bengal
Gupta Period	10	0	10
Vanga kings	5	1	6
King Jayanaga	0	1	1
King Sasanka	0	3	3
King Bhaskaravarman	7	0	7
King Vainyagupta	1	0	1
Natha dynasty	2	0	2
Rata dynasty	4	0	4
Khadga dynasty	5	0	5
Pala dynasty	5	8	13
Buddhist Deva dynasty	6	0	6
Harikela Kings	3	0	3
Chandra dynasty	11	0	11
Varman dynasty	3	0	3
Sena dynasty	5	7	12
Mahamandalika Isvaraghosha	1	0	1
Dommanapala	0	1	1
Ranavankamalla Harikaladeva	1	0	1
Hindu Deva dynasty	6	0	6
Srihatta Deva dynasty	2	0	2
Grand Total	77	21	98

The above table (Table 12) is made with authentic information which shows the data of 77 plates and vases found in Bangladesh and 21 in West Bengal. Thus, at least 98 land deeds or plates were found in Bengal. But Morrison (1974: 98) made information of a copperplate of Vainyagupta found in Salban Vihara; another one of his plate is existed as informed by the former Director General of BNM, Dr. Enamul Haque; Rashid (2001: 231) mentioned an unknown ruler's copperplate recovered from Rupban Kanyamura in Mainamati, which is unpublished and missing. If these three copperplates are counted, the total number becomes 101 (77 +3 + 21). On the other hand, BNM Stone Slab of Pahila and Bhaturiya Stone Slab of Rajyapala had the records of the donations of a Matha and a village respectively (Bhattacharya 2000: 483, 485; Husain 1973: 28-34; Sircar 1959-60: 152-53). But these stone slabs were not land deeds with royal or official seals and therefore excluded from our statistical data. Now we are going to understand division and district wise distribution pattern of the copperplates and vases found in Bangladesh proper.

Division wise distribution of the land grants found in Bangladesh is as follows:

Chittagong Division - 28
Dhaka Division ----- - 21
Rajshahi Division ---- 17
Sylhet Division ----- - 11
Khulna Division --- --- 0
Barisal Division ------- 0

Total = 77

Copperplates of the imperial or local rulers of Bengal were found at least 20 districts in Bangladesh, 6 districts in West Bengal, 2 districts in Bihar and 2 districts in Uttar Pradesh. Provenances of a very few copperplates and two vases are not precisely known; though the two vases were most probably found in Chittagong region (Bhattacharya 2000: 640-44). Therefore, we have included its provenances in Chittagong area. Now we are going to show district wise distribution pattern of the land grants found in Bangladesh. District wise distribution pattern of the copperplates and vases found in Bangladesh is interesting and supply us the information of concentrations of the find places of land grants and indicated its genuine historical and cultural significance. However, district wise distribution patterns are as follows:

1. Chittagong Division: 28 copperplates and vases

Comilla District	-	23 (excluding 2 or 3 plates with doubtful authenticity)
Chittagong District	-	4 (including 2 vases)
Chandpur District	-	1

2. Dhaka Division: 21 copperplates

Gopalganj District	-	6
Shariatpur District	-	4
Munshiganj District	-	4
Narsingdi District	-	3
Dhaka District	-	2
Gazipur District	-	1
Manikganj District	-	1

3. Rajshahi Division: 17 copperplates

Dinajpur District	-	8
Bogra District	-	2
Jayapurhat District	-	2
Natore District	-	1
Thakurgaon District	-	1
Sirajganj District	-	1
Nawgaon District	-	1
Rajshahi District	-	1

4. Sylhet Division: 11 copperplates

Sylhet District	-	7
Maulvibazar District	-	4

Copperplates were not found in Khulna and Barisal Divisions.

Thus, at least 77 (28+21+17+11) copperplates with vases were found in Bangladesh proper. Copperplates were largely concentrated in Comilla District with 22 in number (excluding the doubtful 2 or 3 plates). Second position was secured by Dinajpur district with 8 plates. Sylhet district is placed in the 3rd position with 7 plates and Gopalganj district in the 4th place with 6 plates.

Bengal land grants were also found beyond Bengal in Bihar, Orissa and UP in India, which are as follows:

Bihar	-	4
Orissa	-	4
UP	-	2
		Total = 10

The provenances of 2 Los Angelos copperplates of Gopala II are unknown.

Thus, total number of authentic copperplates and vases mentioned above are (77+ 21+10+2) = 110. If we count the three doubtful plates (2 doubtful plates of Vainyagupta and 1 plate from Rupban Kanyamura) the number of plates and vases were 113. Each of these copperplates and vases was land grant. However, Bengal land grants were deposited in museums, institutions and even private collections in Bangladesh, India, England, Australia and USA. But some of them were lost.

We have discussed the provenances and preservation condition of the land grants of Bengal. More or less hundred land grants have been recorded in this paper. Most of them are stray finds and a very few are recovered from regular excavations. Almost all of the grants are inscribed in copperplates except two. These two grants are inscribed in copper vase, one deposited in BNM in Dhaka and the other in Sam Fog Collection in London. Some land grants have been preserved in the institutions and private collections of Bangladesh, India, Pakistan, England, USA and Australia. Some of them are missing now and the present position of some grants was not recorded. We have found some new information about the proper geographic location in our fieldwork. One of our new findings is the present location of the provenance of Mehar copperplate in Nizmehar near Sharasti Paurasabha and PS in Chandpur district. Other erronous information of previous scholars have been rectified.

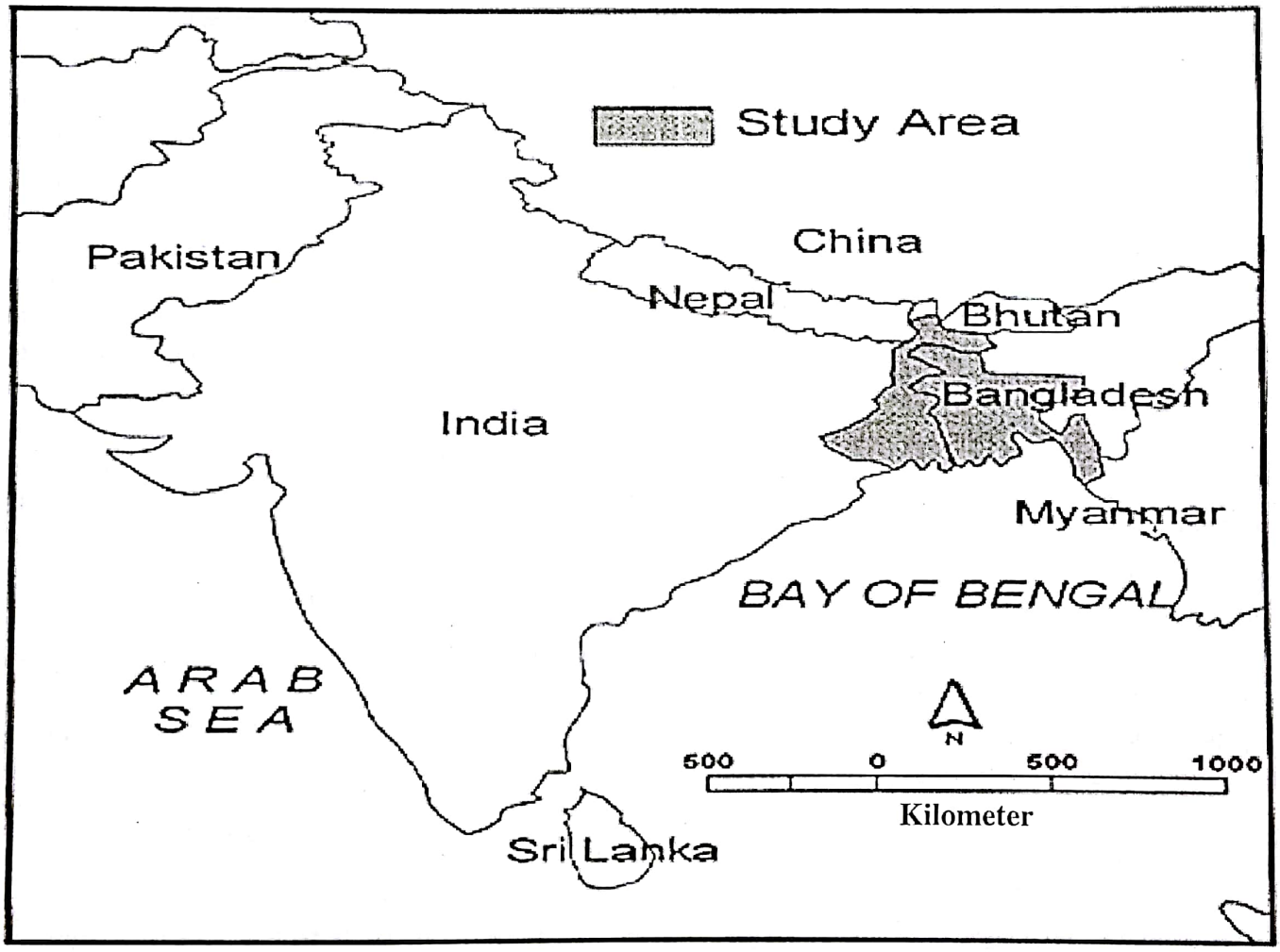
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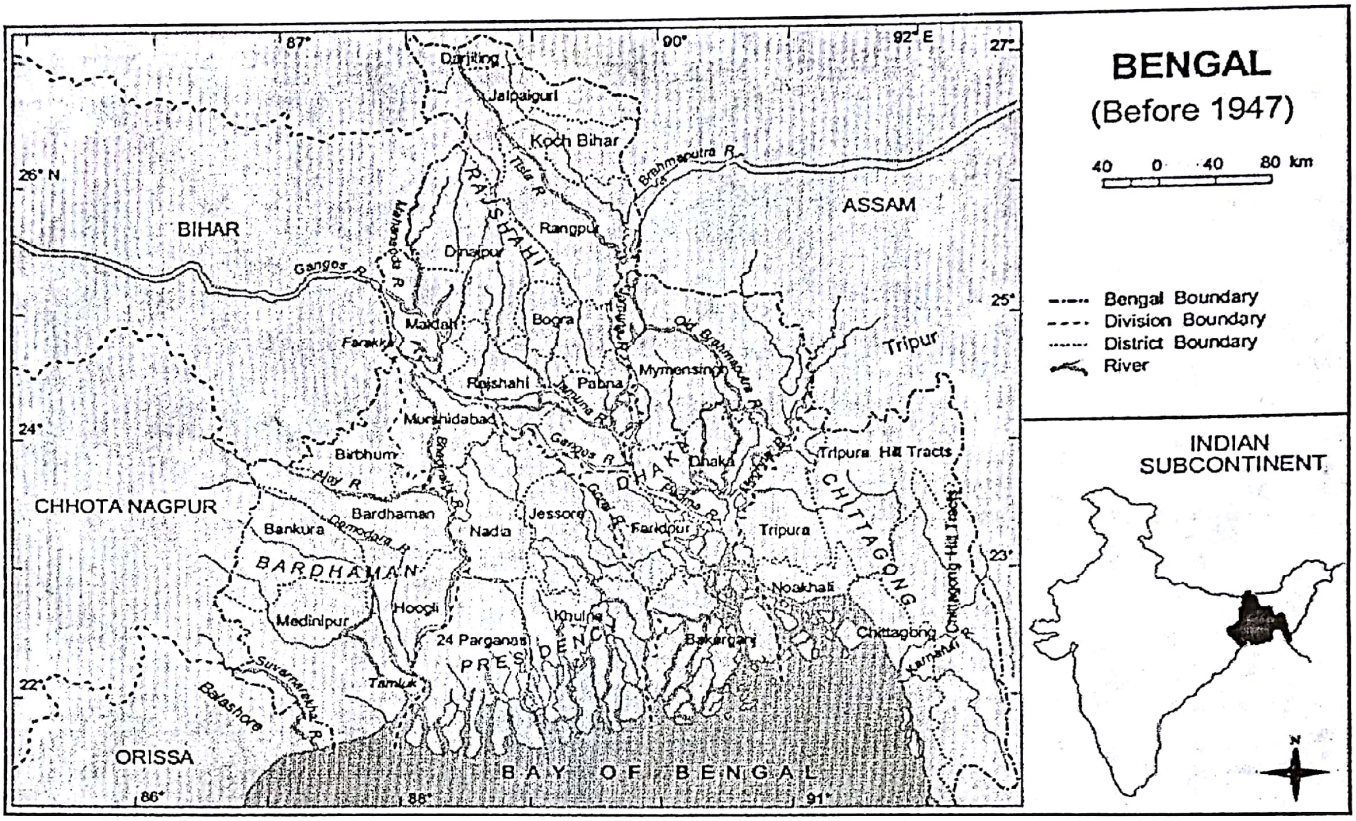
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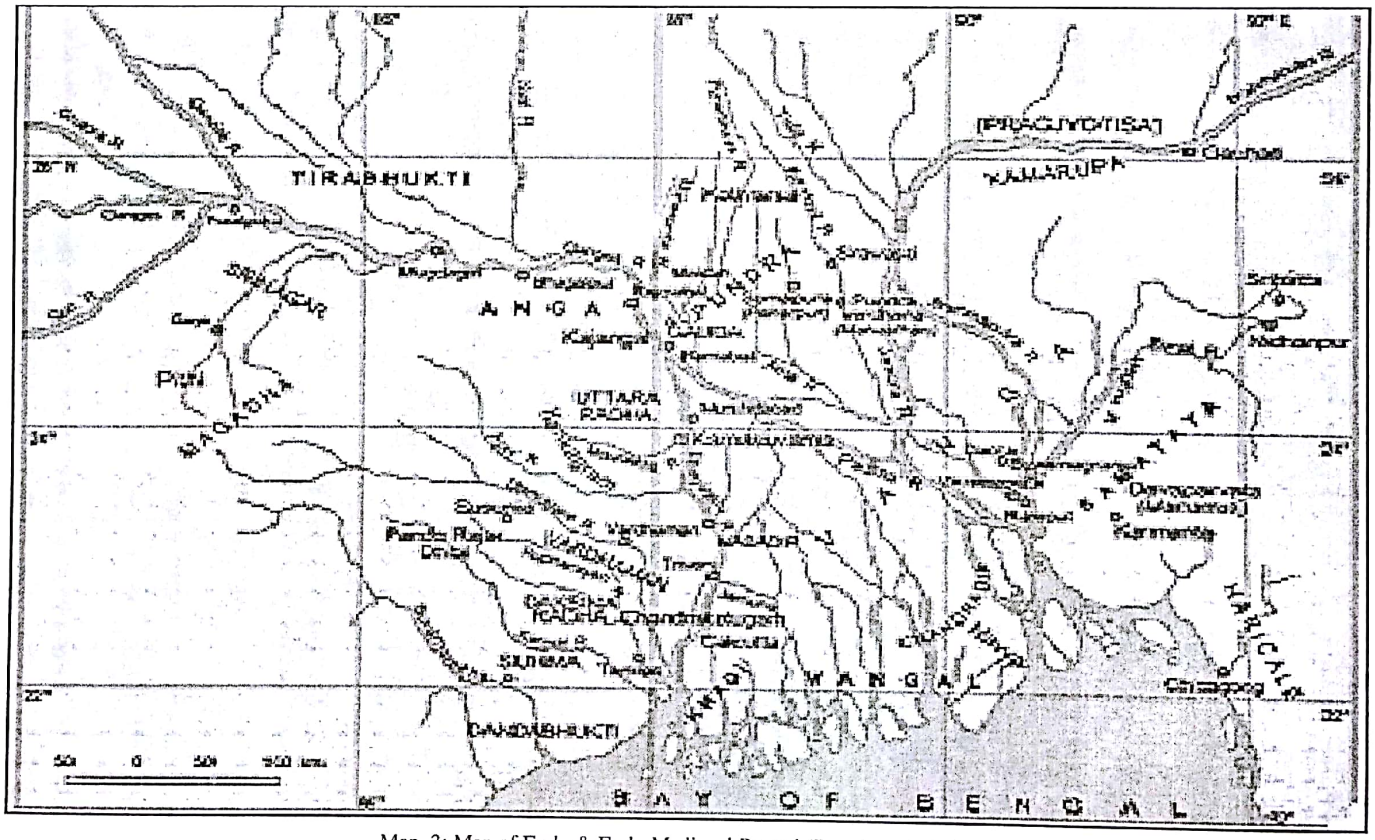
বাংলার শাসক ও রাজগণ কর্তৃক ৫ থেকে ১৩ শতক পর্যন্ত সময়কালে জারি করা প্রায় শতখানেক ভূমিদানপত্র তথা তাম্রশাসন ও ঘটলেখ বাংলায় আবিষ্কৃত হয়েছে। এর মধ্যে বর্তমান পশ্চিমবঙ্গের ২১টি বাদে সব কয়টি বাংলাদেশে পাওয়া গেছে। তন্মধ্যে কমপক্ষে ২৩টি তাম্রশাসনের প্রাপ্তিস্থান কুমিল্লা জেলা। অর্থাৎ কুমিল্লাতেই সবচেয়ে বেশি তাম্রশাসন পাওয়া গেছে। এছাড়া বংলার রাজগণের ৪টি তাম্রশাসন বিহারে, ৪টি উড়িষ্যাতে এবং ২ টি উত্তর প্রদেশে পাওয়া গেছে যা আমাদের আলোচ্য বিষয় বহির্ভূত। আলোচ্য গবেষণায় বাংলার এসব দলিলের রাজবংশানুক্রমিক এবং স্থাণিক বিস্তার সারণী ও মানচিত্রের মাধ্যমে দেখানো হয়েছে এবং প্রাপ্তিস্থানের সঠিক ঠিকানাও নির্ণয়ের চেষ্টা করা হয়েছে। এ ব্যাপারে প্রকাশিত বই, পত্র পত্রিকা ছাড়াও মাঠকর্মের আশ্রয় গ্রহণ করে কোন কোন তাম্রশাসনের প্রাপ্তিস্থানের নতুন তথ্য সম্বলিত ঠিকানাও এ প্রবন্ধে যোগ করা হয়েছে। খুব কম তাম্রশাসনই প্রত্নতাত্ত্বিক উৎখননে পাওয়া গেছে; প্রায় সবই হঠাৎ পাওয়া। প্রসঙ্গক্রমে তাম্রশাসন বর্তমানে কোথায় বা কোন প্রতিষ্ঠানে রক্ষিত আছে তাও উল্লেখ করা হয়েছে। বাংলাদেশ, ভারত, পাকিস্তান, যুক্তরাজ্য, যুক্তরাষ্ট্র এবং অস্ট্রেলিয়ার বিভিন্ন প্রতিষ্ঠান ও ব্যক্তিগত সংগ্রহে বাংলার এই সব প্রত্ননিদর্শন রক্ষিত আছে। তবে কোন কোন তাম্রশাসনের বর্তমান অবস্থান এখনো অজ্ঞাত এবং কোন কোনটি হেফাজতকারি প্রতিষ্ঠান থেকেও খোয়া গেছে। এ বিষয়গুলো মাথায় রেখে বাংলার ভূমিদান পত্রগুলির পরিসংখ্যান তুলে ধরার প্রয়াস নেয়া হয়েছে আলোচ্য প্রবন্ধে।



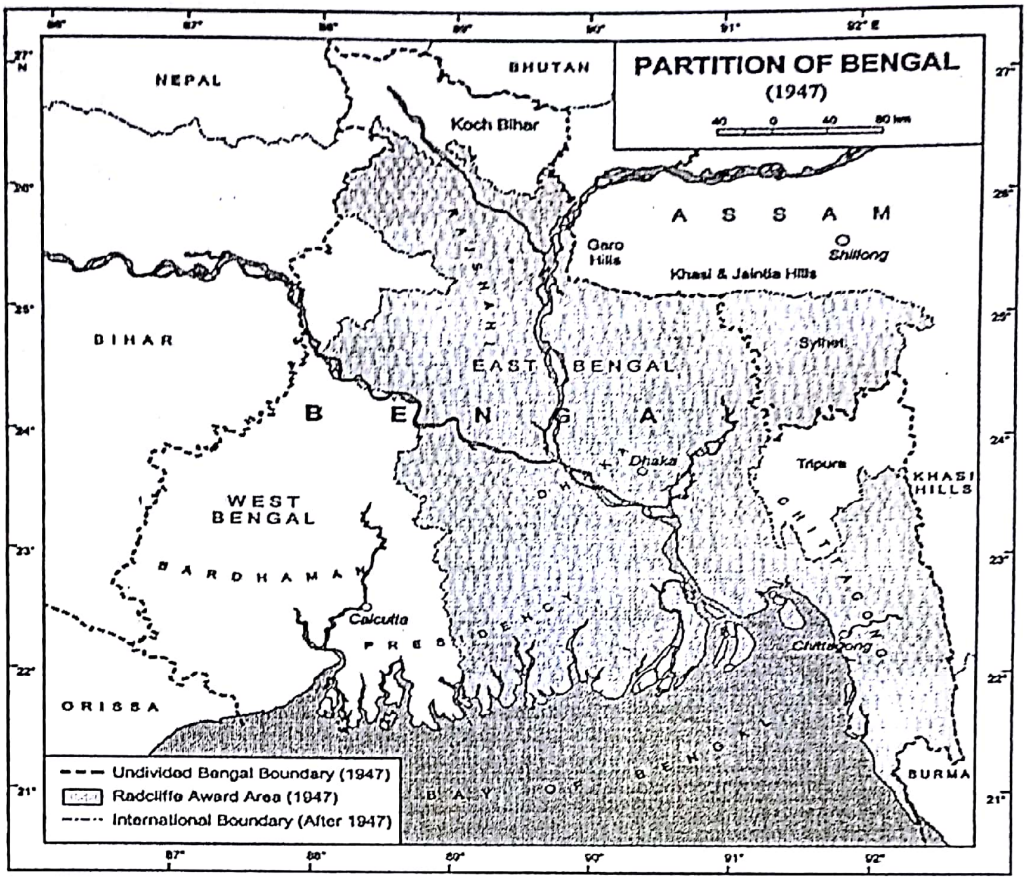
Map. 1: Study Area



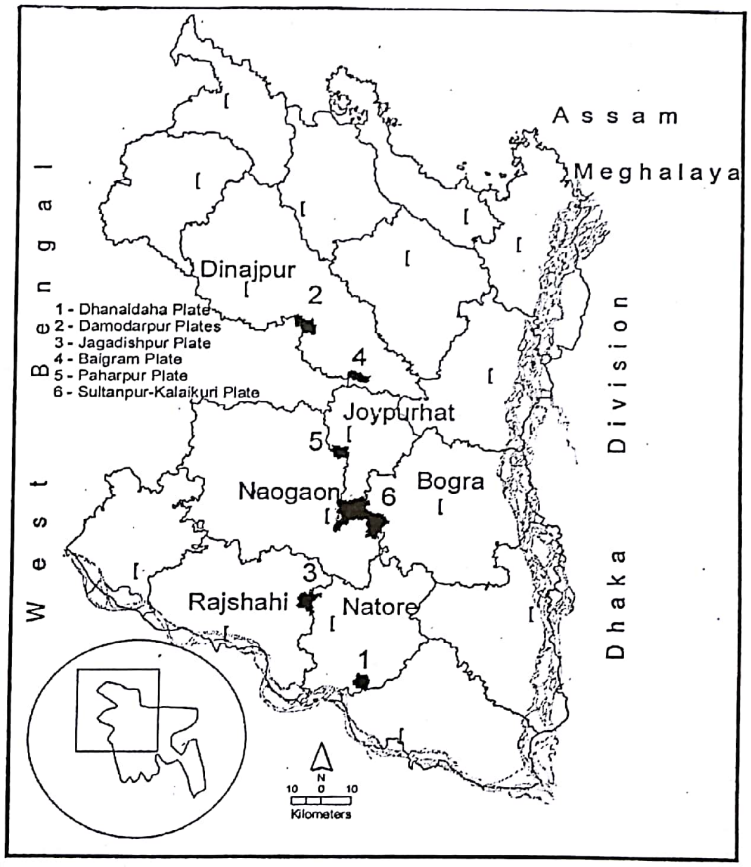
Map. 2: Map of Bangladesh before 1947 (Banglapedia, 2003)



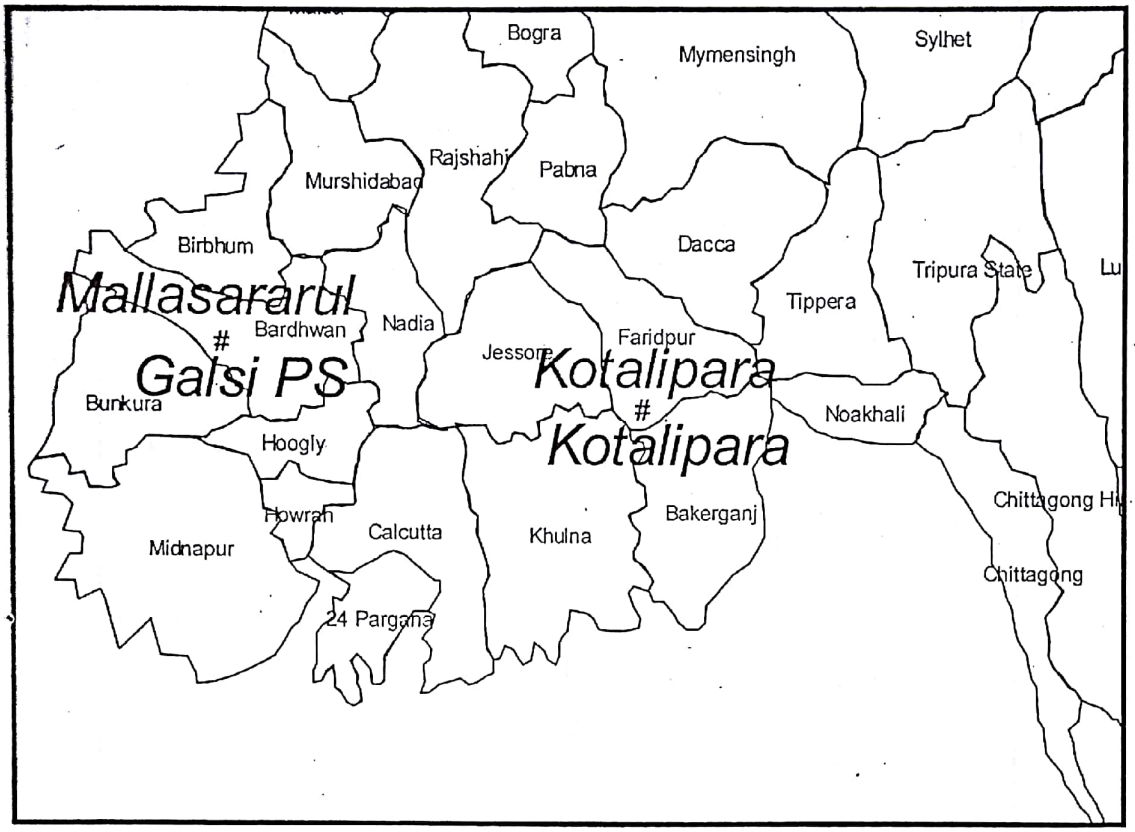
Map. 3: Map of Early & Early Medieval Bengal (Banglapedia, 2003)



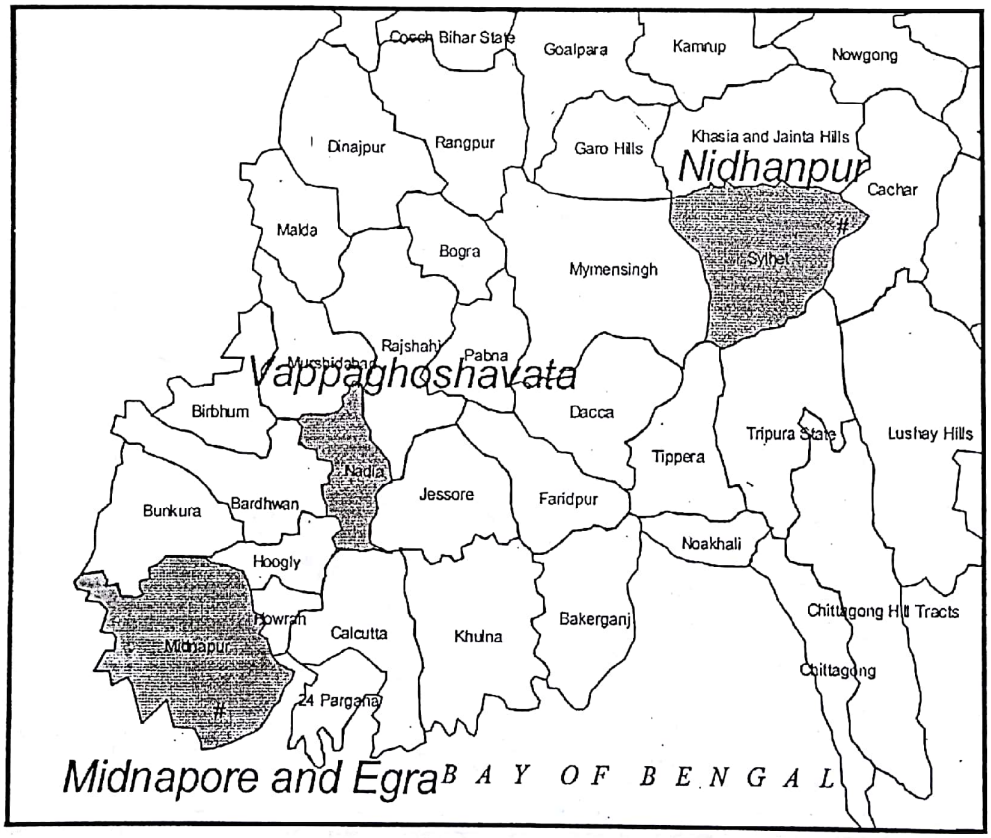
Map. 4: Partition of Bengal (Ahmed Nafis, 1958)



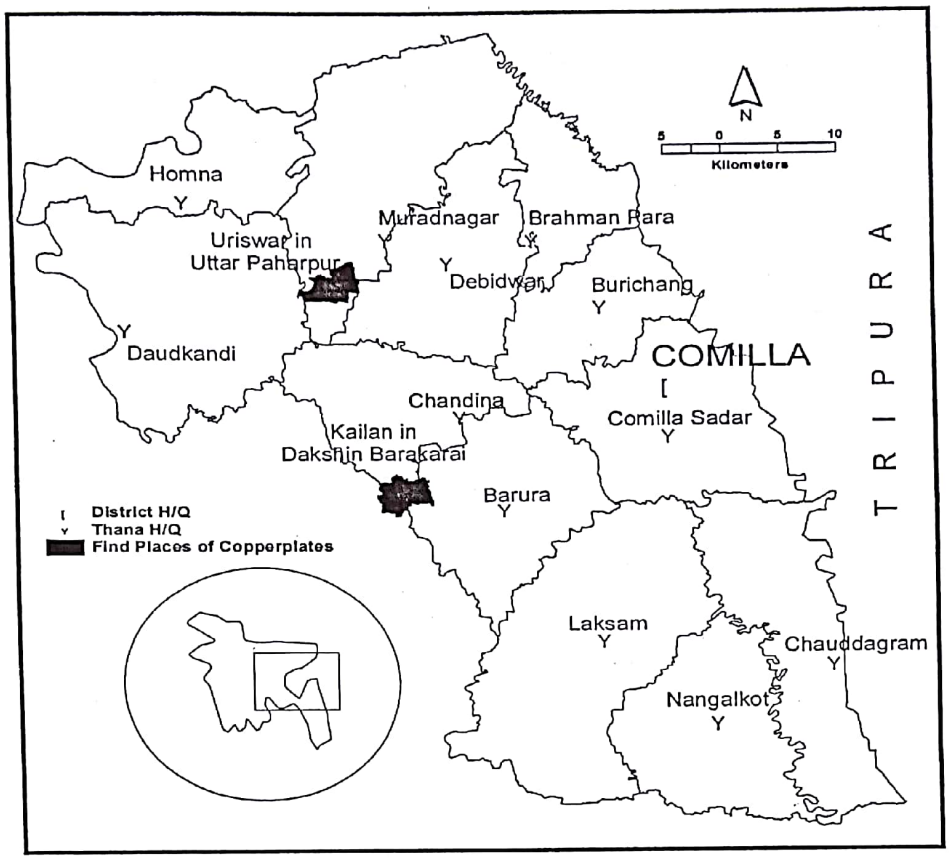
Map. 5: Provenances of Gupta Copperlates



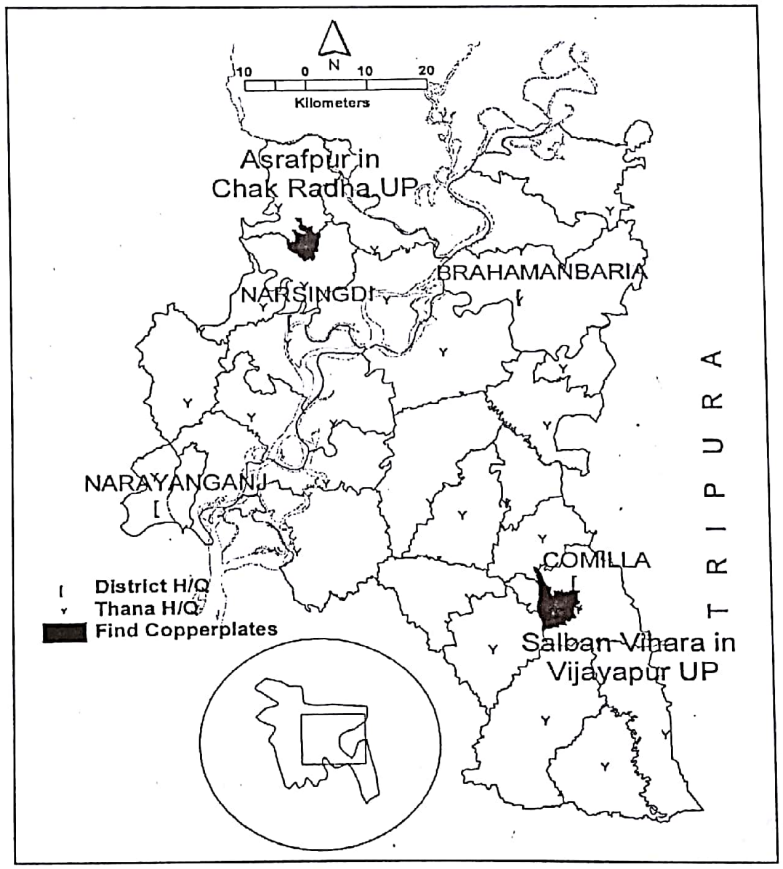
Map. 6: Provenances of Vanga Rulers' Copperlates



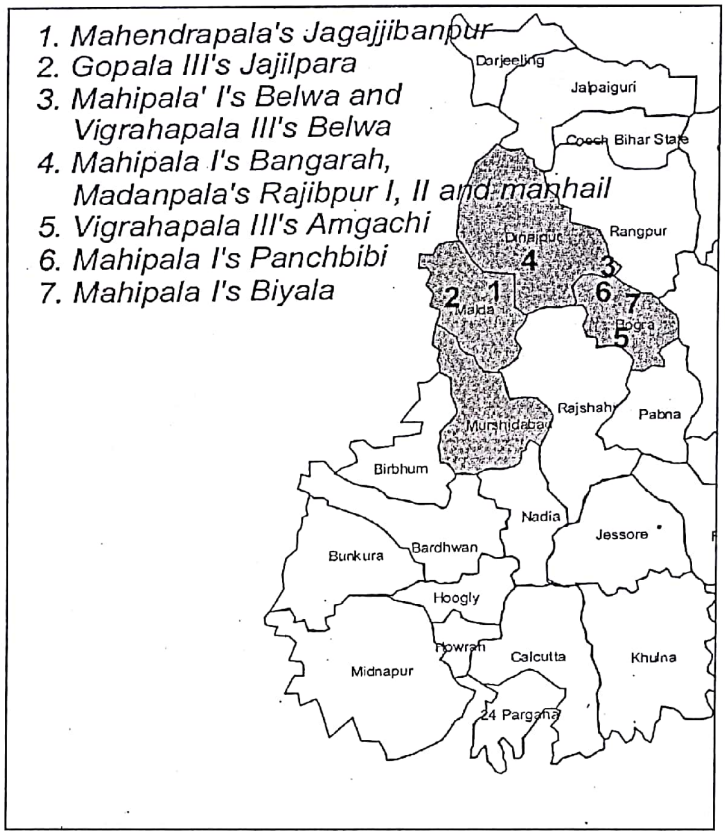
Map. 7: Provenances of the Copperlates of Jayanaga, Sasanka & Bhashkaravarman



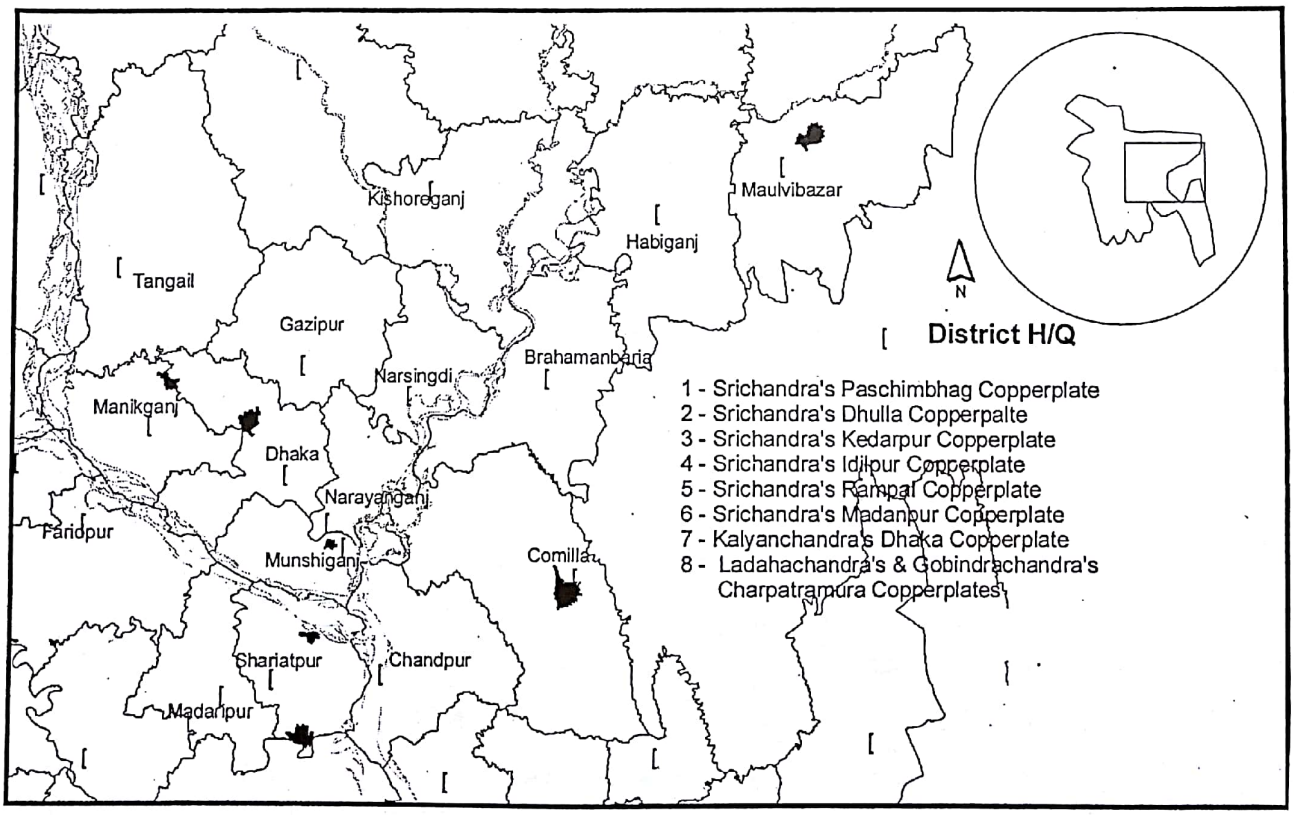
Map. 8: Provenances of Rata Copperlates



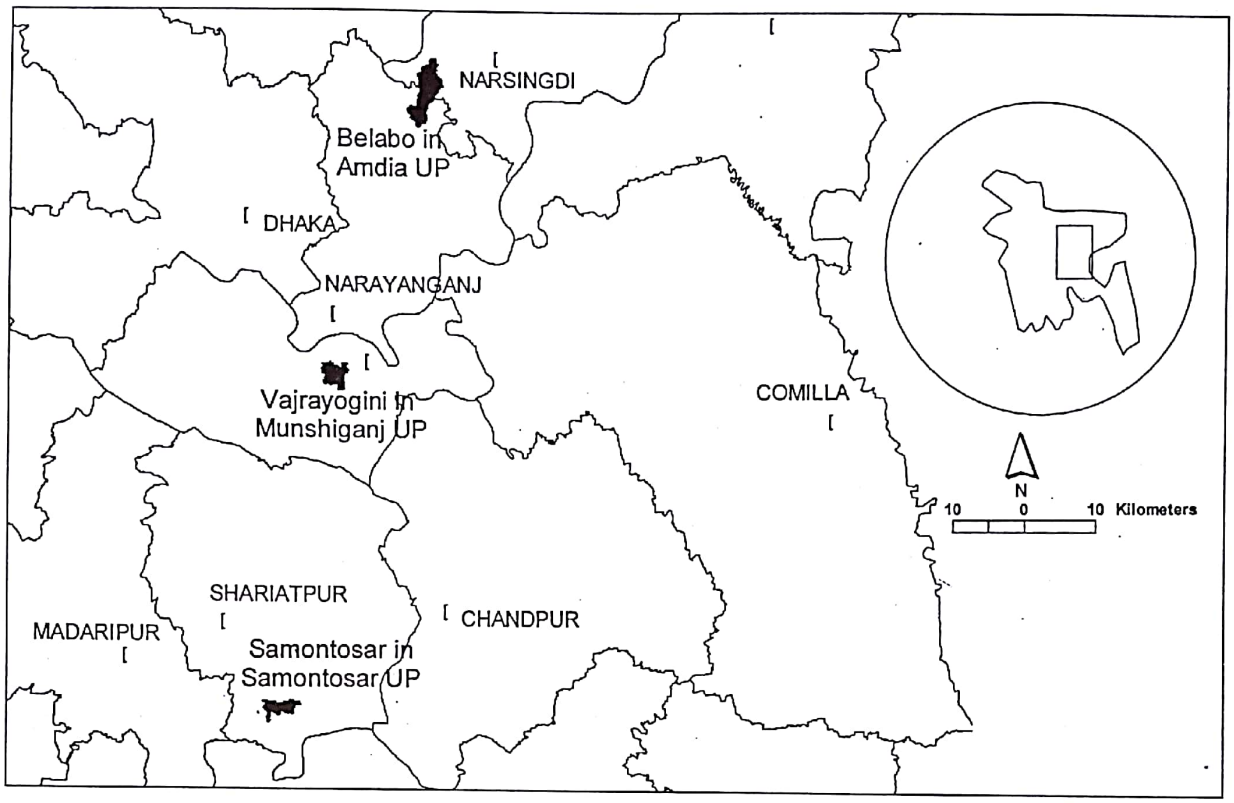
Map. 9: Provenances of Khadga Copperlates



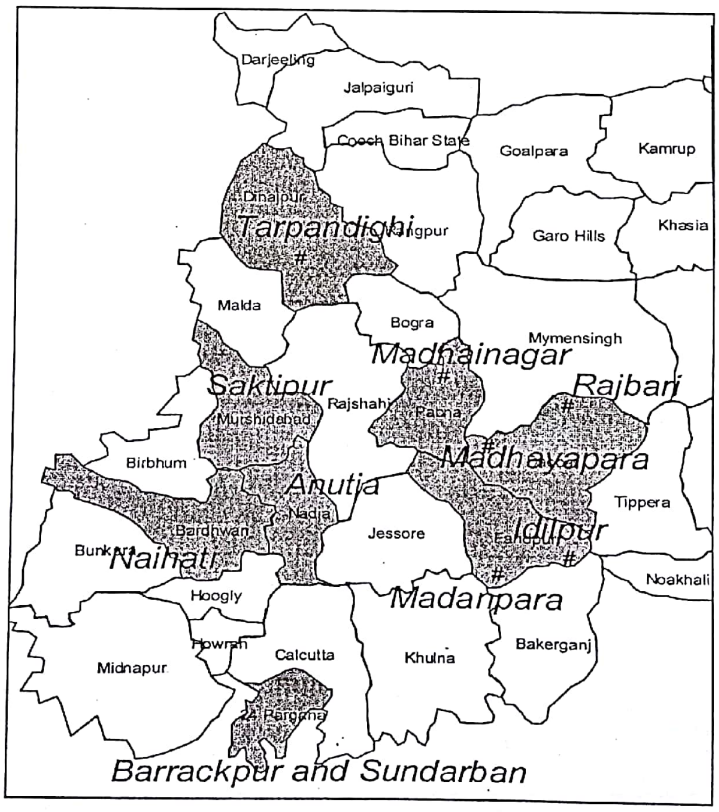
Map. 10: Provenances of Pala Copperlates



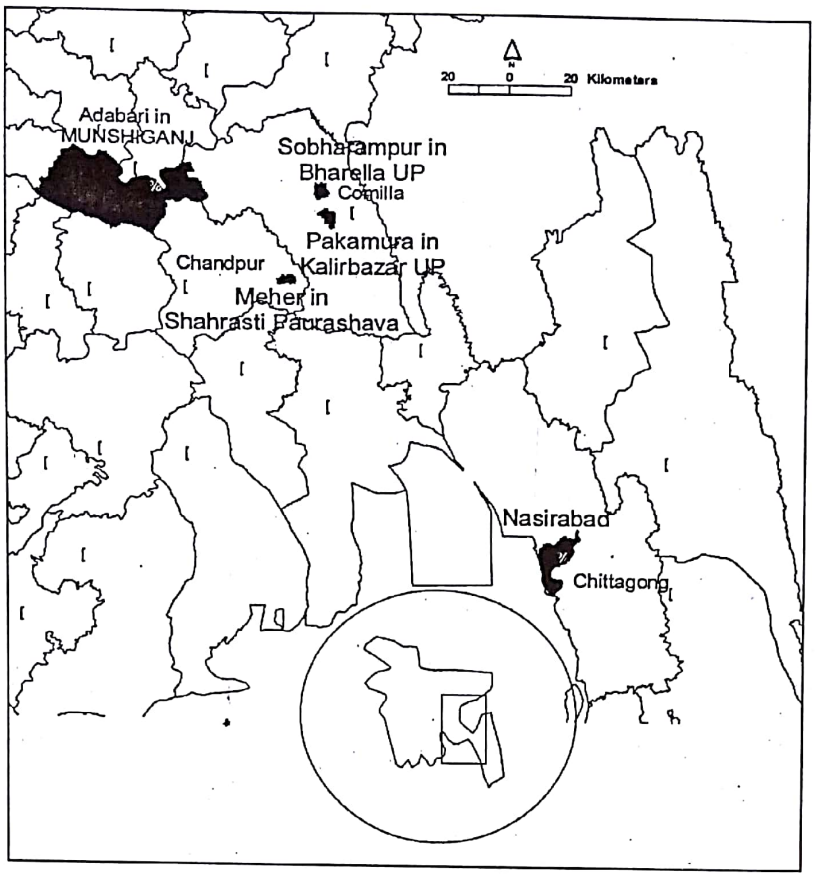
Map. 11: Provenances of Chandra Copperlates



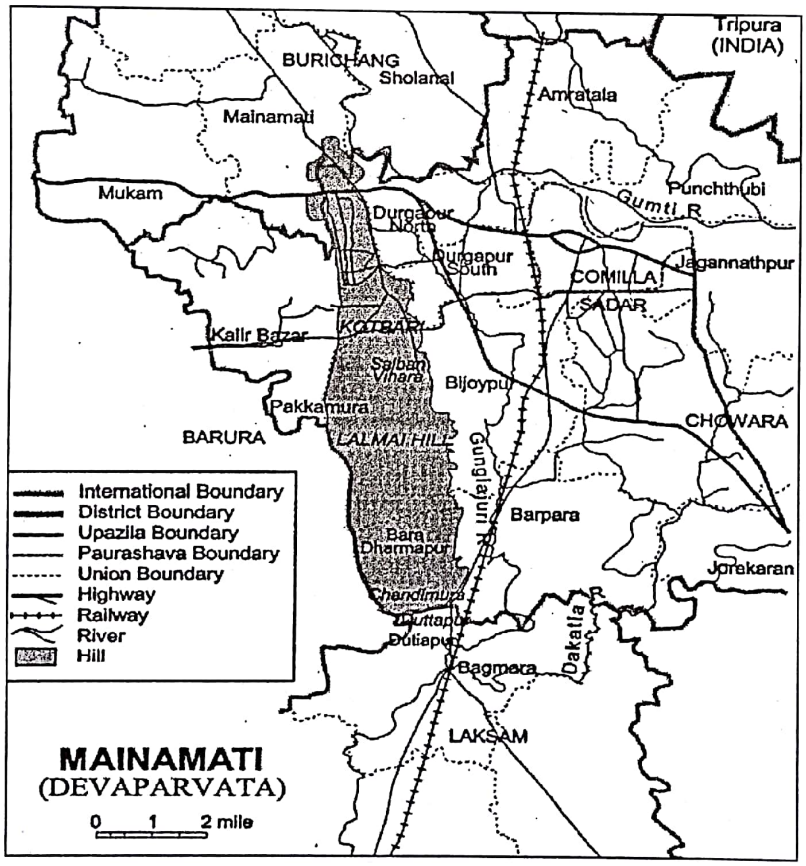
Map. 12: Provenances of Varman Copperlates



Map. 13: Provenances of Sena Copperlates



Map. 14: Provenances of Hindu Deva Copperlates



Map. 15: Mainamati /Devaparvata (Banglapedia, 2003)

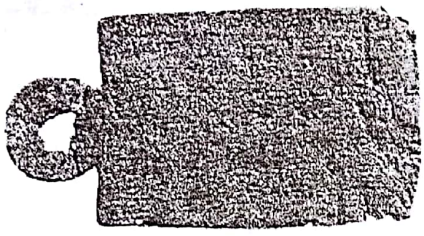


Fig. 1: Kumaraguota's Damodarpur Copperplate II (Obv)



Fig. 2: Kumaraguota's Damodarpur Copperplate II (Rev)



Fig. 3: Budhagupta's Damodarpur Copperplate II (Obv)

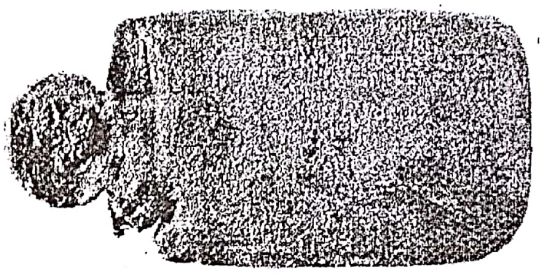


Fig. 4: Budhagupta's Damodarpur Copperplate II (Rev)

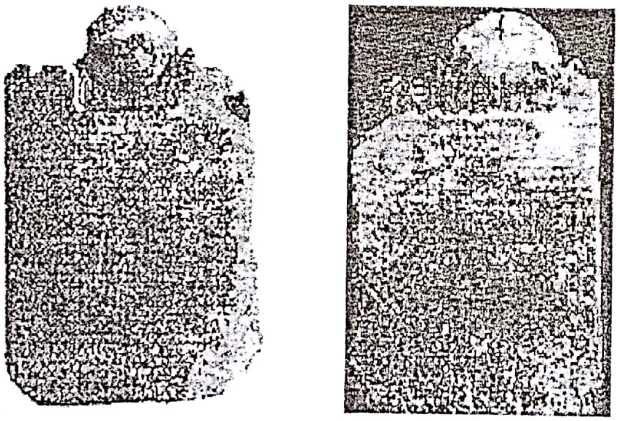


Fig. 5: Devakhadga's Salban Vihara Copperplate II (Obv & Rev)

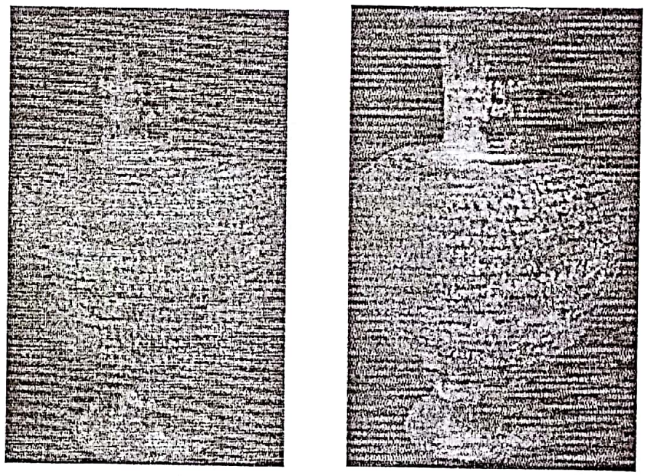


Fig. 6: Devakhadga's Harikela Copper Vase

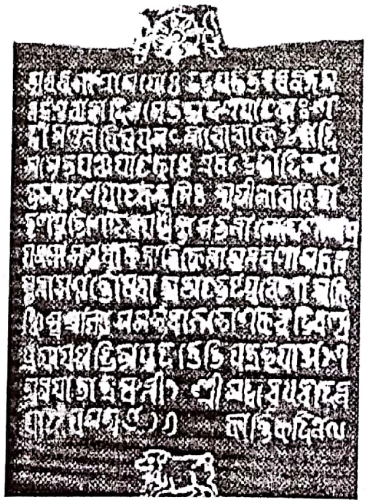


Fig. 7: Vriadharadeva's Charpatramura Copperplate II (Rev)

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A Preliminary Study on the Documentation of Faunal Remains in Bangladesh

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Archaeological research in Bangladesh started in the beginning of the nineteenth century. Since then, archaeologists as well as historians have given more emphasis on the cultural material remains to reconstruct the socio-economic and environmental history of Bengal. However, till today faunal studies, which are, very significant and potential parameter to reconstruct the past has been more or less neglected by the archaeologists of Bangladesh. In Bangladesh a number of historic sites have been excavated. Due to lack of awareness among the archaeologists about the full scientific potentials of zoological material, the wide variety of information on the bio-cultural and environmental aspects of the life ways of early man in Bangladesh is permanently lost from many of the sites which have already been excavated.

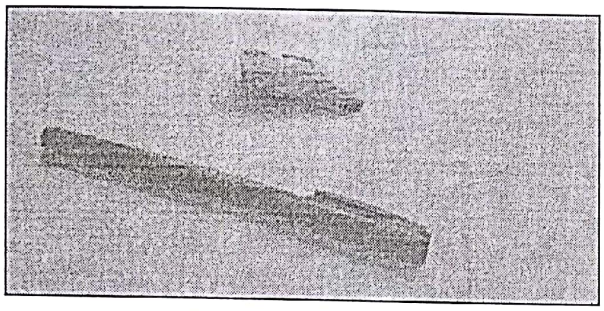
A number of archaeological sites have been excavated in Bangladesh. Majority of them are religious monuments except the Wari Bateshwar of Narshingdi District and Mahasthangarh of Bogra District. The excavations did not bring out any information of faunal remains. However, there are scattered findings of animal bones from different places of Bangladesh like Satkhira, Gopalganj, Narshingdi, Madaripur, Khulna, Habiganj, etc. It is necessary to identify these animals. Documentation and study of these bones to understand whether it is cultural or natural remains of animals. Cultural or natural remains of animals can help us to understand the change in environment, past and present distribution of animals, post depositional changes over time, etc.

Other than the scattered findings of faunal remains from the above mentioned places of Bangladesh I also thought of peeping in Zoological and Geological laboratories of all the public Universities. Zoological laboratories have the skeletons of present animals and the Geological laboratories have the collection of animal fossils of Tertiary Period. Laboratories are almost devoid of early Holocene fauna that can be helpful to understand the ancient human culture of this country.

Bangladesh is a riveraine, tropical low lying country covering an area 147,570 sq. km. It has a tropical monsoon climate. The period of highest rainfall is the monsoon season (June – September). During this period the annual rainfall is more than 80 percent. The biggest rivers like Ganges and Brahmaputra river system forms a delta in Bengal basin (Rashid 1991). Changes in river courses, floods, rise and fall of river levels, etc. affect the cultural and physical features. In Bangladesh, there are three main geological formations 1. Tertiary sediments cover an area of northern and eastern hills, 2. Pleistocene formation covers up Madhupur and Barind Tracts, and 3. The recent alluvium occupies the remaining part of the country that is the flood plain and the estuarine areas (Brammer 1996). Tropical climate and fertile soil make the Bangladesh green. Various grasses, rice, pulses, vegetables, medicinal herbs like mint and basil, various fruits, rubber, tea, etc. are the flora found in Bangladesh. Bangladesh is rich in resources of forest. Timber trees like the *Sal, Shagun, Garjan, Chapalish*, etc. covers the hill and land forest and Mangrove species wrap up the tidal forest in the South-west of Bangladesh. The important trees in this Sunderban forest is sundari (*Heritiera fomes*), Gewa (*Excoecaria agallocha*), Golpata (*Nipa fruticans*), Keora (*Sonnteratia apetala*), Goran (*Ceriops roxburghiana*), Amur (*Amoora cucullata*), etc. Forest is demarcated in two regions, east and west. East forest from the Kobadak forest station to the mouth of Haringhata river is the fresh water forest and the westward is the moderately saltwater forest. Fresh water forest gets the larger quantities of water flow from the rivers Pussur, Haringhata and Burishor rivers. Water flows of these three rivers lower down the level of salinity than the west. Fauna is abundant in the forest (Bari 1978). In Bangladesh approximately 200 species of mammals, 650 of birds, 300 of marine and fresh water fishes and 150 reptiles and amphibians. In mammalian species rhesus monkey, hanuman, gibbon, lemur, tiger, leopard, jungle cat, mongoose, jackal, hare, bandicoot, mole rat, squirrels, elephants, nilgai, chital, sambar, barking deer, hog deer, etc. and in domestic animals, cattle, buffalo, sheep, goat, dog, cat, pigs, etc. (Rashid 1991).

The present work is based on the data collected from the fieldwork which has been done to all these places from where the scattered findings have reported in daily news and personal communications. Bones have been collected for the documentation from the collection of village people during the fieldwork. All the animal remains have identified at the species level. Systematic study of these animal remains can help to reconstruct the past culture as well as past environment.

- Bone fragment recovered from the Chaklapunji, a prehistoric site located in tea garden, which is approximately 10 km north-west of Chunarughat thana headquarters. A single bone fragment could be a fragment of the shaft of long bones has been found from the surface along with prehistoric artifacts. The bone had undergone the mineralization when deposited. Crystal form of minerals can be seen. Bone fragment is very brittle and cortex of the bone is removed. It has a sharp cut marks on both the sides which is the indication of human activity on bone and might have used for the food purpose. This bone fragment belongs to small size bovids like sheep or goat (Hoque, et.al 1999).



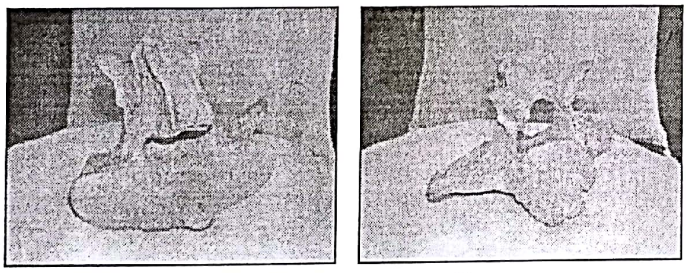
Bone from Chaklapunji

- 1) From Wari in Narshingdi district found the tooth fragment and vertebra. Both the animal remains found in different places. Tooth fragment is found some five years back from one of the houses in Wari while collecting the clay for building up the mud house. Tooth fragment collected at the depth of two to two and half feet from the surface. Fragmented tooth is of elephant (*Elephus maximus*).



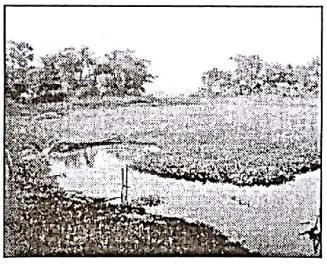
Tooth of Elephant

2) Fragment of axis vertebra which had been found some thirty years ago in Akanagar village. Akanagar village is three to four kilometers away from the Wari-Bateshwar in Gotashia union of Manohardi thana. Bone was discovered from the lowermost layer, during the re-excavation of Gangajali river. Morphological characters reveal the bone of Felidae family. It could be of tiger or leopard bone. Size of bones indicates it could be of tiger.

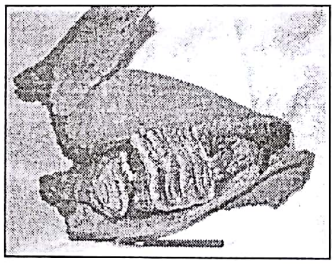


Axis Vertebra of Tiger (?)

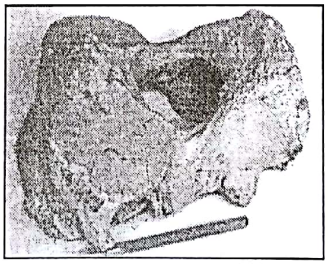
- 1) Betgram a village in Chanda beel of Gopalganj district found number of bones of animals like elephants, wild cattle, wild buffalo, deer, etc. This is one of the largest peat deposits in a vast flood plain swamp in the Bengal Delta. These swamps are just three meters above the sea level. Bones of these animals are finding from the peat and the layers above and below the peat while digging the natural lakes. Complete skeletons of wild animals are buried in these peat deposits. Peat deposits could not excavate because of the limited financial assistance but the village people have partly collected the bones. May to November this area goes under water and only during the months of winter from January to May is a dry season when the villagers excavate the natural lakes for the coal from the peat which they use as fuel, fertilizer, etc. While excavating the natural lakes during the dry season they found these animal bones. Bones of Elephants (*Elephus maximus*) recovered from the layer just beneath the peat by the villagers. Mudhusudan Bishwas from Betgram village, Kasaliya union of Muksadpur thana of Gopalganj district collected the bones while digging the lake. Bones collected are fragments of ribs, axis vertebra, 4-5 cervical vertebrae, 6-7 thoracic vertebrae, one scapula, few carpal bones and one metacarpal mandible, fragments of mandible, skull, etc. Skull was reused for washing cloths and then destroyed completely. Bones found approximately at the depth of 12-15 ft. They could not collect the complete skeleton still some more remains are lying in the peat layer probably the appendicular skeleton. At present these bones are housed in one school under the custody of Bangladesh Centre for Advanced Studies (BCAS) and few bones like mandible and vertebrae are with IUCN.



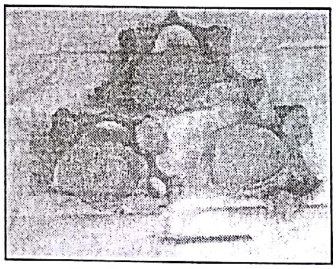
Betgram site from where the Elephant skeleton found



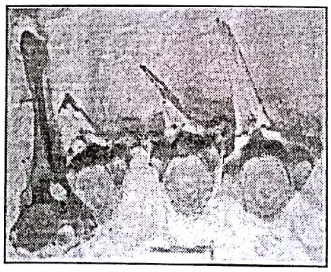
Mandible of Elephant



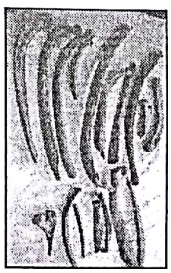
Axis vertebra of elephant



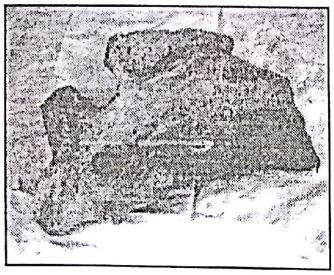
Cervical vertebrae of elephant



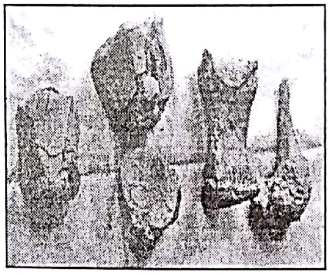
Thoracic Vertebrae of elephant



Ribs of elephant

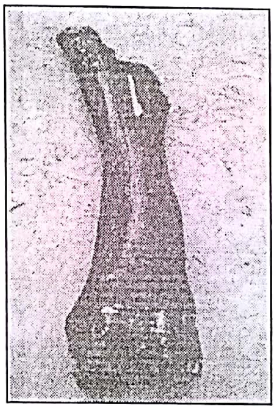


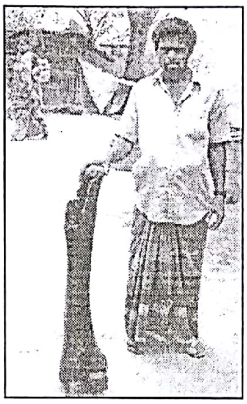
Scapula of elephant



Carpals and metacarpal of elephant

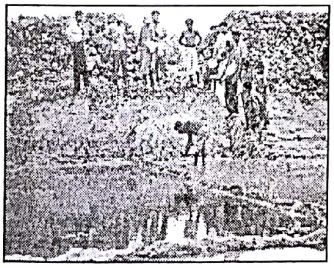
2) Another skeleton of elephant (*Elephus maximus*) found in the lake of Bhima Bishwas. He has collected one femur bone. Proximal epiphysis of femur is broken. Remaining skeleton is still lying underneath. Bone is recovered from the peat deposit.



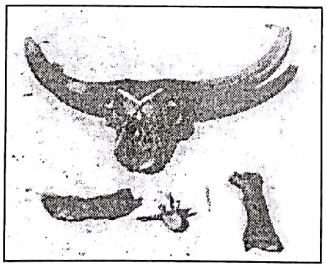


Femur of elephant

3) Bijiten Mandal of the same village found almost complete skull whose nasal portion is broken, complete atlas vertebra, one lumber vertebra and one radius-ulna where the proximal epiphysis of ulna is broken. Morphological characteristic features of the skull reveal that these bones are of gaur (*Bos gaurus*). Frontal portion is flat. Bones are found at the depth of nearly six feet in the lake. These bones are also recovered from the peat. Bones are black in colour because of the coal peat.

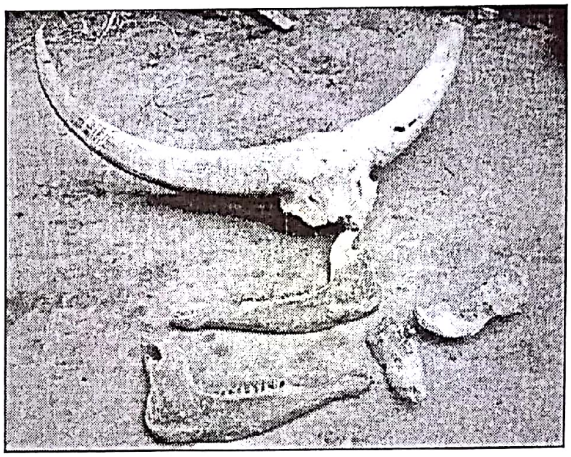


Site from where the bones of gaur found



Bones of gaur

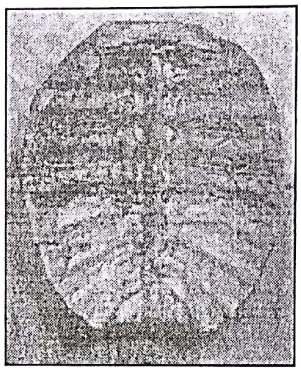
4) From the lake of Yuddhishthir Mandal found the bones of wild buffalo (*Bubalus arnee*). In bone fragments mandible of both sides and the atlas vertebra are complete and the broken skull and the part of maxilla. In the skull only frontal, occipital and horn cores are complete.



Bones of wild buffalo

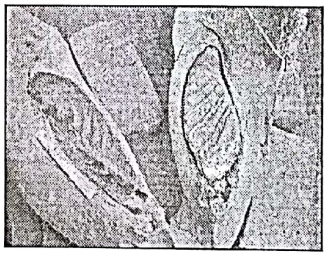
5) Also found the carapace of freshwater turtle from Betgram.

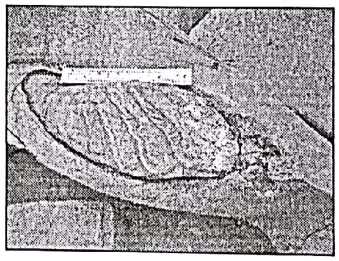




Carapace of fresh water turtle

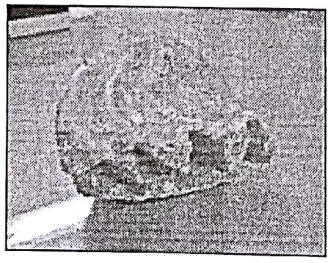
- 1) From the Satkhira fragment of the mandible and the isolated tooth of elephant (*Elephus maximus*) found. Mandible is broken and only one tooth is in the mandible and other side of the mandible tooth is absent.

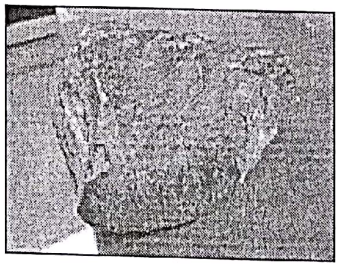




Mandible of elephant found in Satkhira

2) The isolated tooth is rolled. It seems the tooth is traveled in water flow.





Rolled tooth of elephant from Satkhira

From the faunal findings given above, only the bone fragment found in Chakalapunji has the marks of cultural activities and the remaining skeletal remains do not occur any kind of cultural activities. Generally the cultural bones have the marks of human activities like butchering, making of tools and ornaments, etc. and not even a animal activities like gnawing, puncture marks. These kinds of marks found on the bones of those animals which generally man used for his food and animals were Cattle, Buffalo, Sheep, Goat, Pig, Deer, etc.

The remains of other animals confirm the presence of Elephant, Gaur, wild Buffalo, Tiger (?), etc. A large number of remains are found of Elephants from the Narshingdi, Gopalganj and Satkhira. From Narshingdi only tooth fragment of this animal recovered. Narshingdi is located on the south Madhupur tract. Eelephant was present in Madhupur forest. From the south-west of Bangladesh (Satkhira, Khulana, Bagerhat, Gopalganj, Madaripur, etc.) people informed the presence of Elephant bones. Elephant bones are reported from Gopalganj and Satkhira. This coastal region is not the habitat of Elephant. Numbers of skeletons of Elephants are present in, above and below the coal peats of Chanda beel. At present in Bangladesh Elephants are found in Chittagaon region and North-east of Sylhet only. Mainly Elephants live on hilly or undulating ground where bamboo grows plentiful. Herds of Elephant composed of a single family. Herds keep them to the denser forest during the dry season and in rainy season they come out to open space in the forest (Prater 1971).

Elephant bones do not have any marks of cultural activities, but the literary evidences reveal that since the early historic period elephants have participated in War. Number of elephants and horses were the indication of King's power. History of this region goes back to post Gupta period. In Kotalipada of Gopalganj district a large number of gold coins and the inscriptions found. These coins are the imitations of Gupta coins. Coins and the inscription refer the independent king Samachardeva of this region in the beginning of seventh century AD (Khan 1977).

Elephant, gaur and wild buffalo are the herbivorous animals live in the foot hills, grassy and fresh water environment. Presence of elephant and gaur is not reported ever from this region but the wild buffalo was present because this animal prefers the swampy region. In district gazetteers of Faridpur and Khulana has reported the presence of wild buffalo but now completely disappeared (Khan 1977, Bari 1978). Gaur and wild buffaloes are now extinct in Bangladesh.

Axis vertebra of tiger from Narshingdi reveals the presence of tiger in Madhupur forest. Today tiger is absent in Madhupur forest. In Mymensingh district gazetteer its presence is reported (Khan 1978). These faunal remains are natural not cultural which can help to understand the past environment.

Presence of these wild animals in the past and the absence in the present day distribution points out the environmental change. Wild animals need a specific environment. They cannot adopt the environmental changes like domestic animal. Environmental change could happen for many reasons like changes in landscape, river courses and the major and important reason is the human interference in the habitat of wild life.

Majority of the animal bones are findings from the peats of Chanda Beel in Gopalganj district. Animals found are herbivores, live in a fresh water terrestrial environment. Bones are findings layers above and below the peat and large number of bones is coming from the peat itself. Complete skeletons of wild animals like elephant, gaur, wild buffalo, deer, etc and a large number of buried trees, roots, cortex of the stems, etc. indicate the submergence of forest. More research is required to understand the peat formation and the animals and plants buried in peat.

Acknowledgement

I would like to thank Mr. Habibullah Pathan from Narshingdi for giving me the bones from his collection to study. Mr. Parth, a reporter who gave me the information of elephant bones from the Satkhira and Mr. Subrato Shaha Bappi, reporter of Pratham Alo, daily news paper and Saif of BCAS who accompanied during our field work and helped us to collect the animal bones and the information from the villagers in Chanda beel.

বিষয় সংক্ষেপ

প্রত্নপ্রাণীবিদ্যাগত গবেষণা বাংলাদেশে ইতোপূর্বে হয়নি। বর্তমান গবেষণা উক্ত বিষয়ের ওপর একটি প্রাথমিক পদক্ষেপ। এই গবেষণার আওতায় পরিচালিত অনুসন্ধানে দেখা যায় যে, বাংলাদেশের নরসিংদী, গোপালগঞ্জ, সাতক্ষীরা, হবিগঞ্জ জেলাসমূহে বেশ কিছু প্রাচীন কালের প্রাণীর হাড়-গোড়ের নিদর্শন রয়েছে। বাংলাদেশের জলবায়ু ও মাটির বৈশিষ্ট্যের বিপরীতে এই ধরনের নিদর্শন প্রাপ্তি নিঃসন্দেহে বিস্ময়কর। প্রাপ্ত প্রাণী নিদর্শনের মধ্যে উল্লেখযোগ্য হলো বন্যহাতি, মহিষ, গরু ইত্যাদি। এই নিদর্শনসমূহ যথাযথ গবেষণার মাধ্যমে এতদঅঞ্চলের প্রাচীন বাস্তুসংস্থান তথা প্রত্নপরিববৈশিক প্রেক্ষিক পূর্ণগঠন সম্ভব।

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A Critical Comparison of Paul G. Bahn, Jean Vertut, Jean Clottes and David Lewis Williams's Work on the Palaeolithic Rock Art of Europe.

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The article is about two different research approach adopted by two divergent groups of researchers in the field of prehistoric rock art. One group of researchers mainly emphasized on the documentation and other physical features of these arts, thus they in their own prescribed way claimed to explain the subject matter and objective behind the execution of these arts. This group consists of two well known art historians called Paul Bahn and Jean Vertut. They adopted an empiricist approach in their work which has its root in the processual archaeology. They mainly concentrated on the visual description of the rock rather than exploring the purpose of making these arts. They were also obsessed with the dating of the art, how old the art is? On the other hand another group of researchers LewisWilliams and Jean Clottes concentrated their research in explaining and interpreting the art. They tried to explain the reasons behind the creation of rock art in the first place. This second group of researchers is interested to know what kind of compulsion and spirit drove the people of prehistoric society to spend unlimited time and enormous labour to draw these pictures. To achieve their purpose the second group of researchers applied some theoretical components of post processual archaeology. In the process they took the help of ethnographic parallels (social and religious rituals) of local tribes and also the neuropsychological framework of human being. With the help of the above approach according to their own opinion they tried to solve the scattered and disjointed pieces of puzzles to reveal the overall meaning and objective behind the creation of the art. Both these approaches are quite well known in the research arena of rock art. However, the author of this article perceives that in the developed stage of rock art research of Upper Palaeolithic Europe the second approach is more appropriate to understand the social and cultural framework of the past society.

Introduction

Rock art research of Europe has come across a great journey of more than one hundred years, yet the researchers could not solve all the riddles lies behind the execution of the exquisite workmanship by its creators. What compulsion drove the Upper Palaeolithic people to draw these paintings on the surface of the rocks is still a mystery. But researchers have not given up hope and still they are working and trying to find out the meaning of these rock paintings and engravings.

This article is about a comparative analysis and constructive criticism between two books written on the Upper Palaeolithic Rock art of Europe. Though both the books deal with the Upper Palaeolithic Rock art of Europe, but the approach and methodology in presenting the topic to the readers and views adopted by the authors of these two books are very different. The author of this article has shown how two very different approaches of research methodology can sometimes help the scholars to solve the puzzles of prehistoric art. To do so, the author has discussed the work of four famous researchers in the field of rock art; Paul G. Bahn and J. Vertut, LewisWilliams and Jean Clottes. The first group of scholars has adopted an empiricist approach (analyzing data) while explaining the art, also they strongly criticized the hypothetical interpretation of rock art given by the second group. The second group of researchers applied an alternative method through which they wanted to explain the prime reason behind the execution of art. In the process they took the help of ethnographic parallels and neuropsychological models of human being. It is also worth mentioning that they also admitted in their book the inapplicability of neuropsychological models in some cases but still felt that this theoretical approach could be applied to solve some of the mysteries.

The Books

'Journey through the Ice Age' written by Paul G. Bahn and Jean Vertut. The book was published in 1997 by Weidenfeld & Nicolson, London. It contains 184 illustrations and it is composed of 240 pages.

"Les Chamanes de la Prehistorie: trance et magie dans les grottes ornees" (The Shamans of Prehistory: Trance and Magic in the Painted Caves) written by Jean Clottes and David LewisWilliams. The book was published in 1996 in French by Seuil of Paris. The book was translated in English in 1998 by Harry N. Abrams of NewYork. It has 114 illustrations and it is composed of 119 pages.

In this article the author sited two very important issues of rock art research: 'Interpretation of the message of the rock

paintings and engravings' and 'Dating of these arts'. How these two issues have been dealt by the authors of the above mentioned books. Also how illustrations were used and explained to interpret the meaning of rock art by two groups of researchers.

The book by Paul G. Bahn and Jean Vertut is composed of twelve chapters; the authors provided the reader a broad spectrum of Upper Palaeolithic rock art research of Europe. The chapters of the book has been organized in a chronological way starting with the discovery of ice age art the oldest form of art, recording and preservation of the art, dating and styles of the art depicted on the walls. Then the authors mentioned about the materials, medium and location of the art. Finally they discussed about the subject matter and interpretation of the meaning of these arts. During the whole process the authors tried to give the reader a large overview of the researches done by the previous art historians and archaeologists in this field and how the work of previous scholars has become an advantage and also disadvantage in interpreting the objective of rock art done by our ancestors during the Upper Palaeolithic period. Paul G. Bahn adopted the positivist theory- scientific version of New Archaeology in interpreting the meaning of cave paintings of Upper Palaeolithic period. Through out the whole book Bahn has emphasised on the importance of hard-core scientific data to find out all about both parietal art and portable art.

In the end of the eleventh chapter Bahn and Vertut expressed their frustrations about the complexity of understanding the meaning by saying "Many researchers find it irritating that no interpretation of Ice Age art now meets with widespread agreement, and criticize the growing number of specialists who prefer to concentrate on other aspects of its study- those outlined in the first ten chapters of this book -and abandon any serious attempt at interpretation as a waste of effort". Then again they quoted Robert Layton, "Robert Layton has said quite rightly, looking for specific meanings in Palaeolithic motifs is frustrating and relatively unproductive" (Bahn & Vertut 1997: 211).

The second book, "The Shamans of Prehistory: Trance and Magic in the Painted Caves" by Jean Clottes and David LewisWilliams. The name of the book gives an immediate impression to the reader that this book deals with a very specific issue- the concept of shamans to understand the meaning of Palaeolithic cave art. On this view point the question which naturally arises is that how this second book is comparable with the first book. The objective behind this was to prove, that the unavailability or shortage of data cannot be a valid reason to suddenly to put an end to the prehistoric rock art research. Jean Clottes and David LewisWilliams by writing this book have shown the pathway for researchers to proceed with their work in a new and non-conventional method. They showed an alternative path to understand the meaning of the cave paintings by applying the shamanistic concept in the Upper Palaeolithic rock art of Europe in their book. The book elaborates mainly on the shamanistic interpretation of Upper Palaeolithic rock art. Before discussing the contents of the book it may be mentioned that the shamanistic belief or concept was first applied by David LewisWilliams to interpret South African rock art. Afterwards, David LewisWilliams along with Jean Clottes applied the concept of shamanism to explain the meaning of some of the upper Palaeolithic rock art of Europe. In the book "The Shamans of Prehistory: Trance and Magic in the Painted Caves" it is seen that first of all the authors explained the neuropsychological condition of human brain, how it leads human being to an altered state of consciousness, where he or she can experience visions and later express his or her vision in the form of art. They also mentioned about the cross-cultural nature of shamanism and its application to a number of rock art traditions around the world. Then the authors briefly discussed about the previous works done by the scholars in interpreting the meaning of Upper Palaeolithic rock art in last one hundred years. In chapter four of the book named as 'Cave Art and Shamanism' the authors mainly discussed about the images, signs, handprints, floating projections of light and shade created as a form of art to send a specific message to its viewers and how these messages were related to shamanistic beliefs. Finally in the last chapter of the book the authors discussed how the passages, chambers of the caves, open air sites were involved and were used to perform shamanistic rituals by the members of Upper Palaeolithic society. In this instance, mention should be made that both the authors relied on the ethnographic data and neuropsychological research of human mind. In short the whole book deals with how the meaning of some particular rock paintings and engravings of Europe like other rock arts around the world was created as a result of shamanistic beliefs. Therefore, this explanation could be a universal approach to understand the meaning of rock arts all over the world.

Comparative Analysis of Bahn &Vertut's and Clottes & LewisWilliams's Work

As the contents of the book briefly discussed above, it is quite clear that these two books were written from two different perspectives. As mentioned earlier, the book by Paul Bahn was written from an empiricist (positivist theory) view, whereas David LewisWilliams and Jean Clottes wrote the book from another perspective (post processual approach).They followed the basic principles of cognitive archaeology. Unlike Bahn and Vertut the authors (LewisWilliams & Jean Cottes) did not rely on the physical aspects of cave paintings on the other hand they have taken

examples from the contemporary society (ethnographical data) and thus tried to read the mind of the creator who executed these paintings thousands of years ago. Finally they tried to establish that some meanings of some of the rock arts can be explained by applying this alternative concept. They relied on the cosmological, religious beliefs, ideology of the society and iconography of the art to develop an interpretative theory.

First of all how pictures and illustrations were used to explain the text of both books will be discussed. Secondly how LewisWilliams and Clottes presented the idea in their book that shamanistic beliefs could be one of the possible explanations in the interpretation of rock art and how Bahn rejected the whole idea though he could not provide any alternative option. Finally how the issue of 'Dating' and 'Style' the hard-core facts and data became a priority for Bahn in the understanding of Upper Palaeolithic rock art. On the other hand how Clottes and LewisWilliams viewed the issue of dating and style of these arts.

Now attention will be drawn to the illustrations of both Paul Bahn's and Lewis Williams's book. The book of Bahn and Vertut contains some spectacular pictures, which gives the reader the thrill of visualizing them on their very location. Among those mention may be made of the Venus figurine with a horn from Laussel (Drodogne) in page 113 of the original book. (Fig.01 in this article), the authors gave a brief description of the sculpted image on the rock stating that though now it is detached but it should be classed as parietal art since it was originally carved on a block. The full page illustration of the sculpted Venus is quite an uncommon and interesting representation. Bahn gave a detailed description of the figure he mentioned about techniques, which were adopted by the artist to execute the figure. He stated: "The figure includes a number of techniques- her left side is merely deeply engraved, like the Aurignacian blocks mentioned earlier, while her right is in 'champleve', since material has been removed next to it which brings her body into relief. The figure seems to have been regularized and perhaps even polished; finally, fine engraving was used for her fingers and for the marks of her horn" (Bahn & Vertut 1997 : 111).



Fig.01 Venus of Laussel (Drodogne), Source: Website

Another photograph of this book in page 197 (Fig.1.2) is the spotted horse panel in the cave of Pech Merle (Fig.02 in this article). It is a very popular image in terms of all published prehistoric books and articles. The photograph clearly illustrates the positioning of the animals, which was inspired by the natural horse head shape on the right hand side. The



Fig.02 Dotted Horse Panel of Pech Merle, Source: Bahn & Vertut

dots and hand stencils were produced by spitting pigments. The technique and style are very distinct and clear in the photograph. Paul Bahn and Vertut though included the photograph in their book did not attempt to give any explanation about this particular panel. They only mentioned the panel while describing the visibility and accessibility of the caves to the visitors. They did not attempt to explain the meaning behind the execution of this particular panel whereas they presented a very good photograph. They mainly concentrated on the physical characteristics of the cave and the panel which clearly reflected their view of believing in giving a statistical description and not to try to look for the deeper meaning of the painting.

Clottes and LewisWilliams also mentioned this example and included the picture in their book (Clottes & Lewis Williams 1998:91). Though in terms of quality and visibility this picture of their book is not very good. But the interesting thing is they provided an explanation about the m eaning of the picture. They explained though it is generally suggested that the head is a natural feature of the rock, but in the case of this particular image the artist distorted the painted horse's head as if the artist painted a 'spirit horse', not a real horse and how the artist utilized the natural light source in the cave. Thus the authors interpreted that the objective behind painting this image was an interaction between person and spirit, artist and image, rock and spirit-animal. Thus the authors tried to provide an explanation which is created around shamanistic belief. This is definitely an interesting way to explain the picture and quite amusing for its readers. Beside this, some of the illustrations of Clottes and Williams's book are simply superb and breathtaking. For example mention may be made of the picture of the red hand stencils with partial fingers at Gargas of Hautes-Pyrenees (Fig.03 in this article). The full page coloured photograph of the natural cave and application of red colour takes the reader to an unknown destination. The reader can feel the environment in which the painter was drawing it also the passion he put into his work. The authors gave an interesting interpretation of the way in which the handprints were presented. The explanation given by the authors are quoted below:

"It seems at least some of the "mutilated" stencils, if not all could have been made by people bending their fingers back in a kind of sign language while the paint was being sprayed; that sign language might have had a symbolic value that reinforced the ritual. But it is also possible that the am putation of fingers at the joints was part of shamanic initiation rituals at certain times during the Upper Palaeolithic" (Clottes & Lewis Williams 1998:96).They also used an ethnographic example to show that this ritual is still going on in some parts of the world. On the basis of this example they further commented "First, if such assumptions were performed, that the ensuing pain might have possibly contributed to the induction of an altered state of consciousness. Secondly the sealing of the mutilated hands (perhaps some time later) into the underworld might have established and commemorated a particular shaman's relationship with the spirit world behind the rock" (Clottes & LewisWilliams 1998:96).

The above mentioned examples of illustrations used in both books clearly state the underlying fact that Bahn emphasised more on the physical evidence and scientific data like, the location of the site, engraving techniques, materials, use of pigments and colours (i.e., in Pech Merle all the images were drawn with a black outline), the geometrical shape of the animals, etc. Thus a vivid description of the picture was stated in the book. He did not try to look for the meaning of the picture. Whereas Clottes and LewisWilliams did not rely much on the physical features and characteristics of the images on the other hand explained the reason behind the creation of the paintings and engravings.

Looking at the ways in which illustrations have been used and explained by the authors of both books it can be easily understood that Bahn adopted empiricist approach in viewing the rock art of Upper Palaeolithic Europe. On the other hand, Clottes and LewisWilliams adopted the cognitive approach to understand the inner meaning of those illustrations. They tried to look for iconographic evidence of the art and then relate those with cosmology, ideology and religious beliefs of the society. Thus read the mind of the creator of the rock paintings.

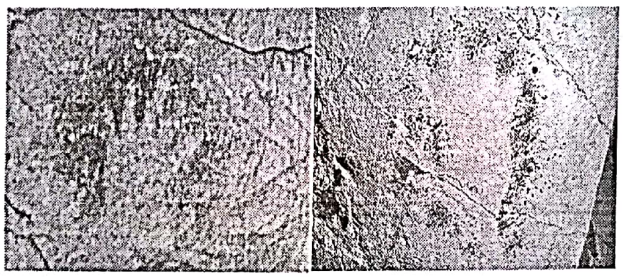


Fig.03 Red Hand Stencil with Partial Fingers, Source: Jean Clottes

Bahn and Vertut in their book evaluated the work of previous researchers. In chapter eleven of their book under the heading 'Reading the Messages' the authors took a very long narrative approach to make a follow up of the rock art research so far has been done. For the brevity of this write up only the common issues dealt by both books will be discussed. Bahn grouped shamanism together with hunting magic, and hunting one section. While these three different approaches, with entirely different theoretical and methodological foundations, cannot be grouped together as similar interpretative approaches. He mentioned the inconsistency of hunting magic theory by mentioning the example of the clay bear of Montespan (Fig.04 in this article). Bahn comments about the theory: "Had they been a little more objective about the data, at Montespan and elsewhere, they would have realized that they were constantly stretching and adapting the theory to fit the evidence, or carefully selecting the facts to fit the theory" (Bahn 1998:172).



Fig.04 Headless Clay Figure of the Bear of Montespan Cave. Source: Website

According to Bahn, shamanistic interpretation of the rock paintings is a misuse of ethnography which was done by the researchers in the early part of this century. He further asserted that some researchers were biased by this theory and have gone to the extreme. He strongly criticized that some of the paintings were the result of human mind's altered state of consciousness. He commented: "In any case, to seek the source of imagery only in altered state of consciousness and in universal neuropsychology has not produced a cross cultural 'skeleton key' that unlocks the secret of Palaeolithic art" (Bahn 1997:182). It may pinpoint the ultimate source of imagery, but tells absolutely nothing of its meaning even one could be sure the imagery resulted from an altered state of consciousness, one would not know of what kind or what context.

He then referred to the example of the shamanistic characteristics of South African rock art given by LewisWilliams. To Bahn it was simply a wishful thinking and massive assumption. The reason for disagreements Bahn

mentioned that there is no hard and written ethnographic evidence which mentions about a person's trance state.

While he was exploring this theory he looked for hard physical evidence for example he stated that the 19th century ethnographic evidence does not mention anything about the sex, age or status of the sorcerers, which once again proves his empiricist approach in practicing archaeology. Bahn in one of his article (Bahn 1997:62-68) reviewed the book (The Shamans of Prehistory) written by Clottes and LewisWilliams. From his writing it could be felt that he misinterpreted the whole concept of the book. He quoted from Williams and Clottes's book: "We wish to state clearly that we do not argue that each and every Upper Palaeolithic image, portable or on the walls of caves, was the product of shamanistic practices and beliefs" (Clottes & Lewis Williams 1998:112).

Bahn thinks that this comment was spoiled by the next statement made by the authors afterwards. LewisWilliams's comment is quoted next, to explore the misinterpretation made by Bahn. LewisWilliams commented in the book: "Yet despite all the diversity of the art, there is a long term unity that testifies to some sort of common framework".

Bahn claims that by saying this both authors discarded all other possible explanation of the meaning of rock art. He further asserted: "It is claimed that no other explanation presently available fits and explains more hard Upper Palaeolithic evidence" (Bahn 1997:62-68).

If the concluding paragraph of Clottes and Lewis Williams's book is analyzed it could be clearly seen that the authors claimed that shamanistic explanation of rock art is an important part of a broad and common framework. They claimed that it was an appropriate methodology [dual neuropsychological and ethnographic approach] (Dowson 1994:332-345) which they used to solve the scattered and disjointed pieces of puzzles to reveal the overall meaning and objective behind the creation of rock art.

Clottes and LewisWilliams in response to Bahn's review article replies about shamanism,

"Upper Palaeolithic shamanism was not a simple, monolithic belief system that lasted unchanged for 20,000 years. How it changed is a question that will be addressed as dating becomes more accurate". They further commented in their article: "It is indeed possible to explain something without explaining everything. If this were not so, there would be no archaeology".

The authors made a sensible and logical reply to Bahn's unprofessional review, it can be seen that instead of doing positive criticism he was driven by personal matters. The authors (Lewis Williams and Clottes) concluded by saying: "There is absolutely no intrinsic reason why Upper Palaeolithic art should not be, at least in part, explicable. Because previous explanations failed, it does not follow that all explanations will fail". They referred Bahn's attitude as 'naive inductivism'.

Bahn in his concluding remarks of the chapter 'Reading the Message' commented about shamanistic theory that the obsession with trance phenomena will be just regarded as a stage of cultural and religious concept in the history of Palaeolithic art studies in twenty or thirty years of time just like hunting magic or structuralism, as a simplistic and ill -informed theory, as the basic analogy of 'trance' with shamans is utterly rejected by current scholarship on shamanism. He further stated there is absolutely no reason to rely upon the ethnographic parallels, no matter how cautiously the evidence are being scrutinised.

He summarized: "In short, there is absolutely no reason to suppose that Palaeolithic people drew pictures for the same reasons as very recent Bushmen or Australians-on the contrary, thousands of years and miles separating them render such a belief ridiculous. We have no idea, no means of telling, how much change there has been in the cognitive structures of non-literate societies over all these millennia".

In the end, by quoting Robert Layton, (Layton 1987) he expressed his pessimistic view towards Palaeolithic rock art research. He thus proved that information which was revealed so far from the work of arthistorians is not enough to find out the possible meaning of the paintings and engravings. Whatever speculations and hypothesis has been made by the researchers to understand the message carried by these paintings will not survive the test of time.

Apart from Bahn's comment on the concept of using shamanistic theory it may further be added that shamanisitic explanation provided by Clottes and LewisWilliams in their book is traditional and essentialist in character. In dealing with the specifics of some Palaeolithic caves, this issue avoids some of the presentational pitfalls. For example, there is no direct juxtaposition of southern African rock art with European Palaeolithic cave art. But still the discussion of shamanism and its cross-cultural application at the beginning of the book predetermines to some extent the kinds of imagery discussed in the last two chapters. The reader is left with an impression of what shamanism might have been like in the Palaeolithic period. The book demonstrates how powerful the shamanistic interpretation has become over the last decade or so.

Clottes and LewisWilliams in the preface of their book briefly described about the methodology they adopted to conduct their research work. They conducted their work covering a wide geographical area and maintaining a chronology starting from Gravatian, to Middle and Upper

Magdalenian, Solutrean and the most ancient Magdalenian. From that perspective, it can be said that they carefully avoided the stereotyped linear development of explaining rock art like other art historians did while publishing their research work.

The interpretation of rock art was largely based on ethnographic models of Australian and Native American art. It was really an interesting attempt by the authors to apply the shamanistic concept to understand the meaning of some Upper Palaeolithic cave art of Europe. Though one might argue such as Paul Bahn did, that there is no direct ethnographic evidence which relate the art of this region to the shamanistic concept. Bahn in his book could not come up with any solution instead he strongly criticized the work of Clottes and LewisWilliams (Bahn 1998). According to Bahn, we still do not have enough evidence to fully interpret the meaning of Palaeolithic rock art. His book could never get the grips with the art or current research issues as he was always tied up with an empiricist approach.

Clottes and LewisWilliams mentioned briefly about the dating of the cave paintings. In the 2nd chapter of the book they sited example of the FozCoa and Cosquer (Clottes 1998) caves and the problems created regarding the authenticity and the probable age of the art. Also they mentioned about the stiff attitude of the researchers to accept a new concept apart from the stereotypical ideas which has been set by the early prehistorians. In the case of Cosquer, the art proves to be strikingly original in comparison to known material and there was a claim that it was not original. In the case of FozCoa the direct dating created confusion, the dating was too recent. Later the dates of the caves were considered to be systematically incorrect. The preservation of the valley would be threatened if the researchers would rely on the dating and would not consider the engravings as Palaeolithic as a proposal of constructing a dam in that valley was considered by the authority. The authors commented: "However, if they really date from Neolithic times or Bronze Age, their interest would in no way be diminished: This would be the first time in Europe- but not in the world as a whole (see Australia) that a tradition of rock art over so many millennia, from the Palaeolithic until recent prehistory, would have been established" (Clottes & LewisWilliams 1998:39).

Then they quoted Francois Bordes who made a humorous remark: "The older the better" Unlike other art historians these authors were not obsessed with dating and style of the paintings. In short they did not try to visualize rock art as a linear development of human skills and technology. They avoided the evolutionary theory of art becoming complicated in due course of time. For them interpretation of the art was more important than dating. Though they adopted the chronological frame work in the methodology but they were not tied up with it.

On the contrary, Bahn has given great importance about dating to build a chronological framework. He discussed Breuil, Leroi Gourhan, Laming Emperaire's work who tried to date the rock paintings on the basis of style and define a chronology of the art. Also mentioned about applying stratigraphic method and superimposition of images in order to date different rock paintings adopted by other researchers. He then discussed the problems of direct dating (Radiocarbon Dating) and the striking difference between the ages assumed on stylistic evolution of the art.

He expressed his suspicion about the authenticity and limitation of direct dating. His anxiousness about stylistic and direct dating of rock art has been echoed in one of his article where he discussed one of the caves of Lascaux. [(Bahn 1995:191-200) (Davenport & Jochim 1988:558-562)]. It is very clear from Bahn's writing that he was very much tied up with theory and physical evidences. Through out his writing he always mentioned about the charcoal, polychromes, geometric shapes, homogeneity of the paintings, super-impositions of the figures, physical and archaeological contents of the site etc., to determine the dates of the rock art. But based on the material evidences he himself could not come up with any concrete explanation in determining the age of rock art.

Conclusion

If we summarize Bahn we could clearly see that he is tied up with the empiricist view that data will 'speak for themselves' without the benefit of intervening theories (Johnson 1999: 190).Though he speaks about the misuse of methodology but he himself could not provide the correct use of methodology. Bahn's pessimistic approach is echoed in his comments once again, as he stated that rock art researchers like him could only analyze the content, execution process, location and associations of the cave arts but the way everything was combined together could not be revealed again and without informants, the art could only be used as a source of hypothesis. And no one would ever be able to confirm the hypothesis without the artist who in the first place created these arts. The chances of correct interpretation of these arts are therefore very less.

The above view stated by Bahn in the concluding chapter reminds us of the first chapter of Gombrich's book 'The story of Art'. The first chapter known as 'Strange Beginnings' he explained rock art 'this is all guesswork' (Gombrich 1995:42). Whereas reading Bahn's book the reader feels like that he or she knows 'both a great deal and virtually nothing.' He did not offer any solution about the problems of understanding the meaning or dating of the Upper Palaeolithic rock art on the contrary he criticized other inventory and diverse explanations of the meaning of those paintings, in this case the implementation of shamanistic belief in the Upper Palaeolithic cave art of Europe provided by Clottes and LewisWilliams.

In the end, I would like to conclude by quoting Lewis Williams that it is necessary to note that a hypothesis does not have to explain anything. All that is necessary is that observations not drawn into the explanations do not invalidate it. (Dowson 1998:715-717). It does not necessarily mean that Clottes and LewisWilliams did not follow the basic empirical evidences on the other hand, they established their hypothesis based on the facts and data that have been revealed so far. For Bahn the revealed data was not sufficient enough to establish a new interpretative theory to explain the meaning of rock art.

Finally, it may be concluded by saying that in comparison to Bahn and Vertut's book (based on their research of rock art) Clottes and LewisWilliams's book (new theory of interpretation) is certainly a major development in the history of rock art research. But unfortunately neither of these books deal with any aspect of feminism which could play an important role in interpreting the meaning of rock art. This is rather disappointing. Bahn mentioned about the sculpted figure of the Venus discovered from Laussel but failed to offer any cultural and social explanation why this particular piece representing a woman was sculpted in such a developed form. On the other hand, LewisWilliams in his other writings has written a lot about feminist role in the prehistoric society but in this book for some unknown reason the issue was not at all addressed by him or Jean Clottes.

Selected Glossary

Analogy: An anthropological practice using reasoning based on the assumption that if two things are similar in some respects, then they must be similar in other respects. Ethnographic information from recent cultures is then used to make informed hypotheses about archaeological cultures and to compare societies and culture traits of recorded societies with those of prehistoric sites. Analogy is the basis of most archaeological interpretation.

Altered State of Consciousness: Any state which is significantly different from a normative waking beta wave. The expression was coined by Charles Tart and describes induced changes in one's mental state, almost always temporary. A synonymous phrase is 'altered states of awareness'. Naturally occurring altered state of consciousness include dreams, lucid dreams, euphoria, ecstasy, psychosis as well as purported premonitions, out-of-body experiences, and channeling

Empiricism: The view that experience, especially of the senses, is the only source of knowledge. For most empiricists, experience includes inner experience-reflection upon the mind and its operations as well as sense perception. This position is opposed to rationalism; in that it denies the existence of innate ideas. According to the empiricist, all ideas are derived from experience. Therefore, knowledge of the physical world can be nothing more than a generalization from particular instances and can never reach more than a high degree of probability.

Ethnographic Parallels: A contemporary culture or behaviour which, by the use of analogy and homology, is considered to be similar to another in history and therefore shed light on the latter. It is the use of both material and nonmaterial aspects of a living culture to form models to test interpretations of archaeological remains.

Neuropsychological Framework: The branch of psychology that deals with the relationship between the nervous system, especially the brain, and cerebral or mental functions such language, memory, and perception. In this case the term is referred to explain the complex process through which human mind operates with its surroundings.

Parietal Art: Artwork done on cave walls or large blocks of stone.

Portable Art: A form of palaeo-art consisting of or made on objects small enough to be easily carried by humans. The art can be done on small rocks, bones etc.

Shaman: A member of certain tribal societies who acts as a medium between the visible world and an invisible spirit world and who practices magic or sorcery for purposes of healing, divination and control over natural events.

Trance: A hypnotic, cataleptic, or ecstatic state. Detachment from one's physical surroundings, as in contemplation or daydreaming. A semiconscious state, as between sleeping and waking; a daze.

বিষয় সংক্ষেপ

ইউরোপের উচ্চ প্রত্নপ্রস্তরযুগের গুহাচিত্র সর্ম্পকে বিভিন্ন আর্ট হিস্টোরিয়ান বিভিন্ন ধরনের ব্যাখ্যা প্রদান করেছেন। এই প্রবন্ধে মূলত দুটি ভিন্নধারার আর্ট-হিস্টোরিয়ানদের গুহাচিত্র সংক্রান্ত ব্যাখ্যা সর্ম্পকে আলোচনা করা হয়েছে। প্রবন্ধে উল্লেখিত পল বান এবং জ্যাঁ ভারতুত প্রক্রিয়াবাদী প্রত্নতাত্ত্বিক ধারায় অনুপ্রাণিত হয়ে গুহাচিত্রগুলো ব্যাখ্যা করার প্রয়াস পেয়েছেন। গুহাচিত্র সম্বলিত গুহাগুলোর অবস্থান, দূর্গমতা, গুহাচিত্রের বিষয়বস্তু, রঙের ব্যবহার, চিত্র আঁকার কাজে ব্যবহৃত প্রযুক্তি ও পদ্ধতি এবং সর্বোপরি গুহাচিত্রগুলোর সময়কাল নির্ধারণের বিষয়গুলো তাঁদের গবেষণায় অনেক বেশি প্রাধান্য পেয়েছে। এর পাশাপাশি এ সকল চিত্র আঁকার উদ্দেশ্য ব্যাখ্যা করতে গিয়ে তাঁরা বলেছেন হান্টিং ম্যাজিকের কথা, অর্থাৎ শিকারে সাফল্য লাভের জন্য প্রাগৈতিহাসিক যুগের মানুষ এ সকল চিত্র অঙ্কন করতো। পল বান এবং জ্যাঁ ভারতুত দৃষ্টিবাদী ধারায় উদ্বুদ্ধ হয়ে এমপিরিসিজমের (Empiricism) আশ্রয় নিয়েছেন। এর পাশাপাশি তাঁরা তাঁদের বিপরীতমুখী গবেষকদের গবেষণা পদ্ধতির সমালোচনা করেছেন। তাঁদের মতে লুইস উইলিয়ামস এবং জ্যাঁক্লটেস উত্তর প্রক্রিয়াবাদী প্রত্নতত্ত্বের ধারা অনুসরণ করে এসকল চিত্র তৈরির উদ্দেশ্য সর্ম্পকে ইথনোগ্রাফির ওপর ভিত্তি করে শামেনিক চিন্তাধারার যে ব্যাখ্যা দান করেছেন, সেটি আসলে ইথনোগ্রাফির অপব্যবহার ছাড়া

আর কিছুই নয়। অপর দিকে লুইস উইলিয়ামস এবং জ্যাঁক্লটেস ইথনোগ্রাফীকে ভিত্তি করে চিত্রগুলো ব্যাখ্যার চেষ্টা করেছেন। এ কাজের জন্য তাঁরা উভয়ই প্রক্রিয়াবাদী প্রত্নতত্ত্বের তাত্ত্বিক বিষয়গুলো বিবেচনায় নিয়ে এসেছেন এবং তাত্ত্বিক বিষয়ের ওপর ভিত্তি করে গুহাচিত্রগুলো সর্ম্পকে একটি ভিন্ন ধরনের ব্যাখ্যা দাঁড় করানো প্রয়াস পেয়েছেন। তাঁদের মতে প্রাগৈতিহাসিক সমাজের মানুষ বিভিন্ন প্রাকৃতিক দুর্যোগ, দৈব ঘটনা, তাদের প্রাত্যহিক কার্যক্রমের সাফল্যের জন্য বিভিন্ন ধরনের সামাজিক ও সাংস্কৃতিক আচার অনুষ্ঠান পালন করতো। এসকল আচার অনুষ্ঠানের একটি অংশ হিসেবে কোনো একজন ব্যক্তি ধ্যানের মধ্য দিয়ে যে সকল দৃশ্য অবলোকন করতো এবং যে সকল অভিজ্ঞতা অর্জন করতো সেগুলোই তারা পাথরগাত্রে বিভিন্ন রঙের ব্যবহারের মধ্য দিয়ে ফুটিয়ে তুলতো।

লুইস উইলিয়ামস ও জ্যাঁ ক্লটেস বর্তমান সময়ের বিভিন্ন ক্ষুদ্র জন-গোষ্ঠী সংস্কৃতি ও সামাজিক আচার অনুষ্ঠান অবলোকন করে এ সিদ্ধান্তে উপণীত হন। এ প্রবন্ধে এ দুটি ভিন্ন ধারার গবেষণার কথা উল্লেখ করতে গিয়ে লেখক এসকল গবেষকের বিভিন্ন কাজ সর্ম্পকে একটি সাধারণ আলোচনা করেছেন। অবশেষে লেখক এ বলে মন্তব্য করেন যে পল বান এবং ভারতুতের প্রক্রিয়াবাদী প্রত্নতত্ত্বের ধারাকে আশ্রয় করে সম্পন্ন গবেষণাটি বহুল প্রচলিত এবং তাঁরা কোনো তত্ত্বের আশ্রয় না নিয়ে কেবলমাত্র প্রাপ্ত সাক্ষ্য প্রমাণের (নিদর্শন) ভিত্তিতে তাঁদের ব্যাখ্যা দাঁড় করিয়েছেন। তাঁরা উইলিয়ামস এবং জ্যাঁ ক্লটেসের সমালোচনা করলেও অন্য কোনো বিকল্প ব্যাখ্যা প্রদান করেন নি। অপর দিকে লুইস উইলিয়ামস এবং জ্যাঁ কক্লটেস এর আলোচনার মূল ভিত্তি এমপিরিসিজম (Empiricism) হলেও তাঁরা এমপিরিসিজমের "ডাটা স্পিকস ফর দেমসেলভস" (Data Speaks for Themselves) দ্বারা সম্পূর্ণভাবে অনুপ্রাণিত না হয়ে ইথনোগ্রাফিক প্যারালাল এর সাহায্য নিয়েছেন এবং বিশেষ কয়েকটি চিত্রকলার একটি বিকল্প ব্যাখ্যা প্রদানের চেষ্টা করেছেন, যা নিঃসন্দেহে গুহাচিত্রের গবেষণার অগ্রগতির জন্য একটি গুরুত্বপূর্ণ পদক্ষেপ।

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Raw Material and Technology of Stone Age Artifacts from Lalmai Hills and Chaklapunji Area

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Lalmai hills and Chaklapunji area are two most important locations of Stone Age archaeological records in the present geopolitical boundary of Bangladesh. A large number of fossil wood artifacts discovered from these locations and it is the evidences which give unquestionable testimony as a Stone Age site. Fossil wood forms through pre-mineralization of wood by silica and little amount of other minerals in such a manner that the original shape and structure of the wood fabric remain unchanged. As a gift of nature fossil wood occurs in the exposed surface of Dupi Tila formations of the study area in different size - from big sized boulder block to small pebble block. Various geologic surface erosion processes and other natural processes exposed fossil wood from its stratigraphic level to outside surface. Prehistoric people of Lalmai hills and Chaklapunji area found fossil wood in exposed context and used those fossil woods for the manufacture of artifacts. For this reason, the fossil wood artifacts discovered from the study area yielded a huge quantity of finished and shaped tools of various types in association with a large number of cores used for detaching flakes to be converted into tools and huge quantity of waste flakes and chips. Stone Age tools bear an intimate relation with the raw materials because quality and properties of raw materials directly influence the typo-technology. Physical properties of fossil wood almost same as the basic minerals and rock used in the Stone Age for manufacturing of tools. Only in special geographical circumstances Stone Age people use fossil wood, where suitable stone is absent, but fossil wood is present in exposed section. On the basis of raw material and technological aspects we can term the industry as 'fossil wood flake and core industry'.

Location

The study area Lalmai hills and Chaklapunji are two separate regions, situated north to mid-eastern hilly borderlands of Bangladesh, roughly distance about 160 km. In consideration of the location of geological context, the area is a part of Chittagong-Tripura folded belt, which is counted as the youngest structural division of the Indo-Burman range (Roy 2005:61).

Lalmai hills range is an isolated narrow strip of small hills and all the locations of Stone Age archaeological records located around the southern part roughly in a circular area within a radius of 5 km. It is included in the administrative area of Barapara union of Comilla sadar thana of Comilla district. Geographical location of the site is roughly 23° 22' to 23° 25' North latitude and 91° 08' to 91° 09' East longitude. The area located in the middle portion of Comilla district, roughly distance about 9 km from Comilla town and bounded in north by the Burichang thana of Comilla district, in the east by the Comilla town, in the south by the Laksam thana of Comilla district and in the west by the Barura thana of Comilla district. Dhaka-Chandpur road and Dhaka-Chittagong railway track passes through south of the locations of Stone Age archaeological records.

The Stone Age archaeological record Chaklapunji is situated in low hilly border region, which is mainly used for tea plantations. It is included in the administrative area of Deorgachh union of Chunarughat thana of Habiganj district. Geographical location of the area is roughly 24° 09' to 24° 10' North latitude and 91° 28' to 91° 29' East longitude. Stone Age archaeological record discovered from the course bed of a small seasonal stream known as *Balugang* (sandy river). It originates from the hilly borderlands of Chaklapunji tea garden and travels through the Chaklapunji, Chandichara, Amu, Nalua, Nabab Khan and Chandpur tea garden on mainly low hilly areas of the Chunuraghat thana for about 6 km. and falls into Sutung river. The surveyed area bounded in north by the than sadar of Habiganj, in the east by the Srimangol thana of Moulvibazar district, in the south by the international boundary with the Tripura state of India and in the west by the Madhabpur thana of Habiganj district. Dhaka-Sylhet highway passes through the middle of the location of Stone Age archaeological records.

Discoveries of Stone Age Artifacts

A large number of Stone Age fossil wood artifacts were discovered from Lalmai hills, Comilla District, Bangladesh (Chakrabarti 1992; Alam 1992, 2001; Roy and Ahsan 2004). In April 1989, while D. K. Chakrabarti teaching archaeology as a visiting Professor in the Jahangirnagar University, he explored the Lalmai hills with Dr. M. H. Rashid, S. M. K. Ahsan and M. M. Hoque and discovered 234 fossil wood artifacts of which 88 are tools and the rest are nontool artifacts. Fossil wood artifacts came out from eleven locations. These are Lalmai-1 (LLM-1), Lalmai-2 (LLM-2), Lila Mura and Takka Mura (LMTM), Maharam Alir Bari / Mura (MAB), Tipra Mura (TPM), Mandara Mura (MM), Maidhar Mura (MDM), Memberer Khil (MBK), Meher Kuler Mura

(MKM), Takka Mura–2 (TKM-2) and Sarderer Pahar (SDP). On the other hand, Alam (1992, 2001) had carried out a short time archaeological exploration on the southern extremity of the Lalmai hills range in July 1991. During this time 20 hillocks were explored to trace out Stone Age archaeological record and fossil wood artifacts came out from 4 locations. These are Lalmai-1 (LLM-1), Maharam Alir Mura / Bari (MAB), Takka Tila / Takka Mura (TKM-2) and Bara Mura (BM). Small scales excavation was also conducted in a hillock known as Lalmai-1 (LLM-1). 240 artifacts were collected during this time (Alam 1992). In 1994 and 1996 those hillocks were again explored and 30 more hillocks of the southern part were also explored. The operation revealed fossil wood artifacts from 7 hillocks. These are Maharam Alir Mura / Bari (MAB), Takka (Lila) Mura (TKM-2), Babuler Mura (BBM), Lalmai-1 (LLM-1), Corneler Mura (CM), Bara Mura (BM) and Chora Mura (CHM). A total number of 872 fossil wood artifacts were collected by Alam (2001: 415) from those locations of Lalmai hills range. Of these 134 has been classified as tools and the rest are nontool artifacts.

The first author reinvestigated the Lalmai hills during the time of November December 2002; June, October and December 2003; January, March and April 2004 and discovered a new location of Stone Age archaeological records which is locally known as Shakunna Mura. A total number of 162 fossil wood artifacts were collected from this location. Besides above discovery, Ahsan (2003, Banglapedia, vol. 8: 181) mentioned that in 1998 two students of the department of archaeology, Jahangirnagar University, recovered a typical Acheulian handaxe from the area between Maiddher Mura and Membarer Khil and some blades and blade-lets and flakes from Dhan Mura while they were exploring the Lalmai hills.

Some important Stone Age sites are situated in West Tripura district of Tripura state of India and very near the border areas of Habiganj district. For this reason first author visited hilly border areas of Habiganj district and collected some Stone Age fossil wood tools, flakes and chips. In March, 1997 under the leadership of second author and M. M. Hoque a team consisting of five members from Department of Archaeology, Jahangirnagar University completed their short time exploration at Chaklapunji area. Although a few number of tools and waste flakes were collected but this exploration has been proved very significant, because this time location of artifacts could be justified on the basis of their archaeological context (Hoque 1999:86-87).

In the year 1999, 2000, 2001 and 2002 (during January- February and October-November), first author surveyed this area and collected a huge number of finished tools and simple artifacts. The artifacts of Stone Age archaeological records came out from several locations of dry course bed of *Balugang*. A huge frequency of ferruginous sandstones, fossil wood chunks and quartz granules were also observed associated with artifacts. Actually, the fossil wood artifacts and other finds create discrete clusters context by the action of surface wash.

Use of fossil wood as raw material

From the early time people exploited natural resources and they try to use the local natural gifts for their livelihood and subsistence economy in various stages of cultural adaptation and cultural change. Stone Age people used local available stony materials as raw material for manufacturing of tools. Review of previous discoveries and researches show that fossil wood artifacts were discovered from various places of Eastern India and Southeast Asia.

de Terra and Movius (1943) first mentioned about the findings of Stone Age fossil wood artifacts from Myanmar. The artifacts of Anyathian industries of Myanmar are made of pebbles of silicificed tuff and on pieces of fossil wood (Coles and Higgs 1969: 383). The sites are located at Kyaukpadaung, Mt. Popa region, the Northern hills, the Shan plateau, Prome, Thayetmyo, Magwe, Yenang Young and Mount Popa. With only 3 exceptions, the available 150 specimens of the Late Anyathian 2 industry are all made of fossil wood and show basically i) handadze with scalloped edge, ii) handadze with small steep ended edge, iii) small handadze or end scraper, iv) double ended scraper, v) side and end scraper, vi) steep pyramidal end scraper, vii) side scraper, viii) flake implements and ix) cores.

A large quantity of Stone Age artifacts has been recovered from southern central Java, and has been called Patjitanian after the name of type site. Most of the objects are of silicified tuff, but fossil wood was also used (Coles and Higgs 1969: 390).

Some Stone Age specimens in fossil wood were collected from Cachar hills zones in Assam. When first author of the present paper visited the museums of Department of Anthropology, Gauhati University, Assam in March, 2000; one piece shouldered celt made on fossil wood was seen.

Stone Age artifacts made on fossil wood are known to occur in the Chhotanagpur plateau section of West Bengal. Chakrabarti (1992, 1993) found such specimens in the site of *Egara Mile* near Ilam bazar in Burdwan (Chakrabarti 1993: 160-162), Paruldanga I and II of Birbhum (Chakrabarti 1993: 178) and in the cemented gravel deposit of the *Tarafeni* river section near Sildah in Midnapur (Chakrabarti 1993: 167). A handaxe made of fossilwood was found from *Egara Mile* in Burdwan *in situ* towards the base of the detrital lateritic matrix (Chakrabarti 1993: 161).

It is remarkable that the Stone Age industry of west Tripura is almost totally based on the utilization of fossil wood (Ramesh 1986: 307). Important sites revealing fossil wood industries are located around Teliamura, Jirania, Sonaram,

Mohanpur and Agartala in West Tripura district and Jamjuri near Udapipur in South Tripura district. On geological, geomorphological and pedological grounds, these industries of Tripura range were attended from the Palaeolithic to the Neolithic period (Sharma 1991: 52). Ramesh's (1986) typotechnological classification of fossil wood industry of Tripura includes handaxe, handadze, cleaver, borer, point, scraper, levallois flake, blade, hammer stone, pick axe, celt etc. According to Sharma (1991: 52) Palaeolithic fossil wood artifacts of Tripura includes- i) heavy tool such as, handadze, handaxe, cleaver, chopper etc. ii) a highly developed flake-tool industry; and iii) a blade tool industry.

In Bangladesh, there are more than five locations, where Stone Age fossil wood artifacts were discovered. Brown (1917: 130) reported about a discovery of polished fossil wood specimen from Sitakund range, Chittagong district. A Palaeolithic scraper of fossil wood was collected by the Dacca museum in 1963 from Amjadhata union in the Chhagalnaiya police station near its border with Ramgarh in the Chittagong hill tracts. Few pieces of polished fossil wood specimens were discovered from Wari-Bateshwar of Narsingdi district (Chakrabarti 1993: 32). It is already mentioned that a huge number of Stone Age fossil wood artifacts were discovered from Lalmai hills and Chaklapunji area.

Table 1: Geographical distribution of the locations of Stone Age archaeological records

Country/Province	District	Archaeological sites	Artifactstypes	Cultural period	Reference
Bangladesh	Chittagong	Sitakundu hill	Celt	Neolithic	Brown 1917
Bangladesh	Rangamati	Unknown	Unknown	Unknown	Rashid 1979
Bangladesh	Feni	Unknown	Scraper	Palaeolithic	Rashid 1979
Bangladesh	Narsingdi	Wari-Bateshwar	Adze, Celt	Neolithic	Pathan 1989
Bangladesh	Comilla	Lalmai hills area	Handaxe, Handadze, Scraper, Point, Celt	Palaeolithic Neolithic Palaeolithic Neolithic	Chakrabarti 1992, Alam 2001 Hoque *et all.* 1998, Roy and
Bangladesh	Hobiganj	Chaklapunji area	Handaxe, Handadze, Scraper, Point, Adze, Celt		Ahsan 2000
India, Tripura	West Tripura	Teliamura, Sonai Bazar, Sonaram, Jirania, Mohanpur	Handaxe, Handadze, Scraper, Point, Adze, Celt	Palaeolithic Neolithic	Ramesh 1986, 1987
India, Tripura	South Tripura	Jamjuri	Handadze, Scraper, Point Adze, Celt	Palaeolithic Neolithic	Ramesh 1986, 1987
India, Assam	Cachar		Celt, Shouldered celt	Neolithic	Sharma 1991
India, West Bengal	Burdwan	Egara Mile	Handaxe, Scraper, point	Palaeolithic	Chakrabarti 1992, 1993
India, West Bengal	Birbhum	Paruldanga I and II	Microliths	Mesolithic	Chakrabarti 1993
India, West Bengal	Midnapur	*Tarafeni* river section	Scraper	Palaeolithic	Chakrabarti 1992, 1993
Myanmar		Kyaukpadaung, Thayetmyo, Magwe,Mount Popa, Prome	Handaxe, Handadze, Scraper, Point, Adze, Celt	Palaeolithic Neolithic	Movius 1943, Dani 1960
Indonesia	Java	Patjitanian		Palaeolithic	Coles and Higgs 1969

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Nature and formation of fossil wood

Fossil woods are generally prehistoric dicotyledonous stems wood that have been petrified or 'turned into stone'. It is generally procured in the geological strata, chiefly from the Dupi Tila formation of the hill ranges of study area. Fossil wood forms through pre-mineralization of wood by silica and little amount of other minerals in such a manner that the original shape and structure of the wood fabric remain unchanged.

A fossil wood boulder or block delivers following three types (Roy 2005: 180):

i) Cortex fossil wood
ii) Sap fossil wood
iii) Heart fossil wood

Bark and phloem region of a tree stems change into cortex fossil wood. It is the more soft part of a fossil wood boulder or block and is white to light brown in color. Sap wood region of a tree stems change into sap fossil wood. It is hard like stone and usually light to darker in color. Heart wood region of a tree stems change into heart fossil wood. It is the most hard part and usually darker in color.

Fossilization process usually happened in following stages (Singh 1990: 20).

Firstly, a newly dead plant sinks to the bottom of a lake, sea or river. Soft tissues soon rot. But before the decay of wood, sand or mud may cover them, shutting out the oxygen needed for bacteria that cause decay. Later, water saturated with dissolved minerals seeps into tiny holes in the wood. Inside these tiny pipes the water sheds some of its load of minerals. So layers of substances such as calcite, iron, sulfide, opal or quartz gradually fill the holes. Paleontologically this process is known as "petrifaction" that's why silicified wood sometime called as petrified fossilized wood. It may happen very slowly. Petrifaction implies interstitial addition or an extremely gradual replacement, molecule for molecule, as the original substance is lost through disintegration. The resultant fossil retains, therefore, not only the external form but the histologic characters of the original structure as well.

Stone Age industry of Lalmai hills and Chaklapunji area was almost wholly based on the utilization of silicified wood or fossil wood. This stony material occurs in the exposed surface in different size from big sized boulder block to small pebble block. Various surface erosion activities may be exposing fossil wood from its stratified level to outside surface.

Stone Age people preferred various kinds of raw materials in different geographical locations for chipping them into tool. The characters of tool have a direct relationship with the nature of the raw material. Early people used quartzite, basalt, fine sandstone, jasper, agate, flint, chart, fossil wood, etc. for manufacturing tool, wherever these were available. Major parts of Bangladesh consist of the alluvial plains and for this reason stones are not available here. But fossil wood is abundant in some hilly region of Sylhet, Chittagong and Comilla, which served as the raw material for Stone Age communities manufacturing the tools in the absence of the proper rock resource. Present study represents a prehistoric tool chipping tradition where only fossil woods were used for the fabrication of the tools.

Technology of fossil wood tools

Human species has often been defined in terms of our special ability to make tools and many archaeologists have seen human progress largely in technological terms, which is the most important factor that distinguished early human beings from other primates. At the early stage of biological evolution, the concept of technology led to the emergence of culture. Culture cannot be conceived without the material manifestation of tools and tools cannot be produced without technology. Naturally there was a close relationship between the emergence of culture and the development of technology. As a matter of fact, it is not exactly known when, where and how the concept of technology was developed. But it could be assumed that the fast attempt of human to strike a flake from a core or pebble may be the beginning of technology. Human's persistent struggle against nature to secure his survival was made possible through the development of technology. If there was no technology, there would have been no culture and hence no human. Therefore we can say that human is the product of interaction between biology and culture and technology played the most crucial role for the development of culture (Datta 1992: 107).

Early human beings had to pass through different stages of biological evolution and adaptation; the material cultures of different periods also demonstrate remarkable changes through time. A careful study of the material assemblages of different periods would obviously reflect these basic changes in their techno-cultural levels as well. For example, the Palaeolithic stone hammer or block on block techniques became almost obsolete during Mesolithic and Neolithic periods. Similarly, the Mesolithic blade technique was replaced by chipping grinding and polishing technique during Neolithic periods.

Rocks, minerals and fossil wood are relatively easy to chip as they break into a number of pieces and some, if not all of these, will have naturally sharp edges, which could be employed for cutting. But to produce an implement of a pre conceived shape, more care must be taken to control the chipping or flaking (Coles and Higgs 1969: 54). The fossil wood piece itself can be flaked to form a core tool or one of the flakes knocked off the core can then be fashioned into a flake tool.

Various types of shaped finished tools were identified from the collection of Lalmai hills and Chaklapunji area. Fossil wood is the almost unique raw material of this collection, which was used for chipping tools. But all over the world, for chipping tools Stone Age people employed some kinds of suitable stone which was available, and where they happened to occur in the locality, finer grained rocks were often employed (Burkitt 1963: 29).

Experimental studies of stone tool manufacturing technique have done by Bordes (1961), Semenov (1964) and Sunkalia (1964). Actually physical properties of fossil wood are little different from various rocks and minerals. For this reason manufacturing technology of a fossil wood assemblage show little difference from various stone tool assemblages. Ramesh (1986) mentioned about the diverse technological aspects of fossil wood tools. In present study an attempt has been made to establish the preliminary concept of manufacturing techniques of fossil wood tools collected from Lalmai hills and Chaklapunji area.

After close observation, it is noticed that the process of manufacturing of a fossil wood tool consists of following stage.

a) The preparation of the core from suitable fossil wood chunk.
b) Detaching a major flake from the fossil wood core.
c) Secondary flaking at the working end.

Perhaps, every fossil wood tool did not undergo all the three stage. The remarkable aspect of the fossil wood flakes is that most of them are removed from the fossilized wood core across or oblique to the wood structure. After detail study and visual analysis of fossil wood artifacts, it is observed that most of the flakes and heavy tools like handaxe, handadze, big scraper and celt, etc. are removed either across or oblique to the wood fabric and not parallel to it, possibly for controlling the size of flakes. Controlled flaking is extremely difficult in fossil woods, except along an axis transverse to the growth rings (Ramesh 1986: 306).

Cortex fossil wood is generally limited in the dorsal surface. In some cases cortex fossil woods kept in little to the platform and to the proximal end of certain flake tools. The most interesting aspect of some fossil wood tools is that the cortex fossil wood often covers the whole areas of butt end wherever the heart fossil wood of the working end is beautifully retouched.

The majority of non-standardized tool types are unworked on the ventral surface and the sporadic retouch is confined to the periphery of the fossil wood flakes. In some cases, both dorsal and ventral faces of the finished tools carry large to medium shallow flake scares and finer secondary flaking or retouches are seen along the margins. Of the various techniques of retouch employed, step flaking appears to be the most common on scrapers, handaxes and handadzes. This technique is common in Acheulian assemblages of South Asia. Many of flakes bear shallow, parallel, blade-like scars either on the margins or along that part of the periphery, which serves as the working edge. Scalar retouch is rare. A member of miscellaneous flakes has wide, shallow, irregular flake scars on their dorsal surfaces.

More than one technique of manufacturing might have been used in the initial stages of production. The larger tools with prominent bulbs, crude secondary works and almost no marginal retouch were probably produced by the use of simple block on block technique. A soft hammer technique and pressure flaking were probably employed in the production of points and blades.

The collections from Lalmai hills and Chaklapunji area comprise both core and flake tools. The majority of the tools are on flakes and a few numbers of tools are on cores. Flakes were struck off cores by the use of a hammer or a punch. Among the flakes side-struck types predominate over the end-struck types. A few numbers of blade flakes can be identified and among them only few pieces true blades were came out. Punch or pressure technique was introduced for detaching blades. Mustarian technique is also seen in the manufacture of some flake scrapers. Some scrapers and points bear very fine retouch on their margins and this could have been produced by the use of a sharp, pointed instrument. Some flakes are very small and generally with diffused bulbs of percussion. They appear to have been removed by the use of a small hammer. Some blades were removed from small fossil wood cores.

The Neolithic technology basically comprises chipping, grinding and polishing. Normally three stages of preparations are required for the production of a fully polished Neolithic tool. Although a fourth stage commonly known as pecking has after been suggested by a number of scholar (Allchin 1957, Sunkialia 1964), but even so the actual relevance of such a separate stage is doubtful, because very often the rough or the uneven surfaces are smoothed during chipping or flaking by hand hammer or soft hammer (Datta 1992: 108).

Although a few number of Neolithic tools discovered from Lalmai hills and Chaklapunji area, the three stages, viz. chipping, grinding and polishing have been employed for the manufacture of Neolithic adze and celt discovered form Chaklapunji area and the pointed butt celt discovered form Lalmai hills. But there is no sign of polishing to single Neolithic shoulder celt discovered from Lalmai hills.

Concluding Remarks

From above discussion we can say that fossil wood is a special kind of raw material used at Lalmai hills and Chaklapunji area and manufacturing technology of these fossil wood industry show little difference from various stone tool industry. On the basis of raw material and technological aspects, it would be more acceptable to term this industry as 'fossil wood flake and core industry'.

Actually 'fossil wood flake and core industry' of Lalmai hills and Chaklapunji area present three stages of typo-technological development. Various kinds of tool such as, handadze, handaxe and some crude scraper representing the earliest stage of their production. It is being followed by flake tool tradition, which includes various kinds of scraper, burin, borer and point. The feature that made this category distinct from the other is the use of fossil wood of finer quality (heart fossil wood). The final category of this period is marked by the presence of some excellent tools, such as, arrowhead, tanged point, backed blade, double straight-sided blade, etc.

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Only few number and categories of typical Neolithic tool, such as, adze, celt and shouldered celt (?) can be identified from the collection. These specimens might indicate the existence of Neolithic assemblage and they typologically show close similarity to those of Tripura, Assam and Myanmar (Ray 2002: 43). But it is not possible to draw a clear typo-technological comparison or co-relations based on these specimens as their few numbers do not point to quantify any valid regularities away these traditions.

Absence of any research on technological aspects of fossil wood artifacts of Bangladesh, present study should be consider as a preliminary endeavor and give us some clues on nature of raw material and manufacturing technique. Some research propositions needed to be under taken in future consideration are, therefore, suggested below.

1. A detailed study of the context of fossil wood artifacts is required by taking trial trenches at different location of prehistoric archaeological record.
2. Microwear analyses have been employed on fossil wood artifacts recovered from Lalmai hills and Chaklapunji area, for recognition of the tool technique, tool function, subsistence and activity.
3. Site catchment analysis carry on for understanding the relationship between technology and the natural resources lying within the economic range of Lalmai hills and Chaklapunji area.

বিষয় সংক্ষেপ

কুমিল্লা জেলার লালমাই পাহাড় এবং হবিগঞ্জ জেলার চাকলাপুঞ্জি বাংলাদেশের দুইটি গুরুত্বপূর্ণ স্থান যেখানে প্রচুর সংখ্যক জীবাশ্ম কাঠের তৈরী প্রস্তর যুগের প্রত্নবস্তু পাওয়া গেছে। ভূ-তাত্ত্বিক ও ভূ সংস্থানগত প্রেক্ষিত পর্যবেক্ষণ ও গবেষণায় দেখা যায় যে ঐ এলাকার প্লায়ো-প্লাইসটোসিন যুগের ডুপি টিলা বেলে পলল অবক্ষেপ হতে জীবাশ্ম কাঠ প্রচুর পরিমাণে পাওয়া যায়। ডুপি টিলা বেলে পললের অবক্ষেপ এই এলাকায় উম্মুক্ত অবস্থায় আছে এবং বিভিন্ন আকৃতির জীবাশ্ম কাঠ এতে বর্তমান সময়েও পাওয়া যাচ্ছে। সম্ভবত বিভিন্ন ধরনের ভূ-তাত্ত্বিক ভূমিক্ষয় প্রক্রিয়া ও অন্যান্য প্রাকৃতিক প্রক্রিয়ার প্রভাবজনিত কারণে জীবাশ্ম কাঠ তার প্রাকৃতিক স্তর বিন্যাস ভিত্তিক অবস্থান হতে ভূ-পৃষ্ঠে চলে এসেছে। লালমাই পাহাড় ও চাকলাপুঞ্জিতে বিভিন্ন ধরনের সুনির্দিষ্ট আকৃতি সম্পন্ন হাতিয়ার, ব্যবহৃত ফ্লেক, বিভিন্ন আকৃতির ছোট বড় টুকরো, হাতিয়ার তৈরীর উপযোগী জীবাশ্ম কাঠের টুকরো প্রভৃতি পাওয়া গেছে। একারণেই ধারণা করা হয়ে থাকে যে প্রাগৈতিহাসিক মানুষ বিভিন্ন আকৃতির জীবাশ্ম কাঠ ভূ-পৃষ্ঠ হতে সংগ্রহ করেছে এবং তা হাতিয়ার নির্মাণে ব্যবহৃত হয়েছে।

কোয়ার্টজ, কোয়ার্টজাইট, ব্যাসাল্ট, গ্রানাইট, চুনাপাথর, বেলে পাথর, জেসপার, চার্ট, চ্যালেসেডেনী প্রভৃতির তৈরী হাতিয়ার ভারত উপমহাদেশের বিভিন্ন প্রত্নস্থানে পাওয়া গেছে । তবে লালমাই পাহাড় ও চাকলাপুঞ্জি এলাকায় পাথর না থাকায় এখানে হাতিয়ার নির্মাণে জীবাশ্ম কাঠ ব্যবহৃত হয়েছে। জীবাশ্ম কাঠ প্রাগৈতিহাসিক দ্বিবীজপত্রী উদ্ভিদের কাণ্ড যা কালের আবর্তনে প্রস্তরে রূপান্তরিত হয়েছে। সিলিকা ও অল্প পরিমাণ অপরাপর খনিজ পদার্থের দ্বারা প্রি-মিনারেলাইজেশন -এর মাধ্যমে এমন ভাবে জীবাশ্ম কাঠ সৃষ্টি হয় যাতে কাঠের মূল গঠন কাঠামো ও আকৃতি অপরিবর্তিত থাকে। রূপান্তর প্রক্রিয়ার প্রথমেই গাছের কাণ্ড হ্রদ, সমুদ্র বা নদীর জলে ডুবন্ত অবস্থায় কিছু সময় অতিবাহিত করে। এর ফলে নরম টিসু গুলি দ্রুত পঁচে যায়। কিন্তু গাছের ক্ষয় প্রক্রিয়া শুরু হবার পূর্বেই বালু অথবা কাঁদার নীচে চলে যায়। ধীরে ধীরে কাঠের সূক্ষ্ম ছিদ্রগুলি সিলিকা বা অপরাপর খনিজ যেমন-ক্যালসাইট, সালফাইট, লৌহ, ওপাল, কোয়ার্টজ প্রভৃতি দ্বারা ভর্তি হয়ে যায়। ফলে জীবাশ্ম কাঠের বুনন অত্যন্ত ঠাসা হয়ে যায় এবং আপেক্ষিক গুরুত্ব যথেষ্ট পরিমানে বৃদ্ধি পায়। এভাবে জীবাশ্মে পরিণত হওয়াকে পেট্রিফিকেশন বলা হয়। গাছের কাণ্ডের সেলুলোজ প্রাচীর ও কলাসমূহ সিলিকা দ্বারা প্রতিস্থাপিত হলে আদি গঠন কাঠামোর কোন পরিবর্তন হয় না এবং এর বাহিরের আকার এবং অভ্যন্তরীন সূক্ষ্মাতিসূক্ষ্ম সংগঠন অপরিবর্তিত থাকে।

বিভিন্ন প্রকার শিলা, খনিজ, হাড় অথবা জীবাশ্ম কাঠ ভেঙ্গে টুকরো করলে স্বাভাবিক ভাবেই ধারালো প্রান্তের সৃষ্টি হয় যা কোন কিছু কাটার কাজে ব্যবহার করা যায়। কিন্তু হাতিয়ার তৈরী করতে হলে অবশ্যই কিছু কারিগরি কৌশল প্রয়োগের মাধ্যমে নিয়ন্ত্রিত ফ্লেকিং এর সাহায্য নিতে হয়। হাতিয়ার নির্মানে ব্যবহৃত কাঁচামালের স্বতন্ত্রতার কারনে কৌশলে কিছুটা ভিন্নতা লক্ষ করা যায়। নিবিড় পর্যবেক্ষনের মাধ্যমে দেখা যায় যে জীবাশ্ম কাঠের হাতিয়ার নির্মাণের ক্ষেত্রে নিম্নলিখিত ধাপগুলি পর্যায়ক্রমে অনুসরণ করা হয়েছে।

প্রথমতঃ জীবাশ্ম কাঠের বড় খন্ড হতে হাতিয়ার নির্মাণের উপযোগী কোর পৃথক করা হয়েছে।

দ্বিতীয়তঃ কোর হতে নিয়ন্ত্রণের মাধ্যমে ফ্লেক পৃথক করা হয়েছে।

তৃতীয়তঃ কাজের উপযোগী প্রান্তে সেকেন্ডারী ফ্লেকিং এর মাধ্যমে অধিক ধারালো করা হয়েছে।

প্রকৃতপক্ষে প্রতিটি হাতিয়ারই উপরোক্ত তিনটি প্রক্রিয়ার ধারাবাহিকতায় তৈরী হয়নি। জীবাশ্ম কাঠের ফ্লেক গুলির সবচেয়ে আকর্ষণীয় দিক হচ্ছে প্রায় ক্ষেত্রেই কোর-এর কাঠের কাঠামো হতে আড়াআড়ি বা তীর্যক ভাবে এগুলি পৃথক করা হয়েছে। জীবাশ্ম কাঠে নিয়ন্ত্রিত ফ্লেকিং কঠিন বিধায় ফ্লেক গুলির আকৃতি নিয়ন্ত্রণের জন্যই সম্ভবত এই কৌশলের আশ্রয় নেয়া হয়েছে। করটেক্স জীবাশ্ম কাঠ খুবই সীমিত পরিমানে হাতিয়ার গুলির ডরসেল পৃষ্টে পাওয়া যায়। কোন কোন ক্ষেত্রে ফ্লেক টুল গুলির প্রান্তীয় পৃষ্টে অল্প পরিমাণে করটেক্স লক্ষ করা যায়। তবে কিছু হাতিয়ারের আকর্ষণীয় দিক হচ্ছে হাতে ধরার প্রান্তে করটেক্স বিদ্যমান কিন্তু কাজ করার প্রান্ত চমৎকার রিটাচের মাধ্যমে ধারালো ও তীক্ষ্ণরূপে তৈরী করা।

ব্যবহৃত কাঁচামালের স্বতন্ত্রতা, হাতিয়ের ধরন ও কারিগরি বিভিন্ন দিক পর্যালোচনার মাধ্যমে লালমাই ও চাকলাপুঞ্জির জীবাশ্ম কাঠের হাতিয়ার সমূহকে "ফসিল উড ফ্লেক ও কোর ইনডাসট্রি" নামে অভিহিত করা অধিক যুক্তিবহ।

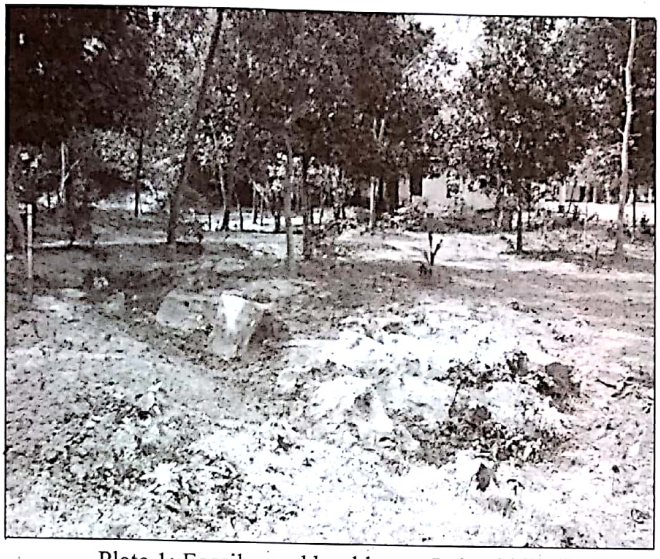


Plate 1: Fossil wood boulders at Lalmai hills



Plate2: Points, Tanged Points, Borers, Arrowhead and Blade from Chaklapunji area



Plate 3: End Scrapers, Side Scrapers, Round Scraper and Notch Scrapers from Chaklapunji area



Plate 4: Knives and Blades from Chaklapunji area



Plate 5: End Scrapers, Side Scraper from Lalmai hills

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Ethical Dilemmas in Social Research: A Quest for Professional Code of Conduct

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This article examines the ethical dilemmas faced by professional and academic researchers in the social research and also attempt to address code of conduct as a controlling force of ethical dilemmas. Ethical dilemmas have been encountered in many areas of social research and have at times been the subject of much controversy. Despite this, the problem of how to tackle ethical dilemmas has received little attention in the literature of social research. As a result, researchers faced with these dilemmas have little knowledge to draw upon, and groups associated with research, such as participating agencies and research committees, may not fully appreciate all the issues involved in dealing with ethical dilemmas. These issues are not only philosophical in nature but relate also to the methodological and practical implications of following one, rather than another, ethical principle. The researchers encountered a number of ethical dilemmas in their research. By discussing different approaches to solving ethical dilemmas, they intend to show that this is a complex problem and one which, along with ethics in general, requires greater attention in the literature. Professional code of ethics can more or less control these ethical dilemmas.

Social scientists are unprepared for many of the ethical problems that arise in their research and for criticism of their ethics that seems to ignore such cherished scientific values as objectivity and freedom of inquiry (Sieber 1982: v). There are two important considerations in doing social research in the real world: objectivity and ethics. Research should be objective and ethical. It is easy to achieve in natural research but difficult in social research. Social research generates value and ethical issues which have received increased attention in recent years (Eckharot & Ermann 1977:343). But the issue has divided social scientists within two groups. One supporting objectivity and other being against it. The former believe in value neutrality, while the latter do not subscribe to what we know as normativism (Sarantakos 1998:18). Until early 1960s, the central focus of the debate concerned the degree to which the social science could be value-free. The discussion in the yester years concentrated more on whether it is desirable for social sciences to be value- free (Sufian 1998: 5). Objectivity of research means, research should be value-free, free from personal judgment, personal biasness of the researcher, and analysis of the results of the research should be free from personal and social values of the social scientists. Thus, the social scientist confronts a dilemma. If he lets his personal values and judgments influence his research results, he has critics who point at the problem of objectivity. If he tries to free his research results from his own personal convictions, he is blamed for attempting to escape from the responsibility of offering reasoned and learned judgments for the greater interest of the society (Sufian 1998: 5). Really, this situation creates dilemmas for the social researchers. Apart from objectivity and personal biasness of the social scientists there is another value related problem: the ethical issues that arise from the social context within which the research is conducted. The aim of this article is to show how ethical dilemmas arise in the day-to-day conduct of social research and how they can be resolved.

Ethical Dilemmas in Social Research

We may define ethics as the normative science of the conduct of human being (Lillie 1966: 2). It is described as "the study of the criteria of good and bad conduct" (Pepper 1960: 2). In most dictionaries and in common usage, ethics is typically associated with morality and both concern matters of right and wrong. Webster's New World Dictionary is typical among dictionaries in defining ethical as 'conforming to the standards of conduct of a given profession or group.' Ethics is about how people treat one another every day. It is about honesty, accountability, pursuit of excellence, loyalty, integrity and responsible citizenship (Guy 1990: 97-98). It is extremely useful and necessary for social scientists to know what that society considers ethical and unethical. The notion of ethical question is very relevant and important in scientific social research. If someone intents to involve in social research, he should be aware of the general agreements shared by researchers as to what's proper and improper in the conduct of social scientific inquiry (Babbie 1986: 59). Because, in social research, social scientists will conduct research keeping them free from personal values, sentiment, judgment, biasness and analyse the segment of research results ethically. Objectivity on the part of the social investigation is a necessary corollary to acceptable research. However, the difficulties encountered in achieving it are

many. There are large number discernible types of interpersonal relations that pose potential ethical dilemmas in social research (Black & Champion 1976: 21). Some of the potential ethical dilemmas are discuss below.

Selection of the Research Problem

The first decision the researcher must make in the context of research model is about the research topic to be studies, which means the selection of the research problem. Consequently, there appears to be a natural and inevitable tension between science and social science as a knowledge-producing activity and as an activity guided by human values and ethics (Eckhrot & Ermann 1977: 344). The social scientists fall into a critical dilemmas in respect of selection process of social phenomena and their impelications.The issue that would be selected by the social responsibility, and researched, how this can be a useful problem selection for the social context? It appears a critical dilemma for social scientists. Nevertheless, there are many competing perspectives to be found within the purview of social science. Each has its adherence and opponents. One of the most important components of problem selection is the choice of a theoretical perspective. Because social; scientists must perforce adopt some perspective, they must also accept the responsibility of making clear the terms of the perspective within which they view a research problem. Hence, the value implications of problem selection and definition are complicated by the condition of employment and class position of most social scientists. However, there are at least three consequences flow from the tendency to choose research problems. First, the consequence of perspective. Second, the consequence of limited knowledge and third, the consequence of knowledge use (Echarot & Ermann 1977: 344). Social scientists can hardly be freed- from these dilemmas.

Ethical Dilemma in Methodological Implications

After selection of the research topic the next question is what type of methodology will be applied for conducting the research. Following this process, the researcher must decide about the type of methodology that will direct the study. Hence, which methodology is the best choice for a researcher is a serious ethical question. Sometimes social scientists select such a methodology and apply on their research which is not relevant and researchers are consciously concerned about it but he or she does not take any initiative to alternate it. It creates an ethical dilemma. In addition to the ethical question it raises, deception also has methodological implications (Bailey 1982: 438). Social scientists are frequently divided into two groups-those who sit in their office and think about the world outside and those who go out and gather the facts. C. Wright Mills depicted these disparate activities as "grand theory" and "abstracted empiricism."(Black & Champion 1976: 25). Such gross oversimplifications fail to do justice either to the process of methodology implication or to the thinking about methodology. Credibility of the research depends on the proper selection and implication of the methodology. If the researcher fails to choose proper methodology it will be more difficult to fulfill the aspirations and goals of the study. So, method and technique should be chosen as required by research objective and not for other reasons (Sarantakos 1998: 22).

Procedures of Investigation and Participation

In social research participation of people is necessary. But it is unfortunate that research procedures often appear to require for their success the deception, coercion and manipulation of subject-participant (Eckharot & Ermann 1977: 346). The procedures that are used in social investigation create ethical dilemmas in respect to the participation of the informer. Ethical dilemmas occur in the procedures of investigation, mainly in the survey research, field observation and experimental research. Survey research often depends upon the willingness of individuals to complete a questionnaire or submit to an interview. Participation in a social experiment represents a disruption in the subject's regular activities (Babbie 1986: 59). The researcher often intrudes into the life of the participants who even do not know beforehand that they have been selected as participants in an act they have not requested for. Their normal routine work is disrupted. Sometimes they do not even know that they are participating in a research process. Usually this happens when the researcher feels that it is not feasible or even practical to tell the participant or when researcher feels that the participant's prior knowledge of being involved in the research may significantly affect the social process being studied. This occurs quite often in case of field and experimental research (Sufian 1998: 6). No one should be forced to participate. Participation must be voluntary. The voluntary character of most such research may seem to ameliorate many value and ethical issue involved in data collection, but in subtle ways this seemingly voluntary character of survey and field research generates important value and ethical dilemmas (Eckharot & Ermann 1977: 346).

Sponsored Research and the Ethical dilemmas

We have discussed the ethical problems involved in researcher's treatment of their respondents or subjects during the procedure of investigation. Questions of ethics and ethical dilemmas may also arise concerning the nature of the relation between a researcher and the sponsor of the research

(Bailey 1982: 440). Now a day it is well known that social research is also expensive. Because of this expensiveness social researchers must seek sponsor willing to provide funds. In most cases the funds are provided by some public agency, such as the government or research foundation or prestigious college or university. When research is funded, it is in the form of either a contact or a grant. Sometimes contracted research specifies the nature of the work to be done, the time period for its completion and what can be done with the findings by an investigator (Black & Champion 1976: 21). As a result the sponsor agency ties to motivate researcher for its own interests and provide an ethical dilemma for social researchers. Moreover, the sponsor may have a vested interest in certain results and may not wish to fund the study unless these results will be found. It is in actual fact a serious ethical question for researchers what should be done in that case.

Deception/Misconduct

Deception and misconduct is an important phenomenon in the realm of social science. Social researchers can easily deceive and misconduct with the people. There are a number of ways that research subjects may be deceived. A more common form of deception involves informing the subject that he or she is part of a study but deceiving him or her about its true nature. The researcher often intrudes into the life of participants who even do not know beforehand that they have been selected as participants. Researcher can deceived them without informing them of the fact or securing their permission. Deception can be on the other hand in anonymity and confidentiality, researcher identity, and analysis and reporting. Anonymity and confidentiality creates another ethical dilemma for social researchers. When a researcher can not identify a given response with a respondent, the respondent is called anonymous. Confidentiality refers to the situation where the researcher can identity the respondent but promises not to do so publicly. When public exposure of responses may injure the subjects, anonymity and confidentiality should be strictly adhered to. Regarding the identity of the researcher himself, although sometimes it becomes necessary to conceal his own identity for the noble purpose of improving the quality of the study. It raises a serious ethical question (Sufian 1998: 6-7). It is generally agreed that it is unethical and one kind of deception for researcher to harm anyone in the course of research. Even if the researchers is not responsible for introducing the negative effect, ethical problems can still arise if the researcher observes the negative occurrence and fails to attempt to prevent it(Bailey 1982: 430). Sometimes researchers avoid negative findings. It is not ethical. Negative findings should be reported if they are related to the analysis. Fabrication of data is misconduct. Researcher should not publish findings on data they did not collect. Researcher can also act unethically when analyzing data by revealing only part of the fact, presenting facts out of context, falsifying findings or offering misleading presentation. It is very important that the analysis be based on true information and the reporting be done on the basis of this analysis. Analysis and reporting must be done with honesty.

How to Surmount these Dilemmas? Professional Code of Conduct

One of the difficult question in social research, how can we overcome these ethical dilemmas? No ethical dilemma in social research is solved once and for all and no procedure is acceptable to all or universally effective in confronting potential ethical problems. But only the professional code of ethics can much more conquer ethical dilemmas in social research. The word 'ethics' has been defined as moral principles or the science of moral values and duties and the word 'code' means any system of principles or rules. Thus, a code of ethics refers to the standard of conduct by which the members of any professional groups or body are guided their daily activities. In fact, the code of ethics provides the detailed rules which are formulated by the concerned professional bodies of each country mainly for the guidance of their members. So that they may be able to act with responsibility, independently, professional integrity and fairness and loyalty within the frame work of rules so designed. The members of the professional bodies have to observe these rules to ensure the highest quality of performance and to satisfy the public interest. So, all of the recognized professions have developed codes of ethics for the guidance of their members. The purpose of this code of ethics for the guidance of their members. The purpose of these codes is twofold:

(1) To emphasized the broad general principles by which all members of the Profession should be guided, and

(2) To indicate how these principles apply in specific circumstances.

Professional researchers play an important role in building up the well being of their community and country with their attitude, behaviour and unique services. The objectives of the code of ethics are to perform their duties and responsibilities and to establish publicly certain approved standards of practices to give support to the well intentioned individuals and discourage those who would disregard these approved standards. In this endeavor, it should not attempt the

impossible by upholding standards beyond the realm of human achievement. By association with rules that can not be obeyed, rules that can be obeyed lose their authority (Spencer 1905). Important objects of professional code of ethics are as follows:

1. Integrity & objectivity
2. Resolution of ethical conflicts
3. Professional competence
4. Confidentiality
5. Respect & trust of public.

Researchers are scholarly professionals. Because of both the importance and ambiguities of scholarly profession and of ethical issues in social research, most of the professional associations have created and published formal code of conduct describing what is considered acceptable and unacceptable professional behaviour. An ethical code for a profession, however, should not be a statement of general morality. Neither should it be mere listing of established customs prevailing among a certain group of people. It should be a statement of ethical principles applied to the daily affairs of a particular profession (Alger et.al.1965: 5). If we go back to the history and development of professional code of ethics then it can be found three major phases of history and development of professional code of conduct. Early standards of conduct, regulations of mediaeval guilds and the first modern code of ethics. The ethical standards that have developed around the doctor-patient relationship in the practice of medicine are the oldest standards of any of the professions. It was Hippocratic Oath. The Hippocratic Oath is probably the earliest example of self-regulation of professional conduct. The essence of the Hippocratic Oath lies in the wards:

I will follow that system of regiment which according to my ability and judgment, I consider for the benefit of my patients and abstain from whatever is deleterious and mischievous.

How seriously Hippocrates took this promise is indicated by his conclusion:

While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times. But should I trespass and violate this Oath, may the reverse be my lot! (Adams 1886, quoted in Alger et.al.1965:5-6).

Before Hippocratic Oath an organization known as Collegia which existed in Rome as early as 200 B.C, draft rules for the conduct of all of their members. Thus began a limited type of group self-regulation. *The Book of the Prefect* a tenth century compilation of regulations in Constantinople gives a picture of the situation in the Eastern Roman Empire at that time code of conduct. During the Middle Ages and Renaissance, merchant and craft guilds flourished throughout Western Europe and England. Most of them had regulations governing their members in one way or another for the orderly conduct of the business and for the benefit of the public. The individual member was to be protected from unfair or fraudulent competition with his brethren and the consumer was to be protected from defective workmanship and poor or dishonest products. After seventeen century first modern code of ethics develop. The origin of the medical profession's code of ethics can be traced to the rules of conduct drawn up in 1793 by Thomas Percival for the staff of the Manchester infirmary in England. This was followed by his book, *Medical Ethics*, which appeared in 1803.That was the first modern code of ethics (Fishbein 1947). In 1846, American Medical Association established and it drawn up a code of ethics for the purpose of elevating the standards of the medical profession. This code of ethics continued with relatively minor changes until1912, when it was rewritten as Principles of Medical Ethics. Most recognized professions, therefore, have taken code of ethics upon themselves to draw up codes of self-guidance to seek means to preserve the integrity and reputation of the group by group action. In this regard, first modern code of conduct for the American Engineer was adopted in the spring of 1912(Alger et. al. 1965: 8-10). In conducting social research the need for a written code of conduct has developed within the last twenty years though it was started in 1960s, probably for two reasons. First, Social researchers are now conducting research in a very larger scale and many more studies are now being conducted and sample size per studies is probably much larger than in the past. As a result, it is creating a variety of ethical dilemmas in social research. Second, it is very difficult for researchers to keep them free from personal values and biasness. In consciously or unconsciously researcher's values are affecting the perceptions of the researcher and the proper analysis. For this reason, a code of conduct has been established in conducting social research (Bailey 1982; 442). In the United States of America and the others countries, universities and other professional bodies began to formulate guidelines delineating the ethical dilemmas in social research. In this endeavor, the American Association for Public Opinion Research (AAPOR), American Sociological Association (ASA) for instance, adopted a professional code of ethics in 1960 and

1968, offering a good guide as to what is and what is not allowable in social research. In Australia, the Australian Psychological Society (APS) established code of professional conduct in 1986. In 1990, the Australian Vice-Chancellors Committee (AVCC) produced a document entitled *Guidelines for Responsible Practices in Research and Dealing with Problems of Research Misconduct,* which was established as a code of conduct for most of the universities in Australia (Sarantakos 1998: 21-22). Unfortunately, an unified and common professional code of conduct has not yet been established in Bangladesh for conducting social research.

Ethics and the Archaeological Research

Archaeology is a systematic effort to search and marmalade of past human and cultural materials. As archaeological activities affect people in both negative and positive ways, they raise ethical questions. In this sense, what should be the proper duty and responsibility of archaeologists or archaeological researchers in controlling negative impact and enhancing positive impacts in archaeological research? This ethical question has developed the notion of ethical practice in archaeological research. In this regard, the main responsibility of archaeologists is to defend negative impacts and simultaneously, to extent positive impact in archaeological research (Wilk & Pyburn 1998: 197). In addition, there have been three main reasons for raising ethical questions in archaeology. First, new linkage between archaeology and natural resource conservation; second, the need for professional ethical standards as archaeologists have entered the world of business and government; third, growing concern over looting and the recognition of ineffectiveness of legal solutions to this problem. To deal with these inevitable ethical questions, archaeologists need to follow some sets of principles, which are guided by sound ethical norms (Ahsan,et.al.2002:11).Consequently, different organizations, associations and scholarly professions have adopted professional principles and code of ethics including archaeology. In 1956, UNESCO for the first time adopts some principles for archaeological research and excavation. "Excavation should be carried out in accordance with scientific standards and the recommendation defining international principles to be applied in the case of archaeological excavation adopted by UNESCO in 1956"(Price 1995: foreword). In 1960, the Society for American Archaeology (SAA), recommended four statements principles to establish code of ethics for archaeological researchers. In America, The Society of Professional Archaeologists (SOPA) established a code of ethics for archaeological research in 1981.In the same year Institute of Field Archaeologists in UK proposed code of ethics for researchers. The ICOM code of professional ethics was adopted unanimously by the 15th General Assembly of ICOM meeting in Buenos Aires, Argentina on November 1986 (Edson 1997: 237). In 1990, World Archaeological Congress (WAC) and Archaeological Institute of America (AIA) established code of ethics in 1995, and this is the last development of code of ethics in archaeological research.

Summary and Conclusion

Social research is conducted with exploration, description and explanation of social phenomena involving human behavior. But the argument is frequently advanced that research in the social science is much more difficult than in other sciences because human behavior is so complex. Moreover, some of the nonscientific aspects of social research especially, some ethical concerns make it more complex and create ethical dilemmas to the social researchers. Then the researcher being puzzled and being harmed to the society and the subjects of the research. Even, they deceived the people in a very subtly ways. Thus, there is a natural tension between the professional responsibility to researchers to develop knowledge and their civic responsib ility to individuals, group and the larger society. There is no evident solution to this dilemma. Though there is no consensus in regarding what is right and what is wrong in social research, but in some basic aspect of ethical question consensus has been established. Including Archaeology, in conducting social research, researchers can more or less overcome these dilemmas by obeying code of conduct and following some guidelines. Such as: first, participation of studied subject would not be mandatory, it must be voluntary. Second, in field research, no one should be forced to participate. Third, no harm to the people being studied. Four, confidentiality of data should be kept and researchers abstained from fabrication of data and any kind of misconduct. Finally, research policies, guidelines and codes of ethics may serve to orient and sensitize researchers to value and ethical issues.

বিষয় সংক্ষেপ

প্রত্নতত্ত্বসহ সামাজিক বিজ্ঞানের গবেষণায় নৈতিকতার প্রসঙ্গটি অত্যন্ত জটিল এবং কঠিন। বিশেষ করে প্রাতিষ্ঠানিক এবং পেশাগত গবেষণার ক্ষেত্রে বিষয়টি বিশেষভাবে তাৎপর্যপূর্ণ। সামাজিক বিজ্ঞানের গবেষণায় দুটি বিষয় বিশেষভাবে বিবেচ্য তাহলো ঃ গবেষণার বস্তুনিষ্ঠতা এবং ব্যক্তিগত ধ্যান-ধারনা বা মূল্যবোধ নিরপেক্ষতা। সামাজিক বিজ্ঞানীগণ খুব কম ক্ষেত্রেই মূল্যবোধ নিরপেক্ষ এবং বস্তুনিষ্ঠ গবেষণা কার্যক্রম পরিচালনা করতে সক্ষম। বিভিন্ন কারণে সামাজিক বিজ্ঞানের

গবেষণায় নৈতিকতার সংকট (Ethical Dilemmas) সৃষ্টি হয়। নৈতিকতার এই সংকটগুলো যতটা না আদর্শিক তার চেয়ে বেশি নৈতিক। প্রাকৃতিক বিজ্ঞানের গবেষণায় যেখানে গবেষণা কার্যটি সম্পাদিত হয় গবেষণাগারে এবং নৈতিকতার প্রসঙ্গটি এখানে অনেকটাই অনুপস্থিত, সেখানে সামাজিক বিজ্ঞানের গবেষণায় নৈতিকতার প্রসঙ্গটি অনেকটাই মূখ্য। কেননা, সামাজিক বিজ্ঞানের গবেষণার বিভিন্ন স্তরে গবেষকের ব্যক্তিগত আবেগ অনুভূতি কিংবা মূল্যবোধগত বিষয়গুলো গবেষণার ফলাফলকে প্রভাবিত করতে পারে। ফলশ্রুতিতে দেখা যায় নৈতিকতার সংকট। সামাজিক বিজ্ঞানের গবেষণায় নৈতিকতার এ সংকটিগুলো থেকে উত্তোলনের সুনির্দিষ্ট কোন বিকল্প নেই। তবে নৈতিকতার সংকটের নিয়ন্ত্রিত শক্তি হিসেবে সামাজিক বিজ্ঞানের গবেষণা পরিচালনার জন্য গৃহীত হয়েছে নৈতিক আচরনের নীতিমালা। বিভিন্ন সময়ে ভিন্ন ভিন্ন মাত্রায় এর উন্নয়ন ঘটেছে। বর্তমান প্রবন্ধে সামাজিক বিজ্ঞানের গবেষণায় নৈতিকতার সংকটগুলো বিশ্লেষন পূর্বক এর সমাধান সূত্র হিসেবে নৈতিক আচরনের নীতিমালাগুলোর সন্ধান করার প্রচেষ্টা গৃহীত হয়েছে।

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Cultural Resource Management in an Urban Periphery: A Case Study on the Scheme of Implementing Planning Integration and Community Participation in Savar

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This paper examines some basic ideas of urban planning to involve community participation in a particular context of Cultural Resource Management .The research follows some hypothesis devised by prior research conducted by the authors in the same study area. They applied a survey method of social marketing generally known as KAP study. The survey result showed a very low knowledge level, with a negative attitude and practice towards the archaeological records of Savar area. But at the same time the researchers obtained the idea that educated people within a particular age frame are not very hostile towards the ancient structures of the area and more over they are slightly interested with history and heritage to create an image for their neighbourhood. But the percentage of their presence in the larger unit is small so that the whole community shows a pessimistic attitude towards the archeological records of the area. The present research deals with mentioned part of the community in the practice of Cultural Resource Management (CRM) with the notion of urban planning and management. The goal of this research is to introduce Planning Integration as a part of Urban Planning in the program of CRM and develop a new guide line to protect cultural property. Usually Planning Integration involves the external and internal issues of a given structure or a selected area for urbanization to create a harmony in every respect of socio-economic lifestyle and process. The study uses multi- stage sampling combining both probability and non probability sample for the questionnaire survey to ensure the primary data collection and obtained the idea that in the question of urbanization the vocal group of the community are convinced about the archaeological sites to develop as a promotional centers or a recreational place through valid a conservation planning.

Introduction: Community towards the Concepts of Planning Integration

By popular domain, Cultural Resource Management (CRM) is generally obtained as a study of conservation, preservation and restoration of physical features or architectural characteristics of cultural antiquity and historical monuments respectively on the basis of "Time" and "Space". However, the challenges of protecting the cultural property especially in the conflict of "Preservation" and "Development" demand more proactive and innovative policies for both the "Past" and the "Future". This endeavour makes this developing discipline to discuss with various components and ingredients of cultural property in terms of adjacent society, religion, economic condition of people, more specifically of the "Community". The contemporary heritage management, "Community" thus comprises a vital subject of incitement as being attached with "creation" and "destruction" of cultural property. In the process "Community Archaeology" and "Public Archaeology" are developed and involved in heritage management not only dealing with core scientific conservation and preservation sciences but also committed to the indigenous knowledge of experiences and practices. Community preservation and conservation evolves in an area of composition within the scientific concepts, norms and values of the community to develop a multidisciplinary team effort in the changing circumstances and perspectives. This new domain is designed as a unique guideline of Cultural Resource Management where the specialists meet the active participants of the community to protect the cultural property in a distinct matrix of cultural and natural environment. In a third world developing country like Bangladesh, the cultural property is in the least priority because of the traditional ideas and concepts of ignorance and negligence of the community regarding archaeology and heritage management. This is mostly due to the current socio-economic condition of the country.

In a small geographical territory of the eastern matrix of Bengal Delta, Bangladesh encompassing the past habitations and archaeological relics in the same strategic location where the present community intends to occupy because of the natural and cultural utility and prospect. More specifically, the people of this region are habituated to use high lands for living since prehistoric period till today (Hoque, *et.al.*1996). Besides, the past settlement patterns show a particular character of the utilizing the climatic and reverie dynamics of natural environment which are still utility factors for present habitations or settlement patterns. As a result, the archaeological records are mostly discovered within the vicinity of present settlement areas. This is one of the main reasons that the present habitations threaten the past architectural remains of the area. The unchanged choice of land and space for various occupations compels the present dwellers to destroy the past habitations. Present day Savar (eighteen kilometers away from Dhaka) is a good example of

this type of habitation practice. In this area people choose to live near or sometimes over archaeological sites and mounds due to some environmental advantages. It is worth mentioning here that people in the past also chose these lands for the same reasons. As a result, today; the archaeological remains of Savar area due to this continuing process of habitation are in great danger.

The researchers of this paper previously conducted a survey to determine the Knowledge, Attitude, and Practice level of the local people on three selected archaeological sites located within the present habitation area of Savar (Ahmed, *et.al.* 2006). The survey showed that people have a very low level of knowledge and awareness about the importance of the archaeological sites in their respective areas. They also possess a reluctant attitude and perception towards the archaeological records and establishments of these areas. The KAP study (previously said a survey module - Knowledge, Attitude & Practice) generally known as a social marketing concept, shows that the community living over and around the archaeological sites do not perceive any sort of belongingness towards these archaeological sites. They do not take any pride in having these valuable properties in their neighbourhood.

Since the general education level of the respondents is very low in terms of different samples of sex and age, they do not have the concept of history and archaeology. A few educated people within the survey area had some sort of general idea about preserving and conserving these sites but unfortunately they were not aware about the exact reasons for preserving these sites and surroundings. Rest of the people was far more interested in destroying the archaeological relics to fulfill the necessity of building modern structures and a planned residential area (according to some observant, these archaeological sites were abandoned places which were disturbing the harmony of the present residential environment).

What was interestingly revealed by the researchers from the survey is the proactive attitude of the community– the conscious and active trend of people to solve the problems of the neighbourhood. Some remarkable observations came out of that survey regarding the conventional residential planning and cost effectiveness of building materials by establishing brick centers on archaeological mounds which certainly indicate the conscious participation of the community regarding the archaeological sites but unfortunately in a negative manner. Finally, the study explained that the community is not at all concerned about the archaeological heritages of Savar. They considered the archaeological records as unnecessary and superfluous.

The researchers conventionally observed that despite this perception, the community; possess a distinct social, economical and emotional orientation in their conscious state of act to the distinguished historical sites and monuments. This approach of the community has been a proactive and responsible effort towards the protection and maintenance of a historical Muslim prayer house (generally known as Mosque) and other ancient Islamic establishments as a sacred and integral part of community living. However, the temples (both Buddhist and Hindu – has not yet been defined properly by the people) do not get adequate response even from the related religious communities possibly because of the minority status in a wider context of the community. This way the ultimate profile of the community - prejudiced by the dominant religious, social norms and values, determines and demonstrates the attitude and activities in every aspect of society and religion. For these reasons, the other ancient religious structures, which are not being used in present days bear an insignificant and illogical perspective even in the conscience of associated religious community.

This is how the preservation and conservation of the archaeological sites and monuments of Savar are in extreme pitiable circumstances though the government has- strong rules and regulations on the subject of protecting them in an organized way. The researchers of this paper theoretically try to explain that the notion "Archaeology and Heritage Management" has to obtain a valid and logical grade from the traditional and conventional standpoints of community to gain the support of community in Cultural Resource Management. The authors found that, the extremely low "knowledge level" of the community is not feasible with the awareness program for a successful protection and management of archaeological sites and monuments of Savar area.

Geographically Savar is located within the northeast gateway of the present capital of the country and people living here evolved simultaneously with the suburban characteristics of the area. The urbanization is still passing through the elementary stages therefore; different signs of urbanization are emerging in every aspect of social, economical and emotional life of the community. Establishment of different learning and technological organizations like universities, central training centers of different organizations, cantonment, hospitals and markets inspired people to settle in Savar coming from other urban and rural centers of the country. Moreover, people involved in different occupations in the capital are interested to live in Savar because of comparatively cheaper living (a short drive of 45 to 60 min). This way the "Urbanization" process in Savar is not only building planned towns or big markets and hospitals but also formulating distinctive notions and values created through the interaction of different people. The researchers concentrates with the core concepts of this suburban communities and develop a new manner in Cultural Resource Management not to teach or aware the community but to develop the present preconceived ideas and notions towards history and heritage. The authors of this paper would like to introduce a proposition of a conservation planning followed by concepts of Planning Integration with a balance agreement to the community. This study comprises a demographic survey to investigate the applicability of this kind of planning within the concepts of the community of Savar.

Research Rationale

In the plan, program and project of Cultural Resource Management, "Community" possesses a vital state in every aspect of recent theory and practices. Community Archaeology and Public Archaeology are new developments in cross-disciplinary application of heritage management with every possible elements and resources. In recent years 'Awareness Program' is one of the most popular attempts to develop the interaction within the community and the preservation of cultural property. But the experience of KAP study determines a negative attitude of local people towards the preservation of cultural property in Savar and subsequently suggests more innovative and proactive propositions for heritage management in this locality.

Historic preservation as a distinct kind of urban planning is relatively recent in origin even though there has been a long concern for it. This process through a complex set of organizational, methodological, professional and economical factors have asserted the urgency for such planning and initiated a vocabulary of historic preservation in the late 19th century. Restoring buildings or monuments according to their old use or adapting them to a new use, thereby keeping an entire area of a city or a town alive, are practices which existed as long as buildings and cities have existed. In the past when the rate of change was slow, the sense of permanence was relatively high. Alarm was raised on the urgency of attention when the scope of demolition and other forms of destruction of historical buildings and areas became apparent. Despite its long history, historic preservation, the practice of keeping older buildings intact, remains a troublesome aspect of urban planning.

Therefore, particularly in Savar the researchers intend to apply the method of Planning Integration with basic concepts of urban conservation planning.Conservation planning in an urban arena -preparation of regulations, planning norms and standards requires the full involvement of the local authority, which in most countries is the decisive factor in the implementation and planning control. That is why the basic rationale to study is to discuss the viability of community participation in the process of conservation planning as a new proposition of Cultural Resource Management.

Objective of Research

The thematic notion of the study - ***Community*** and ***Planning Integration*** are improvised to develop a cross disciplinary approach followed by the following goals and approaches.

1. Identify community characteristics and needs through conventional observation and define potential community roles and relationships to the archaeological records of Savar area based on demographic study.
2. Provide an understanding of tradition and the guiding principles of built environment especially from the standpoint of Planning Integration and community management.
3. Congregate the predominant concepts of the community towards the archaeological and architectural backdrop of Savar area to develop the perception of architectural conservation and thus revitalize public consciousness on the value of conservation and preservation program.
4. Define the status of community attitude and activities in the preservation and conservation program of cultural resource in the context of an urban or suburban settings of Bangladesh to illustrate future conservation plans and management.
5. Develop a preliminary attempt to fill in the gap of indigenous knowledge, information and experience which can classify the standpoints from which architectural and urban heritage conservation initiates to lead a unified approach through the study of pragmatic urban design, policy planning and strategies especially in the context of community motivation.
6. Provide a hypotheses to build and sustain reciprocal, mutually beneficial relationship with the community through a range of appropriate planning conservation with collaborative initiatives.

Limitations and Constraints

The emphasis of the study was on Planning Integration in respect of community participation, not merely on conservations of the monument or architectural stylistic evolution. Therefore, detailed architectural study of the monuments was not conducted or proper planning drawings were not provided in this paper. Instead, this paper examines the relationship of the monuments in the wider context of cultural and natural matrix.

There are many potential sites of historic and cultural significance in the study area which can be profitably integrated with its surroundings and each possesses distinctive, unique characteristics, problems and prospects. Due to constraints of time and resources, detailed study and suggestion of probable design solution was limited to only one archaeological site bearing historical monuments.

Methodology

This article examines the hypothesis and end results of the paper published by the same researchers previous year (*Ahmed, et.al.* 2006) and based on that tries to conduct a case study to check the potentials of implementing a Cultural Resource Management program in Savar.

Sampling Strategy of the Site: The previous research examined three archaeological records and their neighbouring community on the basis of judgment sampling and the demographic study was carried out through Focus Group Discussion (FGD) method. Among the three sites, the present study identify one single site known as Harish Chandra Rajar Prasad Mound according to its cultural potentials to be integrated under a planning module with its landscape for in-depth research and proposal development.

Sources of Data: The researchers concentrate the primary data on the demographic study conducted through questionnaire survey and the secondary data provided by different domain of Cultural Resource Management with special reference to the published paper by the same authors mentioned above.

Method of Data collection: Observation, In-depth interview, Focus Group Discussion (FGD) and Questionnaire Survey method were used to collect primary data. Photographic analysis with floor plan examination was conducted along with other secondary sources to understand the research process prior to research design.

Questionnaire Survey: A questionnaire survey of residents was undertaken in the surrounding area of the selected site. A total of 160 persons were interviewed by questionnaire survey in the adjacent areas of the site. The purpose of the questionnaire survey was to judge the level of awareness of the residents about the monuments in their neighbourhood, to see what role the monuments have to create an image of the locality. The survey also assesses the willingness of people to support or participate in any kind of initiatives to rehabilitate the monuments in an integrated manner.

Data Analysis: Statistical analysis was performed based on the questionnaire survey. The analysis revealed the profile of the respondents' level of awareness and attitude.

Design Solution: Finally, based on the insight obtained from the site and questionnaire survey, probable and preliminary design solutions were explored to integrate the selected structure within the wider milieu of cultural and natural context to establish a cross disciplinary approach in the domain of Cultural Resource Management.

Problem – Space

Western Architecture has looked back on its past as a strong point of reference. The past has become a source of inspiration, object of study and foundation of architectural theories. Theoreticians have started the formulation of their thesis from the critical analysis of the past. The theorization of the past also forms a basis for analysis of our contemporary art, architecture and archaeology. It can confront with issues such as heritage, continuity, identity, universalism, and pluralism. Thereby it closes the void between our past towards future and its intellectual basis (Lynch 1959). Conservation of architectural heritage merely concerns the structures or the monuments as *Objects* but also include the surroundings and the people that constitute the life and sustainability of physical environment. Unfortunately, conservation of architectural heritage in Bangladesh, considers the monuments as a 'singular object' or more specifically the monument is not analyzed in the context of culture, custom, community and landscape. Such approaches to conservation contradict the usual purpose of development in the disrupted social and economical condition of the country. Because of this reason the habitation area as a whole and the social, economic and emotional well being of people must also be taken under consideration in the conservation planning and process.

In Bangladesh, conservation of archaeological relics and monuments is still a relatively new concept; more often it means only the preservation of historical buildings and structures usually under the aegis of the Government Department of Archaeology. But the theme ***'Conservation'*** cannot be confined within such a narrow limit and ***'Development'*** captivated within this framework is changing or destroying the basic characters of historical areas and monuments. Buildings and built spaces of significant cultural heritage are being destroyed while community a ctivities are totally disconnected from any motivational program regarding history and heritage (Enam & Rashid 1990).

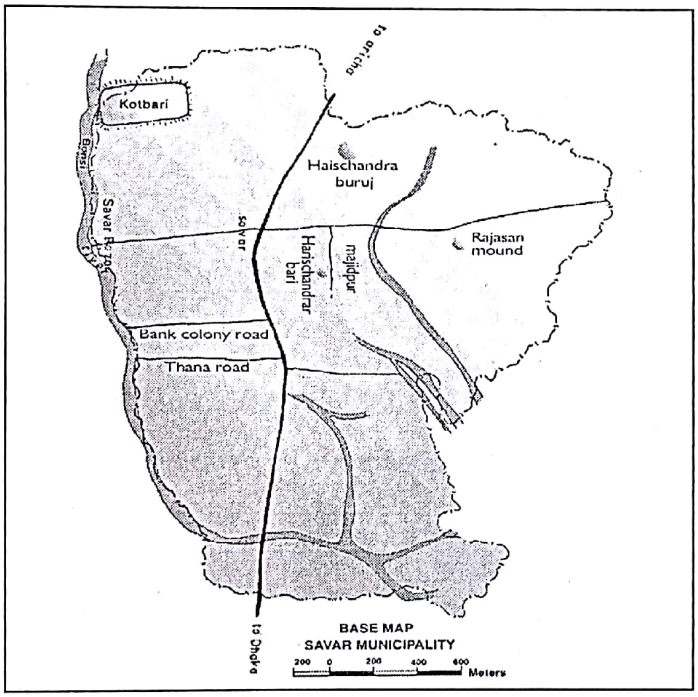
Monuments which loose their original function are often considered as useless and unnecessary. They become derelict, misused or even left at the mercy of general public. Monuments in remote areas are also usually not taken care of. Encroachment of land of the monument sites and pilferage of building materials from these sites by the local people is a common practice (Enam & Rashid 1990).

Most of our old historical architecture simply gets destroyed as we can not find any productive use of them. The new use may allow an old building to be restored accurately to some former period of its history, or in some cases it may not be possible to do so. It has been found acceptable that the old facade which is a particular imparted character of the neighbourhood can be retained while the interior is re-modelled or even a new addition can be made according to the compatibility of the old work, serves the purpose of revitalization. It is therefore, necessary to find adaptive reuse for these buildings to perpetuate their continuity.

The purpose of urban conservation is not to create museum pieces or refrain the time-clock but to retain a sense of continuity in our lives, making the best use of still useful architecture. To restore the building for recycling, first it must be saved from whatever ravages threaten it- termites, weather, vandalism etc. The second task is to understand the architectural topology of buildings which determines the usefulness of a built space or enclosure for a particular use, depending upon the size of rooms, the type of linkages between rooms, the pattern of enclosed and surrounding open spaces, the nature of vertical linkages such as stair cases in the case of a building having more than one floor and the number and location of service areas. The concept is to preserve the original parts of the building as far as possible. Adaptive re-use must, therefore, fit into the intrinsic qualities of the building with least intervention.

Determining the Sites' Potentials in the Context of Planning Integration and Community Management

The researchers worked with three representative sites previously in order to collect information for the inference of understanding the Knowledge, Attitude and Practice level of the people of Savar area (Ahmed, et.al.2006). Those sites were selected on the basis of convenience sampling and researchers prioritized the sites in reference to the sites reputation of adjacent population and availability of information according to the questionnaire from different groups and sample. For the present research, as the researchers worked on a case study to implement Planning Integration, they selected a single site, related community and architectural pattern and planning of the area.



Map. 1: Showing the study area indicated as Harishchander Bari (Harishchandra Rajar Prasad Mound)

Harish Chandra Rajar Prasad Mound is the site selected on the basis of judgment sampling for the present study. This structure is an eloquent example of a cluster of unique Buddhist settlement flourished in 6th - 11th century in this area revealed through small - scale excavations in four intermitted sessions between 1987-1996 (Hossain 2007). The excavation results show vestiges of two adjoining structures representing a Stupa along with a monastery (Vihara) on a north-south orientation. The monastery situated in the southern part of the complex is square in plan and the open courtyard inside the square is surrounded by a series of cells in four wings. The wings are proportionate with each other in a traditional manner. On the northern block of the complex the Stupa with square plan of 23.70 meter is situated and the existing Medhi possesses stairs in the middle of each wing. The Stupa with its traditional northern gateway is much more preserved with projections and the peripheral boundary. The structure is an elementary example of the gradual development of Buddhist architecture. It indicates the gradual development towards the cruciform style of Buddhist temples in Bengal and also the theological concept of Pancha Dhayni Buddha in Buddhism (Hoque & Hoque 2004).The map shows a multidimensional distribution of a Buddhist settlement pattern with a fort (Kotbari) facing the river and protecting the rear arrangements. But lack of proper preservation and conservation this arrangement of structures are being destroyed day by day and as a central place of the area the Harish Chandra Rajar Prasad Mound is loosing its sacred and historical image.

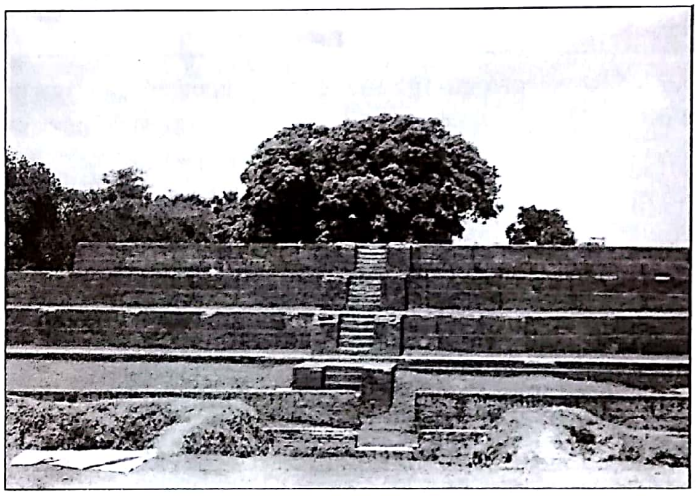


Figure: 1 Harish Chandra Rajar Prasad Mound

The management process of the Govt. Archaeology Department finished their responsibility by putting up a signboard with no further attempts related to preservation and conservation of the site. The 1500 years old architecture is disturbed badly when trucks and buses pass through the site demolishing the edges of the Stupa in absence of a proper road. The researchers attempted particularly in this site to investigate the local thoughts regarding the site to implement a plan integrated with urban notion and concept. The main theme of the planning is to develop a physical environment and setting in accordance with the sacred image of the Vihara (monastery) with a balanced coordination of cultural and architectural arrangement. The present research at the same time examines the participation of the community in every aspect of planning. The result of questionnaire survey guides the rest part of the study.

Background Characteristics of Respondents

Majority portion of the respondents was chosen from dwellers living around the site and people related to this particular site for different purposes and occupations. Respondents' age group and sex are stated in a table below.

Age Group of Respondents: Age structure of the respondents is presented in Table 1. The survey covered different age groups above 15 years. Respondents between 26- 45 years are relatively high (45.6%). Age group between 46 - 65 years and above 65 years is lesser in number. Respondents of age group 15 - 25 years are 23.1%.

Table 1: Distribution of Age of Respondents

Age Group of Respondents Years	Frequency	Percent
15-25	37	23.1
26-45	73	45.6
46-65	33	20.6
65+	17	10.6
Total	160	100

Sex of Respondents: The sex of the respondents is given in Table 2. The figure shows that the number of male respondents is higher compared to female respondents.

Table 2: Sex of Respondents

Sex	Frequency	Percent
Male	131	81.9
Female	29	18.1
Total	160	100

Socio-Economic Condition: The level of educational and occupational status is stated in the following two sub sections.

Educational Qualification of Respondents: Table 3 shows the educational qualification of the respondents. Majority potions of the respondents are graduate (29.4%). Second largest group are those who studied up to H.S.C. (20.6%) level. The educational qualification of the third largest group is primary education (17.7%). A small part of respondents are either illiterate (8.8%) or informally educated (7.5%). The sample is thus biased towards people with some sort of formal education.

Table 3: Relationship between Different Age Group and their Educational Qualification

Age Group (Years)	Educational Qualification (Percentage)					Graduate	Post Graduate	Total
	Illiterate	Informally Educated	Primary School	Secondary School	High School			
15-25	4(10.8)	2(5.4)	6(16.2)	7(18.9)	7(18.9)	11(29.7)	-	37(100)
26-45	6(8.6)	3(4.1)	12(16.4)	8(11.0)	16(21.9)	27(37.0)	1(1.4)	73(100)
45-65	3(9.1)	3(9.1)	7(21.2)	5(15.2)	6(18.2)	7(21.2)	2(6.1)	33(100)
65+	1(5.1)	4(5.1)	3(17.6)	2(11.8)	4(23.5)	2(11.8)	1(5.9)	17(100)
Total	14(8.8)	12(7.5)	28(17.5)	22(13.8)	33(20.6)	47(29.4)	4(2.5)	160(100)

Figures in parenthesis indicate the percentage

Occupational Status of Respondents: Businessmen constitute the largest portion of the respondents as shown on Table 4. Among the respondents 33.8 percent are businessmen. Service holders contribute the second largest group (28.8%) and 23.1% respondents belong to different professions. Students form the smallest group (14.4%) among the respondents of the study area.

Table 4: Relationship between Different Age Group and Occupational Status

Age Group in Years	Percentage, Occupation				
	Student	Business	Service Holder	Others	Total
15-25	51.4(19)	18.9(7)	10.8(4)	18.9(7)	100.0(37)
26-45	5.5(4)	38.4(28)	42.5(31)	13.7(10)	100.0(73)
46-65	-	42.4(14)	21.2(8)	33.3(11)	100.0(33)
65+	-	29.4(5)	17.6(3)	52.9(9)	100.0(17)
Total	14.4(23)	33.8(54)	28.8(46)	23.1(37)	100.0(16000)

Figures in parenthesis indicate the number of observant

Length of Stay in the Locality: The Majority of respondents are staying in the study area for more than 10 years. It was found from the field survey that 26.3 percent of the dwellers' length of stay in the area is more than 10 years but they were not born there. About 25 percent of the total respondents' length of stay is between two and five years and 16.9 percent are staying in the area in between five to ten years. 19.4 percent of the total number of respondents' length of stay in the neighbourhood was since birth. Since all the respondents are above 15 years of age, those residing in the area since birth have lived there for at least 15 years. Therefore, 45.7 percent respondents are living in their respective localities for more than 10 years and can be expected to have a fair amount of knowledge and experience about the locality.

Table 5: Duration of Respondents' Staying in the Locality

Duration of Stay in the Locality	Frequency	Percent
Less than 2 years	20	12.5
Over 2 years but less than 5 years	40	25.0
Over 5 years but less than 10 years	27	16.9
Above 10 years	42	26.3
Since birth	31	19.4
Total	160	100.0

Inhabitance Status: Questions were asked to the resp ondents to find out about the home ownership pattern of the locality. About 36.9 percent respondents are owner-occupiers. Only 6.9 percent dwellers are staying as sublets in another person's house and 41.1 percent respondents are staying in rented houses. The field survey result of inhabitance pattern is presented in Figure 2. This would suggest that at least around 37 percent respondents are attached to the site for quite long. Together with the figures on duration of staying in the locality, these figures indicate that the sample is biased towards local residents.

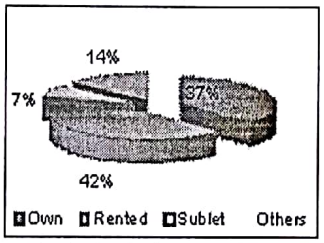
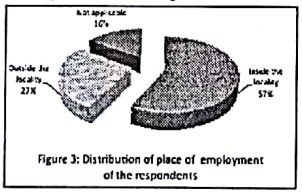


Fig. 2: Inhabitance Status

Place of Employment of Respondents: Respondents were asked about their place of employment facilities. It was revealed from the study that 57.5 percent people had their place of employment inside the locality but 26.9 percent told that their place of employment is outside the locality. For 15.6 percent respon-dents, this question is not relevant as they were either student or unemployed.


Figure 3: Distribution of place of employment of the respondents

Level of Satisfaction with Existing Community Facilities: In the study area five elements of community facilities are present, but their conditions are poor in terms of quality. A little more than half of the inhabitants are not satisfied with almost any of the existing community facilities. The number of respondents who think the numbers of different facilities are adequate is shown in Figure 4 and 5. It appears that

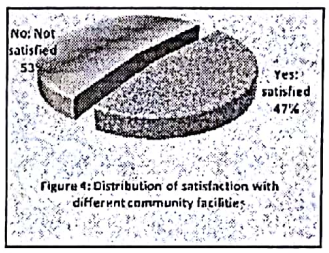


Figure 4: Distribution of satisfaction with different community facilities

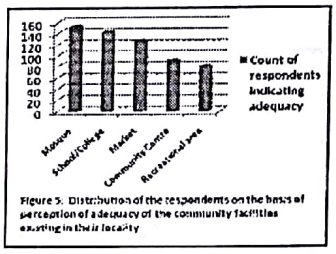


Figure 5: Distribution of the respondents on the basis of perception of adequacy of the community facilities existing in their locality

around 80 percent or more respondents are satisfied with the quantity of mosques, schools, colleges and markets in their locality.

Prominent Place / Building in the Locality: Respondents were asked questions to find out whether they have any feelings associated with any prominent place or building of the area. Also whether they felt that the building or place belongs to them and their community. About 76.9 percent respondents of the study area told that they have some kind of special attachment towards the prominent place of their locality. On the contrary, 23.1 percent said that they do not have any attachment or feeling of pride about the prominent place. The ratio of this result is shown in Figure 6.

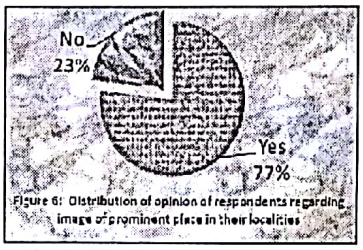


Figure 6: Distribution of opinion of respondents regarding image of prominent place in their localities

Place Moral Support for the Development of the Site for Neighbourhood Glory: In the study area inhabitants were asked to indicate their moral support for the development of the site for neighbourhood glory. About 96 percent population has moral support for the development of historical monuments.

Opinion of Personal Feeling: The survey has revealed that around 77 percent of the respondents expressed their personal feeling of attachment to the respective site.

Socio - Cultural Influence: About 89 percent respondents gave their opinion in favour of appropriately highlighting the special socio-cultural influence on the life of the people of the locality.

Creating an Image: 94 percent respondents came up to for a more approachable and creative image of their locality while only 6 percent gave opposite opinion.

Suggestions for Reuse of the Site while Developing Monuments in the Study Area

A process of community involvement will be helpful by involving people effectively for the Planning Integration program in the study area in the absence of required government resources. The respondents were given options for choice of site. The respondents gave their opinion mainly to make the site easily approachable and accessible, create proper landscape settings to convert it into a recreational center or a neighbourhood breathing space (21%, 19.4% and 17.7% respectively). About 9.7 percent respondents

suggested that it could be developed as a place of tourist attraction. According to 8.1 percent respondents, the land of temporary occupants could be acquired to serve the above purpose. The respondents very much agreed about the fact that proper care of the monuments was imperative to uphold the image and heritage of the site.

Table 6: Distribution of Responses in Harish Chandra Rajar Prasad Mound

Category Level	Number of Respondents	Percent of Total Response
Easily Approachable	38	23.75
Develop Neighbourhoodas a Recreational Center	25	15.62
Develop Neighbourhood as a Tourist Attraction Spot	18	11.25
Placing it in a Proper Landscape Setting	23	14.37
Remove or Hide Irrelevant Structure	16	10
Acquire the Land under Temporary Occupancy	17	10.62
Proper Planning for Heritage Management	15	9.37
Develop the Site as a Promotional Center or a Neighbourhood Breathing Space	8	5
Total	160	100

Findings from Questionnaire Survey and Data Analysis

The aim and purpose of this survey is to find out about the level of awareness of the inhabitants of the area under survey, regarding different existing civic and community facilities, determining Harish Chandra Rajar Prasad mound as a historic or prominent building of the locality, sense of pride and attachment to such monuments and the desire to make such monuments as an image or landmark for the locality and willingness to participate in any program of activity.

In the survey over 68 percent of the respondents belonged to the age group of 15-45 years - therefore, it reflects the opinion of the most conscious, vocal and active age group of any locality. Due to our social and religious custom, it was difficult to approach and interview women of the locality. As a result, the survey shows that only 18 percent of the total female population of the area participated in the study, whereas over 80 percent male took part in the study. Since men spends most of the time in outdoors for work and other social activities the ratio of male/female can be considered as representative character of the total outdoor population.

To get a response on a subject like cultural property, educational background of the respondents is quite important. The educational qualification of the respondents, revealed through the survey, indicates that over 63 percent had formal education ranging from secondary to graduate level. As for employment status 62 percent of the respondents were either in service or in business and around 14 percent were students. Regarding their length of association with the locality, about 60 percent of those interviewed were living in the area for five years or more and 80 percent of the respondents were staying either in their own houses or in rented accommodations. About land ownership, over 59 percent did not own any land in the locality and around 41 percent had land ownership. Regarding perception of recreational and community facilities, the population was divided equally up to the level of their satisfaction.

Over 76 percent of the respondents were aware of prominent buildings or places of importance in their locality and the respondents indicated to have sense of personal feeling and attachment towards them. While 44 percent of the respondents agreed to sacrifice land or contribute financially to the development work, 90 percent of the respondents, when asked, were willing to lend moral support for any development work which would increase their neighbourhood's glory. 89 percent people were convinced that if the historical monuments are appropriately highlighted they could contribute to the social and cultural life of the people of the adjacent area. The survey, therefore, amply justifies community aspiration and their desire to accurately conserve, improve and integrate cultural properties within their surroundings.

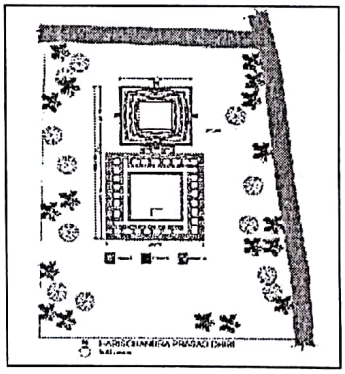


Fig.7 Elementary Design Solution for the Studied Structure

The researchers like to provide an elementary design of the Vihara (monastery) based on the result reflected by the respondent's concept to build up an image for the neighbourhood as well as a proper planning for a conservation and preservation module. This is an elementary

step for the planning program which will lead to a gradual development for the collaboration of cultural and natural settings.

Summary of Findings

Ø In a third world country like Bangladesh, with resource constraints, it is merely possible to afford to conduct preservation work on every archaeological and architectural record as museum pieces. However, significant monuments and historical sites present us with the unique opportunity to create image and identification of people if properly integrated with sites and the surroundings.

Ø Conservation and preservation work are to be followed by the planning of adaptive re-use so that the essence and character of the object or remains is sustained and thus old is streamlined with new. In the process the ethics, norms and values of the conservation module must be followed strictly.

Ø Resources invested in research and investigation to identify the special features and characters of the structures has to be meaningful. This procedure will provide planning and development guidelines for creating a valid image relevant to historical past, continuing present and upcoming future.

Ø Development trend should not be oriented to destroy the old to make room for the new, rather the planning attitude should find ways and means to integrate the past with the new and perpetuate continuity in our social, cultural and physical surroundings.

Recommendations for Policy Guidelines

1. The urban fabric as a whole has to be conserved and enhanced through integrated urban upgrading and conservation projects. Urban conservation has to be treated as a part and parcel of the overall urban planning policy.
2. Physical planning as a policy should have respects for spiritual values, provide room for emotional needs like sense of joy and wonder, establish a sense of continuity and create valid identity to a national culture and its roots.
3. Building a strong knowledge base is not expensive and it is recommended that a strong knowledge base practice of historical monuments and sites should be prepared. This will enable us to set priorities on development and construction work.
4. New buildings in historical areas or areas of monuments must be considered in different perimeters of scale, architectural characteristics, details and colour.
5. Legal legislations to invite private and public bodies to share responsibilities in the protection of ancient monuments and antiquities are to be established. Tax benefit is to be given to individuals and institutions for financial contribution if required.
6. Sustainable administrative and political power has to be collaborated to translate legislation into reality. This requires skilled professional staff with organizational setup to monitor policies and practice over a long period of time.
7. Encourage formation of non government Building Preservation Trust in every division of the country. The trust can identify important areas of conservation, select projects for adoptive reuse with a joint venture program with the community.
8. The owners may be encouraged to take care of historic buildings through grants, subsidies and tax relief.

বিষয় সংক্ষেপ

সাংস্কৃতিক সম্পদ সংরক্ষণে সাধারণ জনগণের অংশগ্রহণ বর্তমানে অত্যাবশ্যকীয় বিষয় হিসেবে পরিগণিত হচ্ছে। ক্রমবর্ধমান নগরায়নের এই সময়ে নগর-বসতি এলাকায় অবস্থিত স্থাপত্য ও অস্থানান্তরযোগ্য নির্দশনসমূহ সংরক্ষণে স্থানীয় জনসাধারণের অংশগ্রহণ কিভাবে অধিক ফলপ্রসূ করা যায় এ নিয়ে বিভিন্ন পর্যায়ে তাত্ত্বিক গবেষণা ও মাঠপর্যায়ে অনুসন্ধান চলছে। বর্তমানে নগরাঞ্চলের সাংস্কৃতিক সম্পদ সংরক্ষণে নগর উন্নয়ন ও অঞ্চল পরিকল্পনার তত্ত্ব– সমন্বিত পরিকল্পনা বা প্ল্যানিং ইন্ট্রিগেশনকে ব্যবহার করা হয়ে থাকে। বর্তমান প্রবন্ধে সাভার পৌর এলাকার একটি প্রত্নস্থান (হরিশচন্দ্র রাজার প্রাসাদ ঢিবি) সংরক্ষণে উক্ত তত্ত্ব প্রয়োগের সম্ভাব্যতা পর্যালোচনা করা হয়েছে।

সমন্বিত পরিকল্পনা বা প্ল্যানিং ইন্ট্রিগেশন হলো কোনো অঞ্চলের ক্ষুদ্র অথবা বৃহৎ পরিসরের নগরায়ন পরিকল্পনার ক্ষেত্রে আর্থ-সামাজিক ও সাংস্কৃতিক প্রত্যয়সমূহের সমন্বিতকরণ। রাজধানী ঢাকার পাশেই সাভারে যেহেতু ক্রমবর্ধমান নগরায়ন কার্যকর রয়েছে সেহেতু এই এলাকার প্রত্নস্থানগুলোকে নগরায়নের প্রাথমিক কার্যক্রমের সাথে একীভূত করার লক্ষ্যে প্ল্যানিং ইন্ট্রিগেশনের সহায়তা নেয়া যেতে পারে। বর্তমান গবেষণায় সম্ভাবনা ও অ-সম্ভাবনা নির্ভর বহুপর্যায়ী নমুনায়ন পদ্ধতির আলোকে ১৬০ জনের একটি নমুনা কাঠামো তৈরি করা হয়েছে এবং নির্দিষ্ট প্রশ্নপত্রের মাধ্যমে বিভিন্ন বিষয়ে তথ্য ও উপাত্ত সংগ্রহ করা হয়েছে। প্রাপ্ত উপাত্ত বিশ্লেষণে দেখা গেছে যে, প্রাথমিকভাবে সাভার এলাকার জনগণ তাদের বসতি এলাকার প্রত্নস্থানগুলো সংরক্ষণের বিষয়ে পুরোপুরি সচেতন নয়। নগর জীবনের অন্যতম প্রপঞ্চ-- বিনোদনমূলক ক্ষেত্র এ-এলাকায় গড়ে ওঠেনি। ফলে এলাকার গুরুত্বপূর্ণ ঐতিহ্যস্থানের সমন্বিতকরণসহ বিনোদনমূলক ক্ষেত্র গড়ে তোলা যেতে পারে যা ঐতিহ্যস্থান সংরক্ষণেও সহায়ক হবে। বর্তমান গবেষণায় দেখা গেছে যে স্থানীয় জনগণও এ-বিষয়ের সাথে একমত পোষণ করে। অত্র এলাকায় বিস্তৃত ক্রমবর্ধমান নগরায়নের প্রেক্ষাপটে স্থানীয় জনগণের আর্থ-সামাজিক ও সাংস্কৃতিক চিন্তাধারার সাথে প্রত্নতাত্ত্বিক ঐতিহ্য সংরক্ষণ বিষয়ক কার্যক্রম গ্রহণ করা যেতে পারে।

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Legacy of Colonial Feudal Architecture in the Perspective of the Teota Zaminadar Palace.

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Architecture of Bangladesh has been evolved throughout the ages of ambitious external influences with the indigenous ingredients of the deltaic culture and climate. In this long evolutionary process, a new architectural style and construction technology was introduced in the concepts and continuity of the architecture of Bengal in colonial period. The western allied Bengal Feudal lord/ Zamindar along with the upper class society patronized the colonial practices and flourished a new architectural style in their living units. This new Architecture has distinct aesthetic value and considered as a rich evidence of permanent residential construction all over the country in vast numbers. Though comprising of distinct architectural style and a fusion of external and local cultures, these structures have been poorly addressed in the study of architectural history and heritage. This paper is an attempt to make a comprehensive study of context, socio-cultural aspects and the architectural development of this particular house form with a case study to test the findings.

Introduction

The development of architectural styles in Bangladesh has one of the greatest storyline of the traditional architectural development in respect of the geo-physical and cultural context. The conquerors of lands exerted influences on the architectural development and established their building philosophy and techniques on this soil, but in course of time, this architectural style had transfigured and adapted gradually with the local context and culture. Like others, the colonial impact at first halted the evolution of the indigenous trend but the Bengal slowly and steadily began to adapt the new styles / patterns / technologies and thus evolved as heritage of Bangladesh (Mowla & Reza 2000:31-58).

As a regional entity, Bangladesh is a unique in modifying of its culture, more specifically in architecture. All the external rulers of pre-Mughal and Mughal era introduced their significant influences in art and architecture and the adaptation were carried out following the local context afterwards. The reason behind this was related to belongingness of oriental cultures having similar values and philosophy. During the British rule, the ruling class remained as alien usurpers and failed to related themselves with the local people. At later stage, the Bengal Zamindar and upper '*Babu*' class, mostly influenced by the western thoughts, constructed new identities in art and architecture and patronized to flourish the new architectural style in their living units.

During the 18th and 19th Century, the new elements introduced by the new architectural styles were the semi-circular arch, the triangular pediment carried over Semi-Corinthian, Doric or Ionic columns, bands and other foliated motifs in plaster. Column appeared with capitals bearing modified Ionic and Corinthian order; Classical Entablature with distinctive parts architrave, frieze and cornice were applied in different form of structure (Ahmed 1985:35). Later, in the late 19th- and early 20th- centuries, a new hybrid of Mughal and European style emerged in the wake of first partition of Bengal, largely under the influence of Lord Curzon (Ahmed 1985:35,1999:26). Local elements such as hanging eaves, brackets, loggias, verandahs, lattices, kiosks or cupolas were began to appear on the buildings model after basic European forms. Besides the colonial rulers, the local elite in order to imitate the ruling class, tried to follow European models adapted to suit their taste, thus had been producing a hybrid Anglo-Indian or transformed traditional typology (Ahmed 1999).

As the local gentry started to learn English and emulate the sartorial styles and manners of the new rulers, European forms and techniques of construction influenced the buildings architecture of local Zamindar. Predictably, the new styles were most dramatically reflected in the palaces of those affluent. Later colonial architecture rooted in European styles was adapted to suit the climate of Bengal (Ghose 1989). The use or absence or abundance of local forms in colonial Zamindar house depended on the desired image that the feudal lords wished to project (Mamun 1989). Their pre occupation with western lifestyles was well reflected in their architecture, which featured classical columns, domes with high drums, fenestration, pediments, Roman semi-circular arches, staircases and halls in the centre of the main block with rooms on either side (Banglapedia vol.10:2003). Though these buildings took to a variety of elements and

tastes acquired often from Europe and had much variation in house form, the denotation, classification, arrangement and hierarchy of space; the inherent spirits were basically conventional and traditional (Ahmed & Khan 2004:40). Thus local materials, craftsmen, geo-climate, religious and cultural context were some of the modifier factors that develop the style of Zamindar house form in Bangladesh.

In order to understand the evolution of Architecture and Spaces, it is essential to understand the principles that are inherent in the creation. The main concern of the architects here should be to understand the underlying principles and philosophies behind the creation of pattern and to preserve what we already have and that will make our cultural heritage.

The Zamindar houses of Bangladesh deserve more attention and study, firstly as evidence of the local architectural evolution and secondly as nice pieces and dilapidated heritage of our culture. With this sensation this paper is an attempt to study these house forms with respect to local context as well as the physical documentation.

Rationale

Zamindar houses with rich colonial records have distinct aesthetic values and heritage but are not be positively categorized according to definite tenets of style. This study aims to explore how buildings of Zamindars in British colonial period were evolved as a product of social dynamics, prevailing ideas and aesthetic currents and uphold the image of the architectural development as a whole.

Objectives

The objectives of this study are to understand the architectural style and the forces that had acted here to produce Zamindar house form. The study is an attempt to explain the gradual evolution of the Feudal Architecture of Bangladesh under the stresses and strains of different phases of history.

Overview of the Stylistic Evolution

The evolution of the colonial architecture especially Zamindar houses based on geo-climate of the places primarily and secondly it established a tradition in Bengal adapted through an interaction with the Europe and Indian region and beyond. In the diagram (Naqi & Khan 1995) this evolutionary process of architectural style of sub continental context is shown.

The traditions are carried, developed and maintained from generation to generation for thousands of years in our traditional house forms[1]. So to understand the origin, as vernacular architecture in this region, those house form is

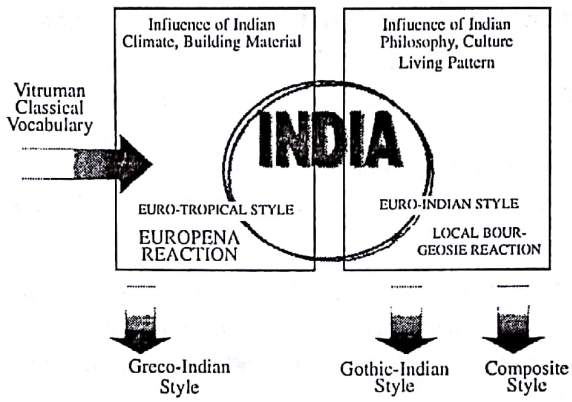


Diagram explaining the various forces acting on the Stylistic Evolution of Architecture in Bangladesh

justifiable (Islam 2003). In traditional Bengali houses, the courtyard facilitates all household and socio-cultural activities as the focus of the spatial arrangement. It manifests various aspects of life style, values, social customs, culture, climate, location, economy (Mahabub 2003). This prominent aspect played the role of a modifier in determining the form and general pattern of layout in our concerned permanent buildings. So, with this above discussion, major influences could be categorized as follows:

a) Regional-identity
b) European-identity

a) Regional-identity: In the regional-identity, buildings typically have a deeply curved cornice, while the wall surface, in most places, is plastered. Both the indigenous and traditional typology is fused here harmoniously to present a very pleasing appearance (Mowla 1995). In the traditional vernacular, the fundamental changes in the decoration of their buildings were brought about by discarding the age old art of terracotta and replacing it by plastered panels. The typical curvature of cornice and battlements of the earlier typology was also abandoned in favour of straight horizontal parapet (Ahmed 1985:7, Brown 1942:33-39). This typology was greatly influenced by the contemporary north-Indian styles.

b) European-identity: It introduced the design principal of mutual symmetry along a single alignment either from north to south or east to west. Columns and pilasters might be in Doric and Corinthian. Windows might be Venetian with 'serliana' or Palladian window style. The facades were more complicated with the integration of elements of Neo-gothic, Baroque, Palladian or Renaissance designs. Greek and Roman columns, decorated window frames and festoons were common in the design. Ornate facades featured parapets, open balustrades, frieze, cornice and flamboyant gables.

With these above influences the architecture of Feudal / Zamindar houses developed as a mixture of both Regional and European identity. Mowla and Reza (Mowla & Reza 2000:31-58) identified this type of mix up as 'Racial classicism' (late 19th century) and which was described as '...laid to structural adaptation within classical frame. Mixed style /Indian skeleton dipped into European skin/Euro-Indian style'. Those architecture and Spaces of Zamindar houses had created a new style in the architecture with indigenous principles that are inherent in the creation. In most cases, the general layouts of buildings had formal characters of clustering and the houses became a series of rooms with successive courtyards arranged longitudinally which differed from 'European Bungalow style[2] that executed by colonial rulers.

Buildings that developed by feudal lords showed more of personal intention (taste, liking and prejudice) than inclination to the grammar of classicism (Khan & Mridha 1996). Locally available technology and craftsman, whom adapted European building construction knowledge, had been flourished their skills and artistic activities rooted in deep of regional identity. In feudal architecture, almost all the elements and features of European architecture were exploited but they were employed with a degree of freedom by ignoring proportion and meaningful associations. The only bold character they hold is the central or symmetrical façade with neo-classical or gothic features as frontage. Colonnade in porticoes attempted but intercolumniation of regular spacing is disturbed and not proportionately tied in horizontal-vertical relationship. The order of column received a peculiar attention. The capital showed tendency towards Corinthian but devoid of 'achinthus' foliage and its proportionate detailing. In most cases the capital was left untreated. In preparing pediment most of the freedom was taken. It was treated in maximum plasticity of personal choice, result of which give varied detailing, carvings and moldings unique in their own merits.

General Architectural characteristics

Location and planning: Compound planning of Zamindar houses depended on local geo-climate context. The most of the Zamindar house had been constructed on the bank of river side for easy accessibility through river transport. The house contented a number of multiple blocks and broadly divided into two parts. One was the outer house containing 'Kuchery' with 'atithisala'[3], 'nahabatkhana'[4] and this area was principally dominated by male persons. These structures were consolidated in nature. The other one was the inner house or 'Andarmahal'. Living unit, sleeping areas and associated service areas were accommodated there and secured more privacy. Multiple clustered structures were arranged around the 'uthan' or inner courtyard.[5] Lavatories, service blocks for servant accommodation, stable, 'gola' or store areas were detached from main house blocks. Sufficient numbers of pond or 'dighi' with massive 'ghat' were also constructed in Zamindar house. Sometimes 'indara' or well was founded in compound.

Temple, shrine, mosque or other devotee spaces were significant in feudal houses. 'Tulsi tala' was common in house for 'evening arati'[6]. 'Nat-mandap' and private mandirs were built in some of hindu Zamindar houses. These spaces had important design consideration while building the houses of Zamindar.

House Form: In detail house form planning, several rooms were accommodated side by side in a house block which was directly and independently approached from the verandahs and again these were also interconnected. Verandahs which were originated through colonial culture (King 1984, Nilsson 1968) were the most common in house block and often it ran at the both side of front and inner/ rear part of house block.

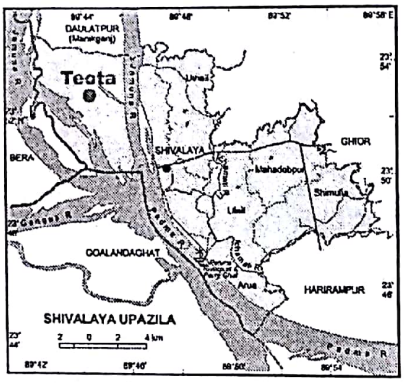
During colonial period Trabeated[7] roofing with tiles and rafter replaced massive vaulted roofs and pure arches emerged. Classical entablature with distinctive parts architrave, frieze and cornice were applied. Verandas opening were typical arches with distinct and prominent keystone at the centre. One of the features of the frontage was openings or windows occupying the centre of the wall panel. In shape, it was a stilted semi-circular aperture divided into lunettes. For ornamentation and decoration, tracery works on windows, rustic works or bond details in plaster, mouldings in cornice, details of the parapet, decorative work, finial or kiosks on pillars and corners of parapets were indicative of European or Indian influence. Cast iron structure columns and Cast iron decorative railings work were often used in Zamindar houses.

Case Study of Teota Zamindar Palace

Background of Zamindar Family

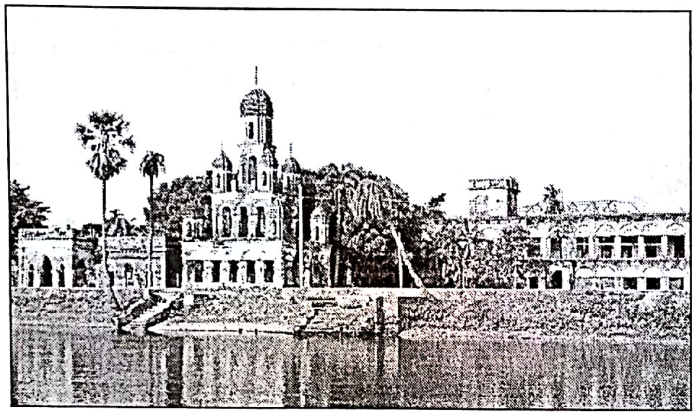
Teota estate is seated on the bank of Jamuna River at Shivalaya, a Union in Manikganj district, Bangladesh. The Estate, comprise of large landed properties in the present-day districts of Manikganj, Rajbari, Faridpur, Dhaka Savar, Nawabganj, Munshiganj, Pabna, Thakurgaon and Dinajpur, was the largest Zamindari estate in Manikganj (Saifuddin 1987). This Zamindar family was founded by Panchanan Chaudhuri, (Born 1740), who began his 'career' away from home, in Dinajpur in the tobacco trade (Banglapedia Vol.7, 2003). With the profits earned from his lucrative business, he

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Map 01: Location of Teota Palace

started to invest in land after the 'Permanent Settlement'. He acquired his properties at first in the Dinajpur region. Some times later, he returned to his ancestral village, and established himself as the first Zamindar of Teota. A number of members the family, Joy Sankar Choudhury, Raja Shyama Sankar Roy Bahadur, Roy Parbati Sankar Choudhury, Kumar Sankar Roy Choudhury, Kiran Sankar Roy and Dr. Kumud Sankar Roy made notable contributions to public life in eminent ways.


Fig 01: Panoramic of Teota Palace, Manikganj

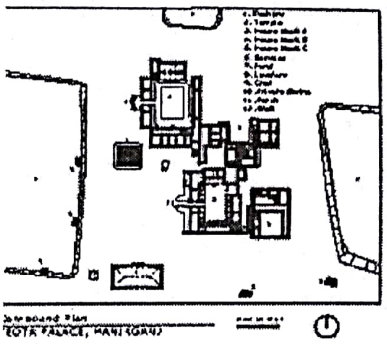
The Teota Estate was partitioned into a number of shares around 1914-1920. The Zamindari ends with the abolition of Zamindari at the time of acquisition of the estates by the government, under the provisions of the East Bengal State Acquisition and Tenancy Act of 1950. The big structures of the Zamindar family still survive though abandoned and left uncared since 1957. These are now occupied as squatters.

Architectural Features and vocabulary of form

To study the architectural vocabulary of this Zamindar palace, we may analyze the this in following principle of architecture:

a) Compound & Planning strategy:

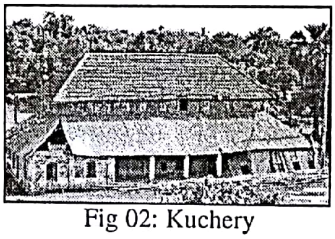
The entire complex, comprise of a maze of courtyards, water bodies and buildings, the construction was started earliest at the later of 18th century, and ended at early 19th century. The palace consists of two main parts according to accessibility and privacy; one is the outer house which contents 'Kuchery', 'atithisala', 'nahabatkhana' or entry house and main temple. Public access was permitted in those area and that spaces were dominated mainly by male. Other part was dwelling houses, these more privet areas were dominated by female.


[This compound plan layout is developed on the basis of Haque, Ahsan & Ashraf (1997) drawing]

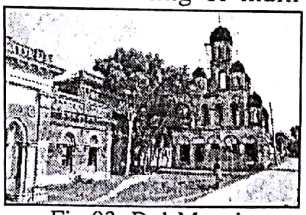
The complex is surrounded by a boundary wall; some part of that wall is visible at eastern part of the complex. A Kuchery, a Dol-Mancha, three house blocks content court inside and service blocks at rear part are still standing in the ruins. Some of the structures like the two-storied 'nahabatkhana' across the dighi, the Zamindar's 'atithisala' or guest room and some other structures have completely disappeared with the passage of time.

b) Plan Layout: The complex was developed in several phases. Different parts of the complex have different types of use and expression. These physical parts of Teota complex are descried bellow:

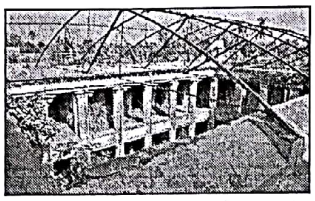
i) Kuchery: 'Kuchery' building, adjacent to the road on north, was owned by the Jai Sankar estate and was erected, according to an inscription, in 1914 A.D (Ahmed 1999: 84-87). It is east-west elongated oblong structure of about 70'-0" x 50'-0" crowned with the double layered 'Char Chala' roofs. The upper layer is covered with brick-red Raniganj tiles and lower layer is covered with corrugated sheets which may be refabricated later. On the Westside adjacent to this structure stands a 12'-0" square pavilion similarly covered with Raniganj tiles.


Fig 02: Kuchery

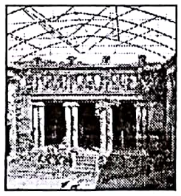
ii) Dol-Mancha: The 'Dol-Mancha' or the 'Navaratna' temple, a picturesque square edifice of about 50'-0" base and 58'-0" height, is located on the eastern bank of the pond. The temple rises in three receding stages and is crowned by nine decorated 'pida' type miniature 'ratnas' consisting of multi foil arch. This shrine is ornamented with semi-circular pilaster arches on all sides and on each stage. According to an inscription fixed on its body, it was built in 1858. It was badly damaged in an earthquake in 1897 and was repaired in 1906 A.D (Ahmed 1999:84-87).


Fig 03: Dol-Muncha

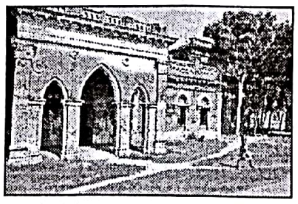
(iii) Living Units: The main house blocks placed between two ponds on the east and west keeping 'Dol-Mancha' on the west of both blocks. The first one is older palace (marked as House block A) which consist of two-storied oblong block of buildings, enclosing an inner courtyard about 50'-0"x30'-0" covered by a corrugated sloping tin roof fixed on iron struts. The entrance of the block is through a projected semi-circular porch on west which is now totally disappeared. Ahmed (Ahmed 1999:84) point out that this porch belong as in the middle of the block and originally carried on twelve pairs of round columns on either side of a covered narrow passage-way, gives access to the inner courtyard. The series of paired round columns supported an 8'-0" wide verandah in front of the block, have also now disappeared with the porch. The front verandah on either side of the porch is provided with a series of semi-circular arched openings, each flanked by slender semi-Corinthian pilasters.


Fig 04: Court of House Block A

The inner court is overlooked on three sides by two-storied blocks of ten apartments of different dimensions while the fourth side on north accommodates the single-storied family shrine dedicated to goddess 'Durga'. A strip of 8'-0" wide verandah, resting on a series of heavy Ionic columns, runs through the entire height of these blocks in front of the apartments. The family shrine (Fig 05) is entered through a 10'-0" wide verandah which is carried on four pairs of Ionic columns, above which runs a highly embellished floral frieze, interspersed with female stucco heads. The parapet above has narrow arched openings. The verandah leads to a wide cella which is entered through three semi-circular arched entrances. The entrances are flanked by three heavy brick piers, each relieved with eight slender stylized Ionic columns.

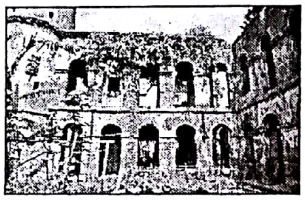

Fig 05: Shrine

Another palace (House block B) on north beyond the 'Dol-Mancha' about 100' long, faces west and is entered through a porch in the middle of the block. The porch has three pointed arched openings influence of gothic in front which are plastered all over with cement. It leads to an oblong inner court through a covered passage surrounded on all sides with single-storied blocks of buildings except the south which accommodates a two-storied structure. An eight feet wide strip of verandah runs the entire front of about fifteen apartments which is carried on plain brick pillars on the ground floor, while the balcony of the upper floor rests on a series of semi-Corinthian columns (1'-6" dia) with octagonal shafts. Both semi-circular and two-centred pointed arches have been used to cover the short openings in various parts of the buildings.


Fig 06: Front of House Block B

The small family shrine is located on the north wing. A ten feet wide verandah, resting on six semi-Corinthian cast-iron slender columns with floral spandrels, gives access to the sanctuary. The sanctuary is entered through five semi-circular arched entrances, the spandrels of which are very attractively embellished with floral plaster scrolls. Above this a large floral plaster scroll decorates the temple wall beneath the parallel bands of foliated friezes. The facade of the shrine with a series of semi-circular arches above the openings, daintily decorated with floral scrolls and the supporting pillars relieved with rows of slender semi-Corinthian or semi-Ionic pilasters.

(iv) Services: Beyond this two blocks, another two blocks (House block C & services) of two-storied buildings at the back on either side. House block C contents an oblong court inside and services block remain simple arcaded opening. The entire palace area is enclosed by a dilapidated boundary wall.


Fig 07: Service blocks

c) Materials and Construction technique

The house is built mainly of brick and lime surki[8] with local construction technique. The exterior and interior is plainly plastered except the house B where exposed red bricks were used as surface treatment. Roof construction system varies in different blocks of this Zamindar house and which indicate the different construction period of different phases. In older house blocks, the roofs are built with wooden beams and rafters covered with clay roof tiles. In house block B, factory made steel beams and rafters replaced wooden beams in roof construction system. Lavatory and other small span roofs are vaulted derived from Mughal architecture. The courtyard of block A has been covered by a corrugated sloping tin roof (CI) fixed on iron struts. Door and window openings were supported either by segmented or round arches or by lintels. Following table 01 shows a brief construction technique of the house.

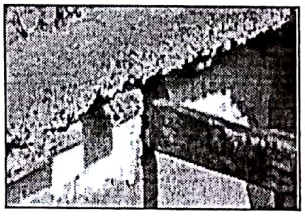

Fig 08: Roofing System showing Rafrer, Clay tiles & Lime terracing

Table 01- Construction system of the components

Sl.	Component	Construction system
1.	Foundation	Stepped and spread foundation may be on small piling.
2.	Exterior wall	About 24" thick load bearing walls, Corinthian and composite type of load bearing and non-load bearing decorative columns, cast iron and brick columns.
3.	Partition walls	Either 15" or 10" load bearing walls
4.	Floor	Wooden Rafter or iron joist, flat bar with clay brick tiles and lime flooring
5.	Opening	Archade, colonnade and lintel
6.	Roof	Timber beam, rafter or iron joist, flat bar with clay brick tiles and lime concrete, lime terracing. CI sheet with iron struts
7.	Moulding and Projection.	Lime concrete, brick, used iron bar inside as needed.
8.	Door and window	Wooden panels, iron hinges, bolts etc.

Table-02- Building Materials

Sl.	Component/element	Materials
01	Foundation	Lime concrete buck
02	Wall	Brick
03	Column	Brick, steel, limber
04	Pier	Brick
05	Floor	Brick, lime concrete, lime mortar
06	Arch	Brick
07	Lintel	Brick, timber, steel angel, flat bar, joist
08	Beam	Timber, Joist
09	Rafter	Timber, Steel angle, flat bar
10	Roof	brick, clay tiles, lime,
11	Door and window frame	Timber
12	Door/window shutter	Wood, Steel plain sheet
13	Stair	Brick, timber, steel or iron
14	Parapet	Brick

Table - 03- Finish materials

Sl.	Component/element	Materials
01	Floor	Neat lime finish, stone, timber, color, red oxide
02	Wall surface	Lime plaster, exposed bricks, clay tiles, 'Alpana' works
03	Ceiling	plaster, wood, steel
04	Door and window shutter	Wood, glass
05	Balustrade/railing	Lime concrete, brick masonry, wood, steel/ cast iron

Table - 04: Materials for ornamentation

Sl.	Component/element	Materials
01	Wall surface	Plaster/ mortar, lime concrete, brick, terrazzo, coloring ingredient
02	Column base	Brick, lime concrete, lime mortar, steel,
03	Capital	Brick, lime concrete, lime mortar steel,
04	Rusticated block	Brick, lime mortar , lime concrete
05	Moulding/ projection	lime concrete, lime mortar,
06	Band	Brick, lime mortar, lime concrete
07	Bracket	Lime concrete, cement mortar, steel, wood
08	Dentil	Brick, lime mortar
09	Spout	Burn clay pipe, cast iron pipe, lime mortar liming
10	Drop	Wood, plain sheet, C.I. sheet, tinted glass,
11	Ceiling	Lime mortar, wooden plank

The building materials used here are mainly brick, lime concrete, clay roof tiles, timber, steel and cast-iron. Materials used in construction may be categorized into three groups (a) building materials (table-02) (b) finish materials (table-03) and (c) materials for ornamentation (table-04). For the better understanding of the materials used in the different components and elements are shown bellow:

d) Exterior Façade

The stylistic approach acknowledges that the Teota Palace is not just a craft, rather it is a house form that reflects the philosophy of intellectual currents hopes and aspiration of its own time with the owner's and the designer's thoughts.

The facade treatment of this house is the arcaded or colonnaded that similar of renaissance architecture found almost in each type of Zamindar houses. The spans of openings were followed by a module. Giant columns are marking the double height giving the super scale.

It is marked difference is found in the treatment of front with other facades. Usually the front facades in all cases are carefully treated and richly decorated. Symmetry as a theoretical requirement in colonial design, front façade of each block of Teota palace is visualized in three parts that called 'Tripartition' (Tzonis & Lefaivre 1986). The form of centrality is achieved by placing the entry portico and placing similar types of elements of two sides of the centre.

The older block (House block A) is visualized neo-classical style rather other block (House block B) is seemed gothic features with two pointed arch openings. Hanging continues verandah supported by iron brackets, sloping shade upon verandah and red brick color give a unique look for house block B. Both of the houses are well proportionate both in length of the facades and in height that gives the harmony of composition and scale balance.

e) Ornamentation

The concept of ornamentation and decoration includes both the structural and non-structural decorative elements. The socio-economic aspect, life, religion, aesthetic sense etc, influenced the decoration and ornamentation of the houses. The following four styles are identified in the ornamentation of the houses.

- Ornamentation by built-form
- Ornamentation by structural element
- Ornamentation by decorative element
- Ornamentation by surface decorator.

The visual design elements and their organization including ornamentation are ordered can be best considered in terms of the styles of facade treatment, principles of solid-void relationship, balance, proportion, scale, continually, order and dominance and style in ornamentation. Various elements such as line and band, projection, dentil, tablet, texture, jali works and wood carving floral elements, sculpture, color etc are used in different parts of houses to decorate the Teota Palace.

f) Components/ Elements of Architecture

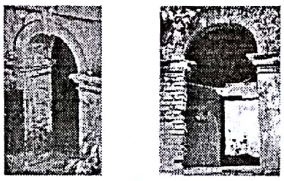
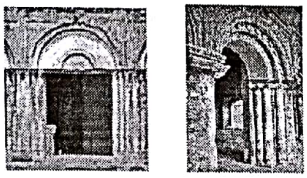
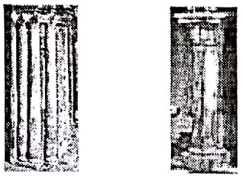
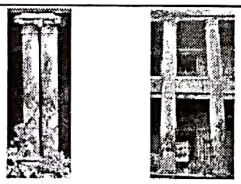
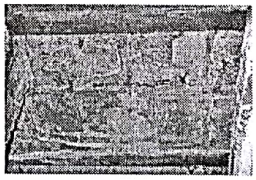
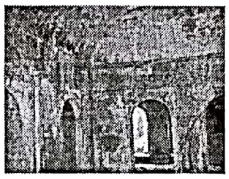
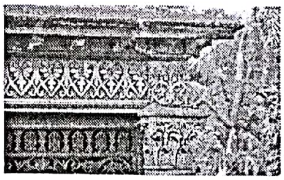
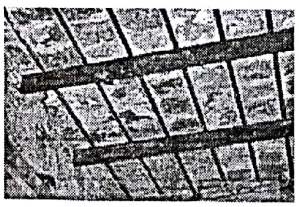
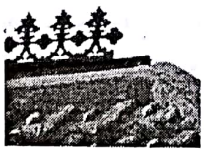
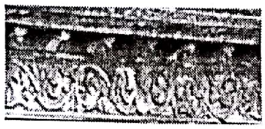
The elements of architecture used at Teota palace show gradually development of built form with period of time. Following Table (05) may help to understand the influences or the origin of the component/ elements that derived from either European background or from Indian sub-continental architecture tradition.

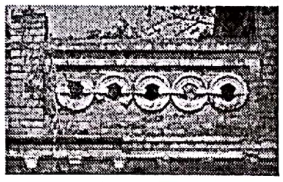
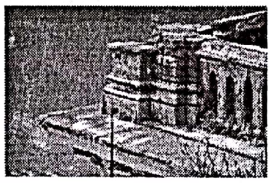
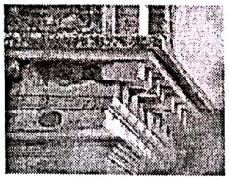
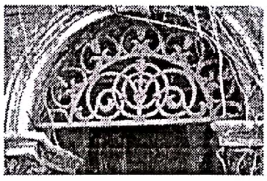
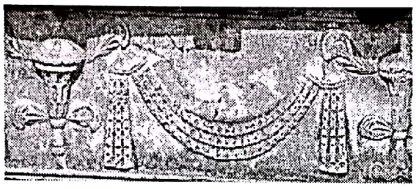
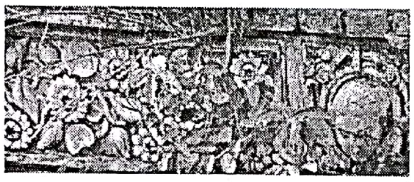
Concluding Remarks

Historical structures are in fact living legacies which help us to understand the structure itself, technologies, attitudes behind construction and socio-cultural events of that certain era and constitutes an intrinsic and valuable part of cultural heritage. Likewise these Zamindar Palaces are part of our

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Table- 05- Elements of architectural Design

Sl	Component/element	Remarks		Component/element	Remarks
01		Arch Located: Block B Influence: Gothic, Europe	02		Arch Located: Block Influence: Neo-classical, Europe
03		Arch Located: Block A Influence: Hybrid	04		Capital Located: Block B Influence: Neo-classical, Europe
05		Column Located: Block A Influence: Hybrid	06		Capital Located: Block B Influence: Neo-classical, Europe
07		Column Located: Block A Neo-classical, Europe	08		Roofing System Located: Block A Influence: (Trabeated), Europe
09		Roofing System Located: Block A Influence: Regional	10		Roofing System Located: Block B Influence: Europe
11		Roofing System Located: Block A Influence: Buttress, Europe	12		Cornice Located: Block B Influence: Neo-classical, Europe
13		Roofing System Located: Kuchery Influence: Regional	14		Cornice Located: Block B Influence: Neo-classical, Europe

Sl	Component/element	Remarks	Sl	Component/element	Remarks
15		Parapet Located: Block A Influence: Hybrid	16		Cornice Located: Block B Influence: Neo-classical, Europe
17		Column Located: Block A Influence: Hybrid	18		Metal Work Located: Block B Influence: Neo-classical, Europe
19					Located: Block A Influence: Neo-classical, Europe
20					Located: Block A Influence: Neo-classical, Europe

heritage but due to ignorance and proper preservation, those are disappearing rapidly from our soil. Thorough study and documentation are also absent to make the linkage with our past. There is an urgent need to develop new appropriate knowledge linkages with the past and at the same time relevant to the present.

As a remarkable entity, Teota palace upholds the major architectural vocabulary of development of Zamindar house form. This endeavor should be for an appropriate inventiveness with coexisting awareness are needed by the government, non government agency, local people, professional bodies and others towards the historical and cultural context of Zamindar palaces.

Notes

1. Examples of that kind of buildings are indigenous village huts.
2. Consolidated dwelling block where living unit integrated into one mass with front lawn and backyard service area.
3. Guest room
4. Entry house
5. Court may be enclosed all side or two or three sides by build-structure.
6. Evening worship
7. Column and lintel system.
8. Lime mixture with brick chips and other gradients used during colonial period.

সারসংক্ষেপ

উপনিবেশ সময়কালে উপমহাদেশের আর্থসামাজিক ও অর্থনৈতিক পরিকাঠামো পরিবর্তনের পাশাপাশি স্থাপত্য ক্ষেত্রেও নবযুগের সূচনা হয়। বিশেষ করে বাংলায় এই পরিবর্তন ছিল লক্ষণীয়। ব্রিটিশ তথা ইউরোপীয় আধিপত্য বিস্তারের সূতিকাগার হিসেবে নয় বরং এতদঞ্চলের নদীমাতৃক অর্থনীতি ও জলবায়ুগত কারণে উল্লেখিত সময়ের বাংলার স্থাপত্যে ইউরোপীয় ধ্যানধারণার একটি অভিযোজিত রূপের বহিঃপ্রকাশ দেখা যায়। এক্ষেত্রে বিশেষভাবে উল্লেখ করা যায় বাংলার জমিদার বাড়িগুলোর কথা। শুধু দেশজ উপাদান ও ইউরোপীয় চিন্তাধারার সংমিশ্রণ নয় বরং উপনিবেশ-সময়কালের এই অনন্য স্থাপত্যগুলোতে ফুটে উঠেছে মোগল ও মোগল-পূর্ববর্তী ধারার বৈশিষ্ট্যসমূহ। আলোচ্য গবেষণায় এই স্থাপত্যকাঠামোর একটি প্রতিনিধিত্বশীল উদাহরণ হিসেবে মানিকগঞ্জ জেলার তেওতা জমিদার বাড়ির ঐতিহাসিক প্রেক্ষাপট, স্থাপত্যিক বিন্যাস ও বৈশিষ্ট্যসমূহ আলোচনা করা হয়েছে। আলোচ্য জমিদার বাড়িকে গবেষণার সুবিধার্থে কয়েকটি ব্লকে বিভক্ত করে প্রতিটি অংশের স্থাপত্যিক বিন্যাস এবং বিভিন্ন ধরনের প্রভাবকে নিয়মতান্ত্রিকভাবে অনুসন্ধান করার চেষ্টা করা হয়েছে।

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বাগেরহাট বিশ্ব সাংস্কৃতিক ঐতিহ্য স্থলের স্মৃতিচিহ্ন : ক্ষতিগ্রস্ততা, পুনরানয়ন ও সমস্যা

ড. মোঃ ছাবের আলী
কীপার, জনশিক্ষা বিভাগ
বাংলাদেশ জাতীয় যাদুঘর

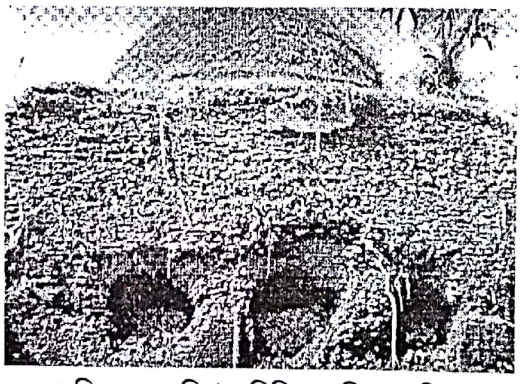
পঞ্চদশ শতাব্দীর প্রথমার্ধে নির্মিত বিশ্ব সাংস্কৃতিক ঐতিহ্য স্থান বাগেরহাটের খলিফাতাবাদ মসজিদ নগরের স্মৃতিচিহ্নসমূহের মধ্যে কিছুর পূনরানয়ন কাজ হয়েছে, অনেকগুলোর বাকি আছে। উভয় প্রকার স্মৃতিচিহ্ন স্যাঁতসেঁতে, লবণাক্ততা ও ক্ষুদ্র উদ্ভিদ জন্মানো প্রভৃতি সমস্যায় জর্জরিত। ২০০৪ সালের নভেম্বর মাসে সংগৃহীত নমুনা বিশ্লেষণ করে ম্যাগনেসিয়াম সালফেট ও ক্যালসিয়াম সালফেট লবণ এবং মস, অ্যালগি, লাইকেন উদ্ভিদ পাওয়া যায়। ঐ শুষ্ক মৌসুমে স্মৃতিচিহ্নসমূহের অভ্যন্তরে আপেক্ষিক আর্দ্রতা ৬৫-৮৫% এবং দেয়াল ও মেঝেতে জলীয় বাষ্পের পরিমাণ ২০-২৫% এর উর্ধ্বে। এই লবণ, ক্ষুদ্র উদ্ভিদ, আপেক্ষিক আর্দ্রতা ও জলীয় বাষ্প স্মৃতিচিহ্নসমূহ ক্ষতিগ্রস্তের মূল কারণ হিসাবে চিহ্নিত করা হয়। ক্ষুদ্র উদ্ভিদ নিয়ন্ত্রণের জন্য জিংক সিলিকো ফ্লোরাইড, লবণসমূহ অপসারণে পেপার পাম্প পুলটিস পদ্ধতি এবং গম্বুজ ও দেয়ালের পূনরানয়ন কাজে চুন-সুড়কীর মর্টার ব্যবহারের সুপারিশ করা হয়।

সূচনা

বাংলাদেশ সাংস্কৃতিক সম্পদে সমৃদ্ধ দেশ। এদেশে ২০০০ বছরের অধিককাল ধরে রাজা ও সুলতান এবং সামন্তরাজগণের শাসন ব্যবস্থা ছিল। সেগুলো বিলীন হয়ে গেছে কিন্তু তাঁদের কর্মকাণ্ডের নমুনা হিসেবে ঐতিহ্যমণ্ডিত স্মৃতিচিহ্ন ও স্থান বাংলাদেশের সর্বত্র কালের দৃশ্যমান সাক্ষী হয়ে দাঁড়িয়ে আছে। এগুলো, রক্ষণাবেক্ষণ করা আমাদের নৈতিক দায়িত্ব ও কর্তব্য।

বিশ্ব ঐতিহ্যের স্মৃতিচিহ্ন ও স্থান সংরক্ষণ ও পুনরানয়ন সম্পর্কীয় কনভেনশন অনুযায়ী বাংলাদেশের আবেদনের ভিত্তিতে UNESCO বাগেরহাট ঐতিহাসিক মসজিদ নগর ও পাহাড়পুরের বৌদ্ধ বিহার বিশ্ব সাংস্কৃতিক ঐতিহ্য স্থানের তালিকায় ১৯৮৫ সালে অন্তর্ভূক্ত করে (Feilden & Jokilehto 1993: 111-114)।

পঞ্চদশ শতাব্দীর প্রথমার্ধে উলুঘ খান জাহান বাগেরহাট শহর থেকে ২-৩ মাইল পূর্বদিকে অজানা নামের একটি শহর প্রতিষ্ঠা করেন। পরবর্তীতে এটি বাংলার স্বাধীন সুলতানদের টাকশাল সম্বলিত খলিফাতাবাদ শহর নামে পরিচিত হয়। শহরটির প্রধান বৈশিষ্ট্য হলো - ৪ মাইল এলাকা জুড়ে মসজিদ, মাজার শরীফ ও মৃদু পানির পুকুর এবং দিঘি রয়েছে (Dept. of Archaeology 2004:87-103)।

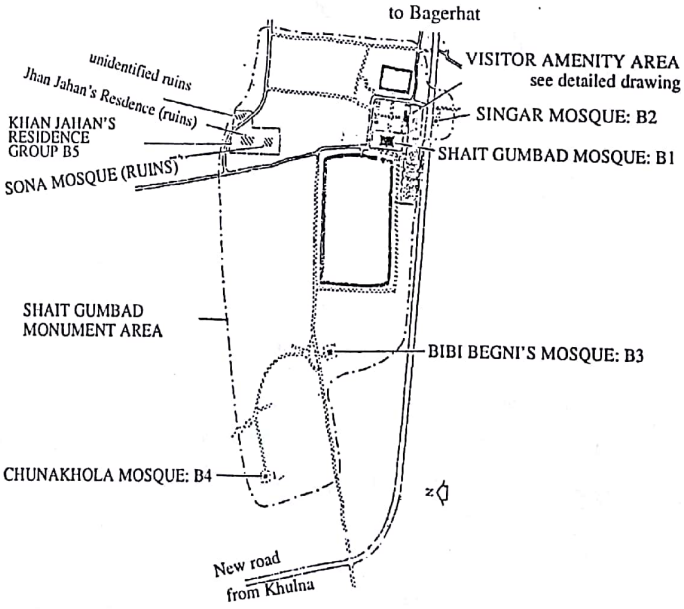


ছবি -১ : ক্ষতিগ্রস্ত বিবি বেগনির মসজিদ

স্মৃতিচিহ্নের অঞ্চল

অনুসন্ধানী মানুষ খলিফাতাবাদ শহরে যেসব স্মৃতিচিহ্ন (Monuments) পরিদর্শন করে, সেগুলোকে প্রধানত: দুটি ভাগে ভাগ করা হয়েছে: (১) ষাট গম্বুজ স্মৃতিচিহ্ন এলাকা এবং (২) খান জাহানের মাজার কমপ্লেক্স এলাকা (Dept. of Archaeology 2004:87-103)। এই এলাকা দু'টির আওতাধীন মসজিদ ও মাজার নিচের ছকে ও সাইট প্লানে দেখানো হলো ঃ

সাইট প্লান নাম্বার	স্মৃতিচিহ্ন
B-1	ষাট গম্বুজ মসজিদ
B-2	সিংগার মসজিদ
B-3	বিবি বেগনির মসজিদ
B-4	চুনাখোলা মসজিদ
B-5	খানজাহানের বাসভবন এলাকা

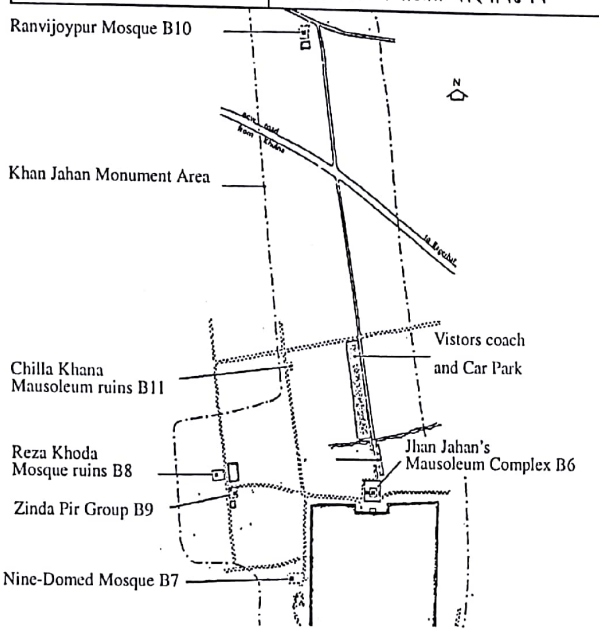


ছক-১: ষাট গম্বুজ স্মৃতিচিহ্ন (Monuments) এলাকা

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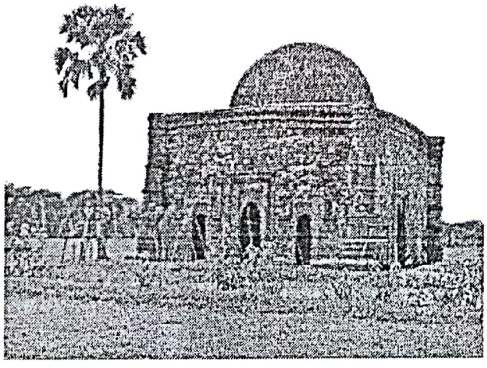
ছক- ২: খান জাহানের মাজার কমপ্লেক্স এলাকা

B-6	খান জাহানের মাজার কমপ্লেক্স (মাজার মসজিদ, পীরস্তম্ভ, এবং অসনাক্তকৃত প্রাসাদ)
B-7	নয় গম্বুজ মসজিদ (ঠাকুরদিঘি পশ্চিমে)
B-8	রেজা খোদা মসজিদ
B-9	জিন্দাপীরের মসজিদ ও মাজার
B-10	রণবিজয়পুর মসজিদ
B-11	চিল্লাখানা মাজারের ধ্বংসাবশেষ



স্মৃতিচিহ্নসমূহের অতীত অবস্থা (Past condition of the monuments).

বাগেরহাট বিশ্ব ঐতিহ্য স্থানের আওতাধীন স্মৃতিচিহ্নসমূহে (Monuments) যে সমস্যা দেখা দিয়েছিল, তা নিচে দেয়া হলো :



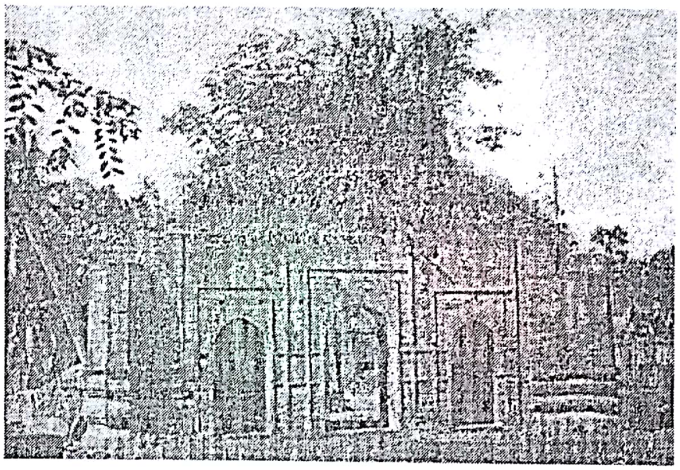
ছবি -২ : ক্ষতিগ্রস্ত চূনাখোলা মসজিদ

(১) জলীয়বাষ্প ঘনীভবন (Condensation): ষাট গম্বুজ মসজিদ ও রণবিজয়পুর মসজিদে জলীয়বাষ্প ঘনীভূত হয়ে ভিতরে দেয়ালের গায়ে এবং গম্বুজের নিচে পানি কণা জমে থাকত। বর্ণনায় বলা হয়েছে, গরম বাতাস ভিতরে ঢুকে তা ঘনীভূত হয়ে জলকণায় পরিণত হতো।

(২) বৃষ্টিরপানি নির্গমণ: বৃষ্টিরপানি গম্বুজ থেকে ছাদের সমতল অংশের ওপর পড়তো । সেখানে থেকে কার্ণিশের ওপর হয়ে দেয়াল বেয়ে নিচে যেত। এ সবস্থানে সূর্যের আলো কম পাওয়ায় ক্ষুদ্র সবুজ উদ্ভিদ জন্মাতো। এতে দেয়ালগুলো বিবর্ণ হতো এবং লবণের ক্রিয়া বেড়ে যেত।

(৩) স্যাঁতসেঁতে (Damp): স্মৃতিচিহ্নগুলোর (Monuments) বিভিন্ন স্থান অত্যন্ত স্যাঁতসেঁতে ছিল। আপেক্ষিক আর্দ্রতা, বৃষ্টির পানি ও ভূ-গর্ভস্থ পানির Capillary attraction-কে স্যাঁতসেঁতের প্রধান কারণ হিসাবে চিহ্নিত করা হয়েছে।

(৪) লবণের ক্রিয়া (Salt action): স্মৃতিচিহ্নগুলো (Monuments) ব্যাপকভাবে লবণাক্ততায় আক্রান্ত। ইমারতগুলো যেখানে অবস্থিত সেখানকার মাটি ও ভূ-গর্ভস্থ পানিতে লবণ রয়েছে। Capillary attraction- এর মাধ্যমে এ লবণগুলো Building structure- এ প্রবেশ করে। এটিই লবণাক্ততার কারণ হিসাবে সনাক্ত করা হয়।



ছবি -৩ : ক্ষতিগ্রস্ত জিন্দাপীরের মসজিদ

(৫) ক্ষুদ্র উদ্ভিদ জন্মানো (Growth of vegetation): স্মৃতিচিহ্নগুলো (Monuments) ব্যাপকভাবে ক্ষুদ্র উদ্ভিদে আক্রান্ত ছিল। বৃষ্টির পানিকে এর জন্য দায়ী করা হয়েছে।

প্রস্তাবিত অতীত চিকিৎসা (Proposed past treatment)

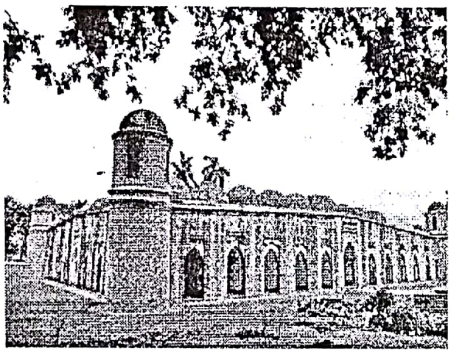
বৃষ্টির পানি ছাদ থেকে পড়ার জন্য পানি নির্গমণ নালা (Rain water delivery drain) তৈরি, স্যাঁতসেঁতে নিবারণে Damp proof course প্রয়োগ, লবণ অপসারণে Clay poultice method ব্যবহার ও ইট দিয়ে Refacing দেয়া প্রভৃতি প্রস্তাব ছিল।

স্মৃতিচিহ্নগুলোর বর্তমান অবস্থা (Present Condition of the Monuments)

২০০৪ সালের নভেম্বর মাসের শেষ সপ্তাহে বাগেরহাট বিশ্ব ঐতিহ্য স্থানের আওতাধীন স্মৃতিচিহ্নগুলো যে অবস্থায় ছিল তা নিচে উল্লেখ করা হলো:

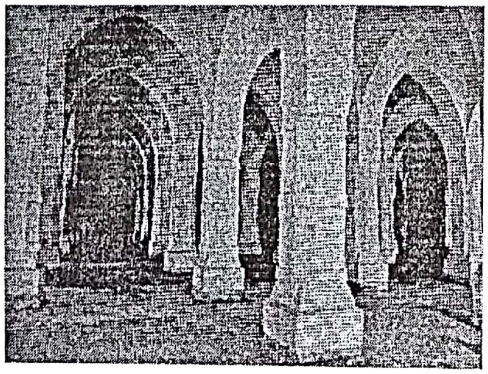
ষাট গম্বুজ মসজিদ (Shait Gumbad Mosque): পুনরানয়নকৃত ষাট গম্বুজ মসজিদ দেখে বিংশ শতাব্দীর অট্টালিকা মনে হয়েছে। প্রাচীন অনেক চিহ্ন সেখান থেকে মুছে গেছে। মসজিদের পূর্ব, পশ্চিম ও দক্ষিণ দিকে আধুনিক ইটের ১০" ইঞ্চি চওড়া দেয়াল দিয়ে পুরনো দেয়াল ঢেকে দেয়া হয়েছে। মসজিদের ভিতরে ৬০টি পিলারের মধ্যে

৫৯টি পিলার ইট গেঁথে পাথর ঢেকে প্লাস্টার করে সাদা রং দেয়া হয়েছে। দেয়াল ও গম্বুজের নিচে একইভাবে প্লাস্টার করে সাদা রং দেয়া হয়েছে। প্রাচীন ঐতিহ্য বহণকারী মসজিদের প্রধান প্রবেশ দরজার ওপরে Pediment বিলুপ্ত করা হয়েছে। মসজিদের চারদিকে সীমানা প্রাচীর (Boundary wall) দেয়ার সময় সাবেক সীমানা প্রাচীরের ভিত অনুযায়ী না দিয়ে আয়তাকার প্রাচীর দেয়া হয়েছে। ছাদের ওপর ৭৭টি গম্বুজ বালি ও সিমেন্ট দিয়ে প্লাস্টার করে রেড অক্সাইডের লাল রং করা হয়েছে।



ছবি -৪ : পুনরানয়নকৃত ষাট গম্বুজ মসজিদ

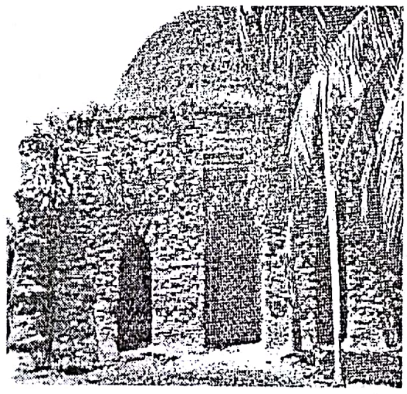
আধুনিক ইটের সীমানা প্রাচীর (Boundary wall) ও মসজিদের দেয়ালে লবণের সাদা কেলাস এবং সবুজ ও হালকা হলুদ রংয়ের অসংখ্য ক্ষুদ্র উদ্ভিদ জন্মেছে। এ স্থানগুলো অতিমাত্রায় স্যাঁতসেঁতে। বিশেষ করে ছাদ থেকে যেসব স্থান দিয়ে বৃষ্টির পানি গড়িয়ে নিচে পড়ে সেস্থানগুলোতে উদ্ভিদ ও লবণকেলাসের আধিক্য বেশি। পশ্চিম দিকের দেয়ালে ১২টি স্থানে এ সমস্যা রয়েছে। মসজিদের ভিতরে মেঝে, পিলারের নিচের অংশ ও দক্ষিণের প্লাস্টার করা দেয়ালে সবুজ উদ্ভিদ ও লবণাক্ততা আছে। এই জায়গাগুলো স্যাঁতসেঁতে। ছাদে প্লাস্টার করা ৭৭টি গম্বুজের মধ্যে ৪০টি থেকে প্লাস্টার ফেটে উঠে যাচ্ছে। অন্যান্যগুলোতে ফাটল সৃষ্টি হয়েছে। এগুলোও উঠে যাবে। প্লাস্টার উঠে যাওয়া স্থানগুলোতে এবং ফেটে আলগা হওয়া প্লাস্টারের নিচে লবণ , সবুজ উদ্ভিদ ও স্যাঁতসেঁতে অবস্থা দেখা গেছে। ভিতরের উত্তর দিকের দেয়াল প্লাস্টার করা হলেও বাইরে সাবেক ইটের দেয়াল রয়েছে । এর ওপর সবুজ ও হালকা হলুদ রংয়ের অসংখ্য উদ্ভিদ জন্মেছে। এটি পুরোটাই স্যাঁতসেঁতে। মসজিদের অভ্যন্তরে গম্বুজগুলোর নিচে জলীয় বাষ্প ঘনীভবনের কোন চিহ্ন নেই।



ছবি -৫ : পুনরানয়নকৃত ষাট গম্বুজ মসজিদের পাথরের পিলারসমূহ

সিংগার মসজিদ (Singar Mosque): সুন্দরযোণা গ্রামে অবস্থিত এক গম্বুজ বিশিষ্ট বর্গাকার মসজিদের ক্ষেত্রফল ১২.০৭ x ১২.০৭ =১৪৫.৬৯ বর্গমিটার। এর দেয়াল ২.১২ মিটার পুরু। চারকোণায় ৪টি গোলাকার টারিট (Turret) আছে। চারদিকের কার্নিশগুলো বক্রাকারে নির্মিত। পূর্বদিকে তিনটি ও উত্তরদিকে একটি করে খিলানযুক্ত দরজা রয়েছে। কেন্দ্রীয় মেহরাবটি অলঙ্কৃত।

জানা গেছে ১৯৮৭-৮৮ সালে আধুনিক ইট দিয়ে এই মসজিদের চতুর্দিকে কোথাও ১০.৫" কোথাও ৯.৫" আবার ৮.৫" ইঞ্চি পুরু দেয়াল দিয়ে পুরনো দেয়াল ঢেকে দেয়া হয়েছে। চুন ও বালির তৈরি মর্টার দিয়ে ইটগুলো গাঁথা হয়েছে। মসজিদের ভিতরে প্লাস্টার করা হয়েছে। নতুন দেয়ালের বাইরের অনেক স্থান স্যাঁতসেঁতে, লবণাক্ততা ও সবুজ ক্ষুদ্র উদ্ভিদে আক্রান্ত। ভিতরে উত্তর, দক্ষিণ ও পশ্চিম দিকের দেয়াল একই সমস্যাগ্রস্ত। গম্বুজের নিচের অংশ স্যাঁতসেঁতে ও সবুজ উদ্ভিদে আবৃত। উত্তর দেয়াল থেকে শুরু করে গম্বুজের নিচের অংশ পর্যন্ত ফাটল সৃষ্টি হয়েছে। মেঝে অত্যন্ত স্যাঁতসেঁতে । মেঝেতে পলিথিন বিছিয়ে তার ওপর জুট ম্যাট দিয়ে মুসল্লিরা নামাজ পড়ে। পলিথিনের নিচে জমে থাকা পানির দৃশ্য দেখা গেছে।

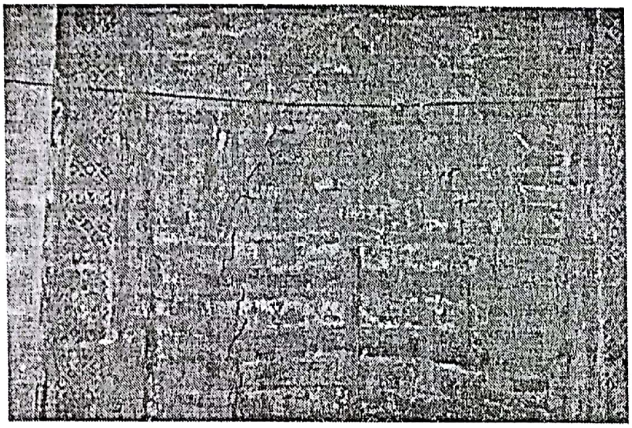


ছবি -৬ : ক্ষতিগ্রস্ত সিংগার মসজিদ

চূনাখোলা মসজিদ (Chunakhola Mosque): মগড়া গ্রামে অবস্থিত মসজিদটির ক্ষেত্রফল ১২.১৯x ১২.১৩ =১৪৭.৮৭ বর্গমিটার। এর দেয়ালের পুরুত্ব ২.৩৬ মিটার। মসজিদটির দক্ষিণ ও পশ্চিমে মাছের ঘের এবং উত্তর ও পূর্বে পানিতে জন্মানো ধানক্ষেত। এই জলাশয়গুলো মসজিদের সর্বত্র পানি ও লবণ স্থানান্তরের স্থায়ী আধার হিসাবে কাজ করছে। মসজিদে যাওয়া- আসার জন্য কাঁচা কিংবা পাকা কোন রাস্তা নেই। মসজিদটির বাইরের দেয়াল সবুজ, সাদা ও কালো রঙের উদ্ভিদে আবৃত। পশ্চিমের দেয়ালের বেশ কিছু জায়গা লোনাতে খেয়ে ফেলেছে। ভিতরের দেয়াল ও মেঝে অত্যন্ত স্যাঁতসেঁতে। দেওয়ালগুলোর অধিকাংশ স্থান লবণ ও সবুজ উদ্ভিদে আবৃত। মসজিদটিতে কোন সংরক্ষণ কাজ হয়নি বলে স্থানীয় লোকজন জানান।

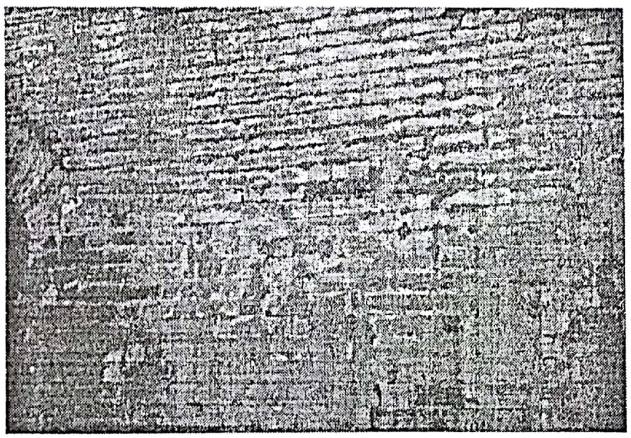
বিবি বেগনি মসজিদ ('Bibi Begni's Mosque): মগড়া গ্রামে এক গম্বুজ বিশিষ্ট মসজিদটি সিংগার মসজিদের অনুরূপ। মসজিদটির চারদিকে নতুন ইটদিয়ে সিংগার মসজিদের অনুরূপ দেয়াল তৈরি করা হয়েছে। দেয়ালের অধিকাংশ স্থান লবণসহ সবুজ এবং সাদা উদ্ভিদে ঢাকা। ভিতরের দেয়ালও লবণ ও উদ্ভিদে ঢাকা রয়েছে।

রণবিজয়পুর মসজিদ (Ranvijoypur Mosque): রণবিজয়পুর গ্রামে এক গম্বুজ বিশিষ্ট সর্ববৃহৎ বর্গাকার মসজিদটির ক্ষেত্রফল ১৮.৪৯ x ১৮.৪৯=৩৪১.৮৮ বর্গমিটার। এই মসজিদটির চতুর্দিকে পুরনো দেয়াল ঢেকে আধুনিক ইটের দেওয়াল তৈরি করা হয়েছে। এই দেয়ালের অধিকাংশ জায়গা ক্ষুদ্র সবুজ উদ্ভিদ ও লবণে আক্রান্ত এবং স্যাঁতসেঁতে। বিশেষ করে ছাদ থেকে যে স্থান দিয়ে বৃষ্টির পানি নিচে পড়ে সেস্থানগুলো বেশি ক্ষতিগ্রস্ত। ভিতরে প্লাস্টার করা দেয়ালে সবুজ উদ্ভিদ ও লবণের কেলাস দেখা গেছে। গম্বুজের নিচে জলীয় বাষ্প ঘনীভবণের প্রমাণ পাওয়া যায়নি।



ছবি -৭ : রণবিজয়পুর মসজিদের লবণ আক্রান্ত ফাটলযুক্ত মেহরাব

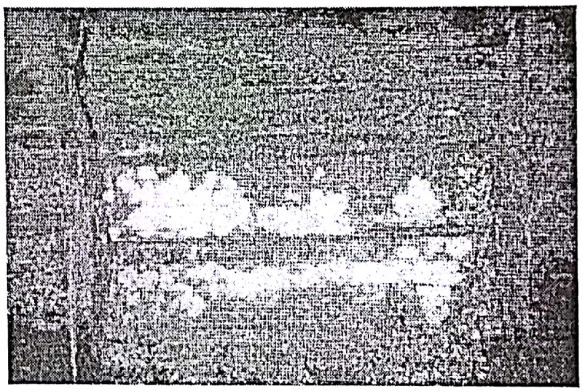
সাবেক ডাঙ্গা পুরাকীর্তি (Sabekdanga antiquity): সাবেক ডাঙ্গা গ্রামে এক গম্বুজ বিশিষ্ট আয়তাকার কক্ষটির ক্ষেত্রফল ৭.৮৮ x ৫.১০=৪০.১৯ বর্গমিটার। দেয়াল ১.৪৭ মিটার পুরু। বাইরে নতুন ইট গেঁথে পুরনো দেয়াল ঢেকে দেয়া হয়েছে। ভিতরে কোন প্লাস্টার না করে আদি অবস্থায় রাখা হয়েছে। বাইরে দেয়ালের অধিকাংশ স্থান ক্ষুদ্র সবুজ উদ্ভিদ ও লবণাক্ততায় আক্রান্ত।



ছবি -৮ : ব্যাপক লবণ আক্রান্ত সাবেকডাঙ্গা পুরাকীর্তি ভবনের দেয়াল

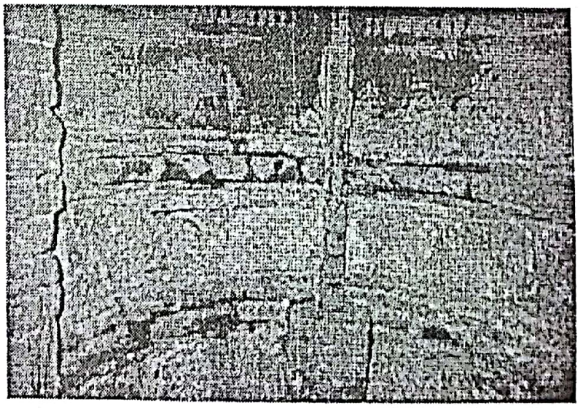
উলুঘ খান জাহান- এর মাজার (Mausoleum of Ulugh Khan Jahan): ঠাকুরদিঘি গ্রামে উলুঘ খান জাহানের মাজার উক্ত দিঘির উত্তর পাড়ে অবস্থিত। মাজার কক্ষটির বাইরে চতুর্দিকে ইট গেঁথে পুরনো দেয়াল আবৃত করা হয়েছে। ভিতরের দেয়ালগুলো প্লাস্টার করা হয়েছে। বাইরে দেয়ালের অধিকাংশ স্থান সবুজ উদ্ভিদ ও লবণাক্ততায় আক্রান্ত। ভিতরের দেয়ালগুলো একই সমস্যাগ্রস্ত। তবে বাইরের তুলনায় ভিতরে কম। ভিতরে জলীয়বাষ্প ঘনীভবনের কোনচিহ্ন নেই। মাজারের এক পুরনো খাদেম জানান যে, গম্বুজ ফাটা থাকার সময় এসমস্যা ছিল, তবে মেরামতের পর এটি আর নেই। এ মাজারে সাহায্য দানের বাক্স রয়েছে। এখানে আরো লক্ষণীয় ঠাকুর দিঘির ঘাট আধুনিক দ্রব্যাদি দিয়ে আধুনিক কৌশলে বাঁধানো হয়েছে।

নয় গম্বুজ মসজিদ (Nine Domed Mosque): ঠাকুরদিঘি গ্রামে উক্ত দিঘির পশ্চিম পাড়ে মসজিদটি অবস্থিত। বর্গাকার মসজিদের পরিমাপ ১৫.২৪x ১৫.২৪=২৩২.২৬ বর্গমিটার। এর দেয়ালের পুরুত্ব ২.৩৪ মিটার। মসজিদটির ছাদ নয়টি গম্বুজ দ্বারা আচ্ছাদিত। মসজিদের বাইরে চারদিকে ইট গেঁথে সাবেক দেয়াল ঢেকে দেয়া হয়েছে। বাইরের দেয়াল স্যাঁতসেঁতে এবং ক্ষুদ্র সবুজ উদ্ভিদ ও লবণাক্ততায় ব্যাপকভাবে আক্রান্ত। ভিতরের দেয়ালগুলো একই সমস্যাগ্রস্ত। বৃষ্টির সময় গম্বুজ দিয়ে পানি পড়ে। স্থানীয় লোকজন জানান যে, এখানে কোন সংরক্ষণ কাজ করা হয়নি।



ছবি -৯ : লবণ ও লাইকেন আক্রান্ত নয় গম্বুজ মসজিদের মেহরাবের বাইরের দেয়াল

জিন্দা পীরের মসজিদ (Zinda Pir's Mosque): সুন্দরঘোণা গ্রামে মসজিদটি অবস্থিত। মসজিদটির বাইরে চতুর্দিকে ইট গেঁথে পুরনো দেয়াল ঢেকে দেয়া হয়েছে। এর অধিকাংশ জায়গা স্যাঁতসেঁতে এবং লবণ ঝরতে দেখা গেছে। স্যাঁতসেঁতে স্থান সমূহে অতিমাত্রায় ক্ষুদ্রাকার সবুজ উদ্ভিদ জন্মেছে।



ছবি -১০ : জিন্দাপীর মসজিদের মস ও লবণ আক্রান্ত টেরাকোটা অলংকৃত ফাটলযুক্ত মেহরাব।

রেজা খোদা মসজিদ (Rezakhoda Mosque): সুন্দরঘোণা গ্রামে অবস্থিত এ মসজিদ পুরোটায় ধ্বংস প্রাপ্ত। উত্তর ও পশ্চিম দিকের দেয়ালের ধ্বংসাবশেষ দাঁড়িয়ে আছে। স্থানীয় লোকজন ভগ্ন মসজিদের মাঝখানে টিনশেড বানিয়ে নামাজ পড়ে। এখানে বেশ কিছু টেরাকোটা ও পাথরের পিলারের অংশ পড়ে থাকতে দেখা গেছে। ভগ্ন দেয়াল দু'টোর একটি টেরাকোটায় সুসজ্জিত এবং ব্যাপকভাবে লবণ ও ক্ষুদ্র সবুজ উদ্ভিদে আক্রান্ত। এখানে কোন প্রকার সংরক্ষণ কাজ করা হয়নি।

ক্ষতিগ্রস্ততার কারণ নিরূপণ (Determination of causes of deterioration)

ক্ষতিগ্রস্ততার কারণ নিরূপণে স্মৃতিচিহ্নগুলোর (ইমারত) আপেক্ষিক আর্দ্রতা পরিমাপ, কেলাসিত লবণ ও ক্ষুদ্র উদ্ভিদের নমুনা বিশ্লেষণ এবং স্যাঁতসেঁতের মাত্রা পরিমাপ করা হয়। নিচে পদ্ধতি ও ফলাফল দেখানো হলো ঃ

আপেক্ষিক আর্দ্রতা পরিমাপ ঃ নভেম্বর ২০০৪ মাসের শেষ সপ্তাহে ষাট গম্বুজ মসজিদ, সিংগার মসজিদ, উলুঘ খান জাহানের মাজার, নয় গম্বুজ মসজিদ, রণবিজয়পুর মসজিদ ও চূনাখোলা মসজিদের অভ্যন্তর এবং এগুলোর সংলগ্ন খোলা মাঠ থেকে সকাল, দুপুর ও গোধুলীলগ্নে **হুইরলিং হাইগ্রোমিটার**-এর সাহায্যে আপেক্ষিক আর্দ্রতা পরিমাপ করা হয়। নিচের ছকে তা দেখানো হলো :

ছক - ৩ : ষাট গম্বুজ ও সিংগার মসজিদে সংগৃহীত আপেক্ষিক আর্দ্রতা

স্মৃতিচিহ্নের নাম	তারিখ	সময়	সংলগ্ন মাঠের আ: আর্দ্রতা (%)	অভ্যন্তরের আঃ আর্দ্রতা (%)
ষাট গম্বুজ মসজিদ	২৭ নভেম্বর ২০০৪	সন্ধ্যা ৬টা	৭০	৭৮
	২৮ নভেম্বর ২০০৪	সকাল৬-৩০মি:	৮৬	৯০
		দুপুর ১২টা	৬৪	৭৬
		বিকাল ৫টা	৬৮	৭৬
	২৯ নভেম্বর ২০০৪	সকাল৬-৩০মি:	৮৬	৯২
		দুপুর ১২টা	৬২	৬৬
		বিকেল ৫টা	৬২	৬৯
সিংগার মসজিদ	২৮ নভেম্বর ২০০৪	সকাল ৭টা	৮৬	৯
		দুপুর১২-৩০মি:	৬৩	৬৬
		বিকেল৫-১০মি:	৬১	৬৮
	২৯ নভেম্বর ২০০৪	সকাল ৭টা	৮৬	৯
		দুপুর১২-৩০মি:	৬২	৬৬
		বিকেল৫-১০মি:	৬২	৬৯

ছক - ৪: খান জাহানের মাজার ও নয় গম্বুজ মসজিদে সংগৃহীত আপেক্ষিক আর্দ্রতা

স্মৃতিচিহ্নের নাম	তারিখ	সময়	সংলগ্ন মাঠের আঃ আর্দ্রতা (%)	অভ্যন্তরের আঃ আর্দ্রতা (%)
খানজাহানের মাজার	২৮ নভেম্বর ২০০৪	সকাল ৬-৩০মি:	৭৯	৮৩
		দুপুর ১২টা	৪৫	৫০
		বিকেল ৫টা	৫৮	৬২
	২৯ নভেম্বর ৩০০৪	সকাল ৬-৩০মি:	৮২	৮৬
		দুপুর ১২ টা	৪৭	৫০
		বিকেল ৫টা	৬২	৬৫
নয় গম্বুজ মসজিদ	২৮ নভেম্বর ২০০৪	সকাল ৭টা	৮২	৮৬
		দুপুর ১২-৩০মি:	৫০	৫৩
		বিকেল ৫-১০মি:	৬১	৬৫
	২৯ নভেম্বর ২০০৪	সকাল ৭টা	৮২	৮৬
		দুপুর ১২-৩০মি:	৫৬	৬০
		বিকেল ৫-১০মি:	৬১	৬৫

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ছক - ৫: রণবিজয়পুর ও চুনাখোলা মসজিদে সংগৃহীত আপেক্ষিক আর্দ্রতা

স্মৃতিচিহ্নের নাম	তারিখ	সময়	সংলগ্ন মাঠের আঃ আর্দ্রতা (%)	অভ্যন্তরের আঃ আর্দ্রতা (%)
রণবিজয়পুর মসজিদ	২৮ নভেম্বর ২০০৪	সকাল ৬-৩০মি:	৮০	৮৫
		দুপুর ১২টা	৬২	৬৫
		বিকেল ৪-৪৫মি	৬৭	৭২
	২৯ নভেম্বর ২০০৪	সকাল ৬-৩০মি:	৭৯	৮৪.৫
		দুপুর ১২ টা	৫৮	৬৪
		বিকেল ৪-৪৫মি:	৬৮	৭১.৫
চূনাখোলা মসজিদ	২৮নভেম্বর ২০০৪	সকাল ৭টা	৭৮	৮২
		দুপুর ১২-৩০মি:	৬৩	৬৬
		বিকেল ৫টা	৬৫	৬৮
	২৯ নভেম্বর ২০০৪	সকাল ৭টা	৭৮	৮২
		দুপুর ১২-৩০মি:	৬৩	৬৬
		বিকেল ৫টা	৬৫	৬৮

স্যাঁতসেঁতে পরিমাপ (Measurement of damp): বাগেরহাট বিশ্ব ঐতিহ্য স্থানের আওতাধীন স্মৃতিচিহ্নসমূহের (Monuments) দেয়াল ও মেঝের জলীয় বাষ্প ধারণ (moisture content) ক্ষমতা নভেম্বর ২০০৪ মাসের শেষ সপ্তাহে protimeter এর সাহায্যে পরিমাপ করা হয়, নিচের ছকে তা দেখানো হলোঃ

ছক - ৬: স্মৃতিচিহ্নের দেয়াল ও মেঝেতে জলীয় বাষ্পের পরিমাণ

স্মৃতিচিহ্নের নাম	ধারণকৃত জলীয় বাষ্পের গড় পরিমাণ (%)				
	পূর্ব দেয়াল	পশ্চিম দেয়াল	উত্তর দেয়াল	দক্ষিণ দেয়াল	মেঝে
ষাট গম্বুজ মসজিদ	২২	২৫ এর উপর	২৫ এর উপর	২৩	২৩
সিংগার মসজিদ	২৩	২৫ এর উপর	ঐ	২১	২৫ এর উপর
বিবি বেগনির মসজিদ	২১	২৩	ঐ	২৪	২৪
চূনা খোলা মসজিদ	২৪	২৫এর উপর	ঐ	২৪	২৫ এর উপর
রণবিজয়পুর মসজিদ	২২	২৫ এর উপর	ঐ	২৩	২৪
সাবেক ডাঙ্গা পুরাকীর্তি	২১	২৩	২২.৫	২২	২২
খান জাহানের মাজার	২০	২২	২৩	২০	২১
নয়গম্বুজ মসজিদ	২৪	২৫ এর উপর	২৫এর উপর	২৪	২৪
জিন্দাপীরের মসজিদ	২৩	২৩	২৫এর উপর	২৩	২৩

স্মৃতিচিহ্নে বিরাজমান লবণের সনাক্তকরণ: স্মৃতিচিহ্নসমূহের দেয়ালে কেলাসিত লবণের নমুনা সংগ্রহ করা হয়। ১২টি নমুনার Macro-chemical Analysis (Qualitative) পদ্ধতিতে বিশ্লেষণ করে লবণ সনাক্ত করা হয় (Anwar 1967:30-80), তা ছক-৭ তে দেখানো হলো:

ছক - ৭: স্মৃতিচিহ্নগুলো থেকে সংগৃহীত লবণের পরিচিতি

নমুনা সংগ্রহের স্থান	নমুনা নং	উপস্থিত অম্লীয় মূলক	উপস্থিত ক্ষারকীয় মূলক	সনাক্তকৃত লবণ
ক) ষাট গম্বুজ মজিদ এর (১) সীমানা প্রাচীর (২)পুনরানয়নকৃত বাইরের টারিট (৩)পুনরানয়নকৃত ভিতরের পিলারের গোড়া	SGM- 1 SGM- 2 SGM-3	SO_4^{-2} SO_4^{-2} SO_4^{-2}	Mg^{+2}, Ca^{+2} Mg^{+2}, Ca^{+2} Mg^{+2}, Ca^{+2}	$MgSO_4$,$CaSO_4$ $MgSO_4$,$CaSO_4$ $MgSO_4$,$CaSO_4$
খ) সিংগার মসজিদের (১) ভিতরে পূর্ব দেয়াল (২) প্রধান মেহরাবের বাইরের দেয়াল	SM- 4 SM-5	SO_4^{-2} SO_4^{-2}	Mg^{+2}, Ca^{+2} Mg^{+2}, Ca^{+2}	$MgSO_4$,$CaSO_4$ $MgSO_4$,$CaSO_4$
গ) রণবিজয়পুর মসজিদের (১) ভিতরের প্লাস্টার করা দেয়াল (২)প্রধান মেহরাবের দেয়াল	RM-6 RM-7	SO_4^{-2} SO_4^{-2}	Mg^{+2},Ca^{+2} Mg^{+2},Ca^{+2}	$MgSO_4$,$CaSO_4$ $MgSO_4$,$CaSO_4$
ঘ) নয়গম্বুজ মসজিদের (১)বাইরের উত্তর দেয়াল (২)বাইরের দক্ষিণ দেয়াল	NDM- 8 NDM- 7	SO_4^{-2} SO_4^{-2}	Mg^{+2}, Ca^{+2} Mg^{+2}, Ca^{+2}	$MgSO_4$,$CaSO_4$ $MgSO_4$,$CaSO_4$
ঙ) জিন্দাপীরের মসজিদের বাইরের দক্ষিণ দেয়াল	ZPM-10	SO_4^{-2}	Mg^{+2}, Ca^{+2}	$MgSO_4$,$CaSO_4$
চ) সাবেক ডাঙ্গার পুরাকীর্তির দক্ষিণ দেয়াল	SD-11	SO_4^{-2}	Mg^{+2}, Ca^{+2}	$MgSO_4$,$CaSO_4$
ছ) চুনাখোলা মসজিদ এর পূর্ব দেয়াল	CHUN-12	SO_4^{-2}	Mg^{+2}, Ca^{+2}	$MgSO_4$,$CaSO_4$
জ) ষাট গম্বুজ মসজিদ এলাকায় রেস্ট হাউজ	RH-13	SO_4^{-2}	Mg^{+2}, Ca^{+2}	$MgSO_4$,$CaSO_4$

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ক্ষুদ্র উদ্ভিদ সনাক্তকরণ : স্মৃতিচিহ্ন সমূহ থেকে সংগৃহীত ক্ষুদ্র উদ্ভিদের নমুনা ভৌত ও মাইক্রোসকোপিক পদ্ধতিতে পরীক্ষা করা হয়। এগুলোর morphological characters এর সঙ্গে পরিচিত ক্ষুদ্র উদ্ভিদের morphological characters এবং আলোকচিত্রের সঙ্গে তুলনা করে ক্ষুদ্র উদ্ভিদগুলো সনাক্ত করা হয় (Brightman 1966:196-180, Chopra 1976:336)। নিচে ছক-৮তে দেখানো হলো :

ছক-৮: স্মৃতিচিহ্নের সনাক্তকৃত ক্ষুদ্র উদ্ভিদ

নমুনা সংগ্রহের স্থান	নমুনা সংখ্যা	মরফোলজিক্যাল ক্যারেক্টার		সনাক্তকৃত উদ্ভিদ
		অজানা নমুনা	পরিচিত নমুনা	
ষাট গম্বুজ মসজিদ সিংগার মসিজিদ	ক-১	১. অনেক গুলো এক সঙ্গে জন্মে। ২. উদ্ভিদের শরীর সুতার ন্যায় আঁশ দিয়ে তৈরি এবং শাখা প্রশাখা যুক্ত। ৩. সবুজ ঘাসের মত রং	একই রকম	অ্যালগী (ক্লোরো ফিসিয়া)
চুনাখোলা মসজিদ বিবিবেগনির মসজিদ	ক-২	১. অ্যালগীর সঙ্গে জন্মায় এবং অ্যালগীরহাইপা-এর কোষগুলো ঢিলাঢালাভাবে মধ্য স্তরে সযুক্ত থাকে। ২. সাদা ও সমতল আবরণযুক্ত।	একই রকম	লাইকেন (ক্রাস্টাসিয়া)
রেজা খোদা মসজিদ খানজাহানের মাজার শরীফ	ক-৩	১. গুচ্ছ গুচ্ছভাবে জন্মায় ও আলগাভাবে দেয়ালে লেগে থাকে। ২. পাতার রং ধূসর সবুজবর্ণ। ৩. পাতার কোষগুলো ফাঁপা।	একই রকম	মস (সিকোব্রায়াম গ্লাউকাম)

ফলাফল ও আলোচনা (Result and discussion)

বাংলাদেশে নভেম্বর মাস থেকে শুষ্ক মৌসম শুরু হয়। এটি এপ্রিলের প্রথমার্ধ পর্যন্ত বিরাজ করে। এ সময়ে বায়ুমন্ডলে আপেক্ষিক আর্দ্রতা ৭০ থেকে ৫০% পর্যন্ত বিরাজ করে। এরপর থেকে আপেক্ষিক আর্দ্রতা বাড়তে থাকে এবং তা ৯৮% পৌঁছে। আর্দ্র মৌসুমে ও বর্ষায় হাইগ্রোসকোপিক (Hygroscopic) দ্রব্যাদি সংগৃহীত জলীয় বাষ্প (moisture) শুষ্ক মৌসুমে ছেড়ে দেয়। এই সময় বিল্ডিং ম্যাটেরিয়ালের দ্রবণীয় লবণগুলো জলীয় বাষ্পের সঙ্গে বের হয়ে আসে। জলীয় বাষ্প উড়ে যায় আর ইট, পাথর এবং প্লাস্টার করা পৃষ্ঠের অভ্যন্তর থেকে ওপরিভাগ পর্যন্ত এলাকায় লবণ কেলাস তৈরি করে লেগে থাকে। বন্ধ না করা পর্যন্ত এ প্রক্রিয়া ক্রমান্বয়ে চলতে থাকে। কেলাসগুলোর চাপ এর ফলে এসব দ্রব্যাদির আক্রান্ত এলাকায় ছিদ্র (spores) ও পরস্পরের মধ্যের সংযোগ বন্ধন ভেঙ্গে ওপরিভাগ আলগা হয়। এ কারণে ইট, পাথর ও প্লাস্টারের ওপরিভাগ খুলে পড়তে দেখা যায়।

বাগেরহাট স্মৃতিচিহ্নসমূহ Monuments) থেকে আপেক্ষিক আর্দ্রতা ও স্যাঁতসেঁতের মাত্রা পরিমাপ এবং সংগৃহীত লবণের নমুনা বিশ্লেষণ থেকে এটি প্রতীয়মান হয় যে, ম্যাগনেসিয়াম সালফেট ও ক্যালসিয়াম সালফেট লবণ বিল্ডিং ম্যাটেরিয়ালের অভ্যন্তরে আছে। আর্দ্র আবহাওয়ায় এগুলো জলীয় বাষ্পের ঘনীভূত পানিতে গলে স্যাঁতসেঁতে এলাকার সৃষ্টি করে এবং একইভাবে বর্ষাকালে এর পরিধি বাড়ায়। বর্ষাকালে বিভিন্ন উৎস থেকে বিভিন্ন উপায়ে সংগৃহীত এই লবণগুলোর জলীয় দ্রবণ শুষ্ক মৌসুমে বাহির হয়ে আসায় স্মৃতিচিহ্নের দেওয়াল, মেঝে ও ছাদে লবণগুলোর কেলাস সৃষ্টি হয়। এর কারণ হলো: (১) লবণগুলো দ্রবণীয় অবস্থায় পানি ও মাটিতে থাকে। বিল্ডিং ম্যাটেরিয়ালস ইট, পাথর ও মর্টারের capillary attraction এর মাধ্যমে Ground and underground water থেকে লবণগুলো Building Fabrics তে প্রবেশ করেছে। (২) যে ইটগুলো দিয়ে Newface তৈরি করা হয়েছে, এগুলোর মাটিতে এই লবণ ছিল। প্রমাণ হিসাবে ষাটগম্বুজ মসজিদের Rest house থেকে সংগৃহীত নমুনার বিশ্লেষণে (ছক-৭ নমুনা নং ১৩) এই লবণগুলো পাওয়া গেছে।

এই লবণগুলো বেশীদিন কোথাও অবস্থান করলে পানিতে দ্রবীভূত হয়ে পার্শ্ববর্তী এলাকাতে ক্রমাগতভাবে ছড়াতে থাকে এবং এলাগুলোর স্যাঁতসেঁতের পরিধি বৃদ্ধি করে। ক্ষুদ্র উদ্ভিদ অ্যালগী, মস ও লাইকেন এসব এলাকাতে জন্মায়। স্মৃতিচিহ্নসমূহে ব্যাপক ভাবে স্যাঁতসেঁতে, লবণের কেলাস ও ক্ষুদ্র এসব উদ্ভিদ জন্মানোর কারণ হিসাবে লবণের উপস্থিতি বিবেচনা করা যায়।

একই সঙ্গে সমস্যাগুলোর কারণ হিসাবে নিচের বিষয়গুলো গণ্য করা যেতে পারে

স্মৃতিচিহ্নগুলো (Monuments) থেকে সম্ভবত: লবণ অপসারণ করা হয়নি। মাষ্টার প্লানে উল্লেখিত পদ্ধতিতে লবণ অপসারণ করা হলে এত তাড়াতাড়ি এ সমস্যা দেখা দিত না।

১. ড্যাম্প প্রুফ কোর্স ব্যবহার না করে পুনরানয়ন কাজ অর্থাৎ নতুন ইট গেঁথে Refacing দেয়া হয়েছে। ফলে পুরনো দেয়াল, মেঝে ও ছাদের বিল্ডিং ম্যাটেরিয়ালে এবং নতুন ইটে বিরাজমান লবণ একত্রে ক্রিয়া করছে বলে সমস্যা ব্যাপক আকার ধারণ করতে যাচ্ছে।

২. বৃষ্টির পানি ছাদ থেকে নির্গমণের জন্য কোন পৃথক ড্রেন রাখা হয়নি। ফলে বিল্ডিং এর চারদিকে বিস্তৃত জায়গা দিয়ে পানি গড়িয়ে পড়ায় লবণের বিস্তৃতি এবং স্যাঁতসেঁতের পরিধি বাড়ছে ও ক্ষুদ্র উদ্ভিদ জন্মানোর মাত্রা ক্রমাগতভাবে বৃদ্ধি পাচ্ছে।

৩. প্রায় প্রতিটি স্মৃতিচিহ্নের (Monuments) পাশে পুকুর, দিঘি রয়েছে। চূনাখোলা মসজিদের চারদিকে মাছের ঘের এবং পানিতে উৎপাদনশীল ধান ক্ষেত রয়েছে। এগুলো আপেক্ষিক আর্দ্রতা বাড়ানো ও Capillary action of water এর প্রধান উৎস হিসাবে সারা বছর কাজ করছে। উল্লেখিত সমস্যাগুলো সারা বছরই বিরাজ করে এবং ক্রমাগতভাবে প্রকট থেকে প্রকটতর আকার ধারণ করছে।

অন্যান্য সমস্যা (Other problems)

১. ষাট গম্বুজ মসজিদ ও খানজাহানের মাজারে দ্বৈত প্রশাসন: (১) প্রত্নতত্ত্ব অধিদপ্তর ও (২) স্থানীয় জেলা প্রশাসন থেকে গঠিত কমিটি দ্বারা পরিচালিত হচ্ছে। ফলে দর্শক ও তাদের কর্মকান্ড নিয়ন্ত্রিত হচ্ছে না। এ দু'টি স্থানের নিরাপত্তা ও সুষ্ঠু প্রশাসনে বিঘ্ন ঘটছে। যেমন স্থানীয় কমিটি দানের বাক্স রেখেছে। ষাট গম্বুজ মসজিদের দরজা সার্বক্ষণিক খোলা থাকছে। স্থানীয়ভাবে আয়োজিত ধর্মীয় সভা Monuments এর অভ্যন্তরে অনুষ্ঠিত হচ্ছে। এতে pilferage and vandalism সমস্যা বেড়ে যাবার সমূহ সম্ভাবনা রয়েছে।

২. প্রত্নতত্ত্ব অধিদপ্তর থেকে নিয়োগপ্রাপ্ত কর্মকর্তা কর্মচারীবৃন্দ এবং স্থানীয়ভাবে গঠিত কমিটির সদস্যবৃন্দের মধ্যে প্রাধান্য বিস্তারের প্রতিযোগিতা থাকায় ষাট গম্বুজ মসজিদ ও খান জাহানের মাজারের জন্য বিভিন্ন শাখায় অধিদপ্তরের কর্মকর্তা কর্মচারি স্বাধীনভাবে কাজ করতে পারছে না।

আন্তর্জাতিক সনদ অবজ্ঞা (Violation of international charter)

আন্তর্জাতিক সনদ, ভেনিস চার্টার অনুসরণ করে Bagerhat World Heritage Site এর আওতাধীন Monuments এর সংরক্ষণ ও পূনরানয়ন কাজ করা হয়নি। ষাট গম্বুজ মসজিদের Refacing করা ৫৯টি পাথরের পিলার ইট দিয়ে ডেকে দেয়া, ভিতরে প্লাস্টার করা এবং ছাদের গম্বুজ সিমেন্ট, বালি ও রেড অক্সাইড দিয়ে প্লাস্টার করা হয়েছে। এসব ক্ষেত্রে ভেনিস চার্টারের আর্টিকেল নং ৫ থেকে ৭ অবজ্ঞা করা হয়েছে। সিংগার ও রণবিজয়পুর মসজিদ এবং খান জাহানের মাজার শরীফ কক্ষে একই কায়দায় Refacing and plaster করা হয়েছে। তবে সাবেকডাঙ্গার কক্ষটি ও বিবি বেগনি মসজিদে বাইরে Refacing দেয়া হয়েছে কিন্তু ভিতরে প্লাস্টার করা হয়নি। এগুলোতে যে ইট ব্যবহার করা হয়েছে Monuments গুলোর ইটের আকৃতি বিশিষ্ট নয়। একেবারে আধুনিক কালের সাধারণ ইট। এক্ষেত্রে Conservation ethics অবজ্ঞা করা হয়েছে।ষাট গম্বুজ মসজিদের Pediment নিশ্চিহ্ন করায় Venice charter এর article-6 অবজ্ঞা করা হয়েছে।

২০০২ সালে বাগেরহাট বিশ্ব ঐতিহ্য স্থানের আওতাধীন Monuments এর সংরক্ষণ ও পুনরানয়ন কাজ শেষ হয়েছে। এসব স্মৃতিচিহ্নসমূহের কোন পদ্ধতিতে কি কি রাসায়নিক ও ম্যাটেরিয়াল ব্যবহার করে সংরক্ষণ ও পুনরানয়ন করা হয়েছে, এতদসংক্রান্ত ছাপানো প্রকাশনা জাতীয় গ্রন্থাগার,প্রত্নতত্ত্ব অধিদপ্তরের গ্রন্থাগারসহ বিভিন্ন সরকারি গ্রন্থাগারে থাকা উচিত ছিল। কিন্তু কোন প্রকাশনা খুঁজে পাওয়া যায়নি। এক্ষেত্রে আন্তর্জাতিক ভেনিস সনদের Article-16 অবজ্ঞা করা হয়েছে।

সুপারিশ (Suggestions)

লবণ অপসারণ: শুষ্ক মৌসুমে ব্রাশিং পদ্ধতিতে আক্রান্ত স্থানসমূহ থেকে লবণের কেলাস সংগ্রহ করে Monuments থেকে অনেক দূরে ফেলতে হবে। বিশেষ করে নদীতে ফেলতে পারলে ভাল হয়। এরপর পেপার পাল্প পুলটিস পদ্ধতিতে আক্রান্ত স্থানসমূহে লাগিয়ে যতদিন পর্যন্ত লবণ অপসারিত না হবে, ততদিন পর্যন্ত পর্যায়ক্রমে প্রক্রিয়াটি চালিয়ে যেতে হবে। লবণ অপসারিত স্থানসমূহে শুকনো অবস্থায় PVA এর প্রলেপ লাগিয়ে দিতে হবে। PVA প্রলেপ বছরে ২ বার প্রয়োগ করলে এ সমস্যা থেকে রক্ষা পাওয়া যেতে পারে।

ক্ষুদ্র উদ্ভিদ দমন : মস, অ্যালগি ও লাইকেন জন্মানো স্থানসমূহে জিংক সিলিকো ফ্লোরাইড অথবা ম্যাগনোসিয়াম সিলিকো ফ্লোরাইডের ৫-১০% পানির দ্রবণ ব্রাশ দিয়ে লাগিয়ে দিতে হবে[৪]। যতদিন পর্যন্ত উদ্ভিদগুলো পুরোপুরি নিধন না হবে, ততদিন এই রাসায়নিক দিয়ে ৭দিন পর পর প্রলেপ দিতে হবে। উদ্ভিদ মারা গেলে ব্রাশ দিয়ে তা পরিস্কার করে PVA প্রলেপ দিতে হবে।

গম্বুজ ও দেয়াল পুনরানয়ন পদ্ধতি: উপরোক্ত পদ্ধতিতে ক্ষুদ্র উদ্ভিদ ও লবণ অপসারণের পর ৬ ভাগ বিশুদ্ধ বালি, ১ ভাগ চুন ও পরিমাণ মত পানি মিশিয়ে মর্টার তৈরি করতে হবে। এরপর এই মর্টারের ৬ ভাগের সঙ্গে ১/২ ভাগ পোর্টল্যান্ড সিমেন্ট মিশিয়ে তৈরি মর্টার দিয়ে গম্বুজগুলো প্লাস্টার করা যেতে পারে[৪]। দেয়ালের ইটের গাঁথুনি থেকে নষ্ট হওয়া মর্টার অপসারণ করে ৩ ভাগ বিশুদ্ধ বালির সঙ্গে ১ ভাগ চুন মিশিয়ে তৈরি মর্টার দিয়ে পয়েন্টিংয়ের কাজ করা যেতে পারে।

পরিশেষে, দেশী ও বিদেশী সংরক্ষণ বিজ্ঞান ও আর্কিটেক্সচার বিষয়ে বিশেষজ্ঞদের পরামর্শ গ্রহণ করে পুনরায় সংরক্ষণ ও পুনরানয়ন কাজ যথাশীঘ্র শুরু না করলে মূল্যবান বিশ্ব ঐতিহ্য স্থানের স্মৃতিচিহ্নগুলো ধ্বংস হয়ে যাবার সমূহ সম্ভাবনা রয়েছে।

প্রত্নতত্ত্ব
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Summary

The restored and non-restored monuments of first half of the 15th century in the World Cultural Heritage Site at Mosque-city Khalifatabad under the district of Bagrthat, have been badly suffered by the problems of efforescence, dampness and the growth of organic vegetations. The analytical results of the samples, which were collected from those monuments in November of the yera 2004, show the existence of Magnesium sulphate, Calcium sulphate salts and Algae, Moss, and Lichen plants. In that dry season, the measured relative humidity inside the monuments was 65-85% and the moisture-content of the floor and walls was 20-25% more. These salts, plants, humidity and moisture-content are considred as the main causes for deteriorting those monuments. Zinc silico-fluoride for controlling the growth of micro-plants, paper pulp poultice method for removal of salts and lime-mortar for restoration work are suggested to apply.

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মোগল স্থাপত্য ভাঙ্গনী মসজিদঃ স্থাপত্যিক মূল্য বিচার

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রাজশাহী বিশ্ববিদ্যালয়

সুদীর্ঘ মুসলিম শাসনামলে (১২০৪-১৭৫৭ খ্রি.) নির্মিত বহু মূল্যবান প্রত্নসম্পদ এ দেশের প্রত্যন্ত অঞ্চলে ছড়িয়ে-ছিটিয়ে রয়েছে। এ ধরনের একটি প্রাচীন প্রত্ন নিদর্শন হলো ভাঙ্গনী মসজিদ। অয়তাকৃতির এ মসজিদটি তিন গম্বুজ বিশিষ্ট ও গম্বুজ সম্বলিত বারান্দার সমন্বয়ে গঠিত। মসজিদের চার কোণায় চারটি গোলায়িত বুরুজ রয়েছে। বুরুজগুলো কার্নিশের উপরিভাগ পর্যন্ত উত্থিত এবং ছত্রি দ্বারা আচ্ছাদিত। প্রতিটি গম্বুজ ও ছত্রির শীর্ষবিন্দুতে শিরোচূড়া বিদ্যমান। নামাজগৃহে প্রবেশের জন্য তিনটি প্রবেশপথ রয়েছে এবং উত্তর ও দক্ষিণ দিকেও রয়েছে অনুরূপ একটি করে প্রবেশপথ যা বর্তমানে জানালা হিসেবে ব্যবহৃত হচ্ছে। এ প্রবেশপথগুলোর বিপরীতে কিবলা দেয়ালে রয়েছে তিনটি মিহরাব যার মধ্যে কেন্দ্রীয় মিহরাবটি অর্ধ-অষ্টভুজাকৃতির এবং অপর দুটি অর্ধ-বৃত্তাকৃতির। পার্শ্ববর্তী মিহরাব দুটির খিলানমুখ অর্ধ-বৃত্তাকৃতির হলেও মধ্যবর্তী মিহরাবের খিলান খাঁজ বিশিষ্টি নকশায় সজ্জিত। তাছাড়া বারান্দায় রয়েছে পাঁচটি প্রবেশপথ। তন্মধ্যে উভয় পার্শ্বের প্রবেশপথ দুটি মধ্যবর্তী তিনটি অপেক্ষা বৃহত্তর। সামগ্রিকভাবে এর গঠনশৈলী ও আলঙ্কারিক বৈশিষ্ট্য দৃষ্টি কাড়ার মত। মোগল আমলে নির্মিত তিন গম্বুজ বিশিষ্ট মসজিদ সচরাচর দেখা গেলেও বর্তমান মসজিদটির সম্মুখে বারান্দা বাংলার মুসলিম স্থাপত্যের ইতিহাসে একটি নতুন সংযোজন।

ভূমিকা

ভৌগোলিক আয়তনের দিক থেকে বাংলাদেশ ছোট হলেও এ দেশ প্রত্নসম্পদে খুবই সমৃদ্ধ। এ দেশের প্রত্যন্ত অঞ্চলে ছড়িয়ে-ছিটিয়ে রয়েছে অসংখ্য মূল্যবান প্রত্নসম্পদ। সুদীর্ঘ মুসলিম শাসনামলে (১২০৪-১৭৫৭ খ্রি.) বাংলার শাসকগণ নির্মাণ করেছেন বিভিন্ন ধরনের ধর্মীয় ও লৌকিক ইমারত। যেমন মসজিদ, মাদ্রাসা, সমাধি, প্রাসাদ, দুর্গ প্রভৃতি। কিন্তু এগুলোর অধিকাংশই আজ ধ্বংসযজ্ঞে পরিণত। কিছু নিদর্শন বাংলাদেশ প্রত্নতত্ত্ব অধিদপ্তর কর্তৃক সংরক্ষণের ব্যবস্থা নেয়া হলেও প্রত্যন্ত অঞ্চলের ইমারতসমূহ রয়েছে অযত্ন-অবহেলায় গবেষকদের দৃষ্টির অন্তরালে। বর্তমান মিঠাপুকুর থানার পায়রাবন্ধ বাজারের সন্নিকটে অবস্থিত এরূপ একটি প্রাচীন প্রত্ন নিদর্শন হলো ভাঙ্গনী মসজিদ। মসজিদটি বাংলার মুসলিম স্থাপত্যের একটি ব্যতিক্রমধর্মী নিদর্শন। মোগল আমলে নির্মিত এ মসজিদটি বাংলার মুসলিম স্থাপত্যের এক অনন্য উদাহরণ। রংপুর জেলার মিঠাপুকুর উপজেলার অন্তর্গত উপজেলা সদর থেকে উত্তর-পূর্ব দিকে ১৫ কি.মি. এবং পায়রাবন্ধ বাজার থেকে ৫ কি.মি. দক্ষিণ-পূর্ব দিকে ভাঙ্গনী গ্রামে মসজিদটি অবস্থিত। একটি প্রাচীন দীঘির উত্তর পাড়ে অবস্থিত এ মসজিদটি বর্তমানে স্থানীয়ভাবে সংস্কারের ফলে সম্পূর্ণ সুরক্ষিত অবস্থায় দণ্ডায়মান। আলোচ্য প্রবন্ধে অজ্ঞাত এ মসজিদটির স্থাপত্যশৈলীর বিশদ বিবরণ জনসমক্ষে উন্মোচনের প্রয়াস নেয়া হয়েছে।

ভূমি নকশা ও গঠন (ভূমি নকশা ও আলোকচিত্র)

ইষ্টক নির্মিত ও সিমেন্ট-বালির তৈরি পলেস্তরাকৃত এ মসজিদটি একটি উঁচু বেদীর (platform) পশ্চিমাংশে অবস্থিত। এর অনুচ্চ আবেষ্টনী প্রাচীরের পূর্ব দিকে একটি প্রবেশপথ বিদ্যমান যা বর্তমানে সংস্কারের মাধ্যমে নতুনভাবে নির্মিত। মসজিদটি দৈর্ঘে ১৪ মি. ও প্রস্থ ৯.২০ মি.। মসজিদের চারকোণায় চারটি গোলাকৃতির বুরুজ রয়েছে এবং প্রতিটি বুরুজ আবার একটি করে গোলাকৃতির আলঙ্কারিক সরু ক্ষুদ্র বুরুজ (turret) দ্বারা বেষ্টিত। কৌণিক এ বুরুজগুলোর মধ্যভাগেও অধীনস্থ সরু ক্ষুদ্র বুরুজ বিদ্যমান। এ বুরুজগুলো ও সংলগ্ন সরু ক্ষুদ্র বুরুজ বপ্রের উপরিভাগ পর্যন্ত উত্থিত এবং ছত্রি বা কিউপোলা দ্বারা আচ্ছাদিত। প্রতিটি ছত্রির শীর্ষ বিন্দুতে আবার কলসাকৃতির শিরোচূড়া বিদ্যমান। নামাজগৃহে প্রবেশের জন্য পূর্ব দেয়ালে তিনটি এবং উত্তর ও দক্ষিণ দেয়ালে একটি করে খিলানযুক্ত প্রবেশপথ রয়েছে। বর্তমানে উত্তর ও দক্ষিণ দিকের খিলানপথ দুটি জানালা হিসেবে ব্যবহৃত হচ্ছে। নামজগৃহের কেন্দ্রীয় প্রবেশপথ এবং উত্তর ও দক্ষিণ দিকের প্রবেশপথ সম্মুখদিকে উদ্‌গত এবং এ উদ্‌গত অংশের উভয় পার্শ্বে গোলায়িত সরু ক্ষুদ্র বুরুজ সংযোজিত। প্রবেশপথগুলোর বিপরীতে কিবলা দেয়ালে তিনটি মিহরাব সন্নিবেশিত যার মধ্যে কেন্দ্রীয় মিহরাবটি অর্ধ-অষ্টভুজাকৃতির এবং পার্শ্ববর্তী দুটি অর্ধ-বৃত্তাকৃতির। কেন্দ্রীয় প্রবেশপথের ন্যায় কেন্দ্রীয় মিহরাবও পশ্চাৎ দিকে কিছুটা উদ্‌গত এবং এ উদগত অংশের উভয় পার্শ্বে দুটি গোলায়িত সরু ক্ষুদ্র বুরুজ সংযোজিত। পার্শ্ববর্তী মিহরাব দুটির খিলানমুখ অর্ধ-বৃত্তাকৃতির হলেও মধ্যবর্তী মিহরাবের খিলান খাঁজবিশিষ্ট নকশায় সজ্জিত।

মসজিদের নামাজগৃহের অভ্যন্তরীণ পরিমিতি উত্তর-দক্ষিণে ১০.৮০ মি. এবং পূর্ব-পশ্চিমে ২.৯০ মি.। নামাজগৃহটি দুটি খিলান দ্বারা তিনটি সমবর্গাকার 'বে'-তে বিভক্ত। প্রতিটি 'বে'-বর্গের উপর প্রতিষ্ঠিত তিনটি গম্বুজ সমগ্র নামাজগৃহকে আচ্ছাদিত করে রেখেছে। গম্বুজগুলো আবার আড়াআড়ি খিলান, প্রবেশপথ ও মিহরাবের খিলানের উপর সংস্থাপিত। গম্বুজের কোণাগুলো আচ্ছাদিতকরণের জন্য ত্রিভুজাকৃতির পান্দানতিফ রীতির ব্যবহার পরিদৃষ্ট হয়। মসজিদের নামাজগৃহের সম্মুখভাগে সংযোজিত বারান্দাটির পরমিতি দৈর্ঘ্যে ১৪ মি. ও প্রস্থে ১.৯৫ মি.। এ বারান্দায় প্রবেশের জন্য পূর্ব দিকের দেয়ালে যে পাঁচটি প্রবেশপথ রয়েছে তন্মধ্যে উভয় পার্শ্বের প্রবেশপথ দুটি মধ্যবর্তী তিনটি অপেক্ষা বৃহৎ। বারান্দার ছাদ হিসেবে প্রতিষ্ঠিত চারটি ক্ষুদ্র গম্বুজ তিনটি সমান্তরাল খিলানের উপর প্রতিষ্ঠিত। গম্বুজের নিম্নাংশের কোণাগুলো ত্রিভুজাকৃতির পান্দানপিফ পদ্ধতিতে পূর্ণ। এ মসিজদের সকল গম্বুজের উপরে সূক্ষ্ম পদ্ম নকশা ও কলসযুক্ত শিরোচূড়ার

সংযোজন এর বহির্দৃশ্যকে সুশোভিত করেছে। মসজিদের কার্নিশ ও বপ্র সামগ্রিকভাবে ভূমির সঙ্গে সমান্তরাল।

অলঙ্করণ

কোণস্থিত বুরুজগুলো ও আলঙ্কারিক সরু ক্ষুদ্র বুরুজসমূহের নিম্নাংশ কলস নকশায় সুসজ্জিত। বপ্রের শিরোভাগ একটানা পাড় নকশায় সমৃদ্ধ। কিন্তু গম্বুজগুলোর নিম্নাংশ ফুল, লতা-পাতার অলঙ্করণে সুশোভিত। মসজিদের দেয়ালের আন্তঃ ও বহির্গাত্র একদা পলেস্তারার অলঙ্করণে নিখুঁতভাবে সজ্জিত ছিল যার দৃষ্টান্ত উত্তর ও দক্ষিণ দিকের দরজা ও মিহরাবগুলোতে অদ্যাবধি লক্ষ করা যায়। পার্শ্ববর্তী মিহরাবগুলোর গহবরে ক্ষুদ্রাকৃতির বৃক্ষ লতানো চারাগাছ ও গোলাপ (rosette) নকশা উৎকীর্ণ। আর কেন্দ্রীয় মিহরাবের অভ্যন্তরভাগে অনেকগুলো প্যানেল নকশা সন্নিবেশিত যেগুলোর বিষয়বস্তু হিসেবে লতা-পাতা, গোলাপ ও অন্যান্য নকশা খোদিত। পূর্ব দেয়ালের উপরিভাগে তিন সারি আয়তাকৃতির প্যানেল নকশা বিদ্যমান। প্যানেলগুলো আবার ফুল, লতা-পাতা, গোলাপ ও দ্রাক্ষালতার নকশায় অলঙ্কৃত। বারান্দার উভয় পার্শ্বের দেয়ালগাত্রে খিলানাকৃতির বদ্ধ প্যানেল নকশা সন্নিবেশিত এবং এদের উপরিভাগের ত্রিকোণাকার ক্ষেত্র ফুল, লতা-পাতা ও গোলাপ নকশায় শোভিত। প্যানেল খোদিত খিলানগুলোর সম্মুখভাগ খাঁজ নকশায় সজ্জিত।

নির্মাণ তারিখ

ভাঙ্গনী মসজিদে নির্মাণ তারিখ সম্বলিত কোনো লিপিফলক পাওয়া যায়নি। এমন কি অন্য কোনো বিবরণ থেকে এর কোনো সঠিক নির্মাণ তারিখ জানা যায় না। তবে জনসাধারণের বিবরণ অনুযায়ী মসজিদটি এনায়েত করিম নামক এক স্থানীয় ভূস্বামী কর্তৃক নির্মিত হয়েছিল। তাছাড়া এর বিদ্যমান ভূমি নকশা ও গঠনশৈলী পর্যালোচনা করলে মসজিদটির সম্ভাব্য নির্মাণ তারিখ সম্পর্কে কিছুটা ধারণা পাওয়া যায়। এ মসজিদের আঙ্গিক বৈশিষ্ট্যের মধ্যে উল্লেখ্যযোগ্য হলো: (১) দুটি খিলান দ্বারা তিনটি 'বে'-তে বিভক্ত নামাজগৃহটি তিনটি গম্বুজ দ্বারা আচ্ছাদিতকরণ, (২) কেন্দ্রীয় প্রবেশপথ ও কেন্দ্রীয় মিহরাবের উভয় পার্শ্বে সরু ক্ষুদ্র বুরুজ সংযোজন ও (৩) অর্ধ-অষ্টাতুজাকৃতির মিহরাব। বাংলায় প্রাক-মোগল আমলে নির্মিত কোনো মসজিদ বা ইমারতে উল্লিখিত বৈশিষ্ট্যাবলীর কোনোটি কখনও পরিলক্ষিত হয়নি। অন্যদিকে এগুলো মোগল মসজিদ স্থাপত্যেরই কতিপয় উল্লেখযোগ্য বৈশিষ্ট্য। তাছাড়া স্থাপত্যিক বৈশিষ্ট্যাবলী দৃষ্টে মনে হয় যে, মসজিদটি ১৭৯১ খ্রিস্টাব্দে নির্মিত রাজশাহী জেলার বাগদানী মসজিদ ও ১৮১০ খ্রিস্টাব্দে নির্মিত রংপুর জেলার মিঠাপুকুর মসজিদের অনুকরণে নির্মিত (বারী, ১৯৮৯ : ১৭০-৭৩ ও ১৭৩-৭৪)। সুতরাং রীতি কৌশল দিক থেকে পর্যালোচনা করে মসজিদটিকে আঠার শতকের শেষার্ধে অথবা উনিশ শতকের প্রথমার্ধে নির্মিত স্থাপত্যকীর্তি বলে ধরে নেয়া যায়।

পর্যালোচনা

আলোচ্য মসজিদটি তিনটি গম্বুজ ও গম্বুজ সম্বলিত বারান্দা নিয়ে গঠিত এবং মোগল আমলে বাংলার স্থাপত্যে এ ধরনের মসজিদের এটিই একমাত্র উদাহরণ। মোগল আমলে নির্মিত তিন গম্বুজ বিশিষ্ট মসজিদ সচরাচর দেখা গেলেও বর্তমান মসজিদটির সম্মুখে বারান্দার উপস্থিতি বাংলার মুসলিম স্থাপত্যের ইতিহাসে একটি নতুন সংযোজন। বাংলার মুসলিম স্থাপত্যে এক ও বহু গম্বুজ বিশিষ্ট মসজিদের সম্মুখে গম্বুজ অথবা চালাছাদ সম্বলিত বারান্দা সংযোজিত হতে দেখা যায়। কিন্তু তিন গম্বুজ বিশিষ্ট মসজিদের সম্মুখে গম্বুজ সম্বলিত বারান্দার সংযোজন বাংলার মুসলিম স্থাপত্যের ইতিহাসে একটি ব্যতিক্রমধর্মী উদাহরণ। বাংলার মোগল স্থাপত্যে বারান্দাযুক্ত এক গম্বুজ বিশিষ্ট মসজিদের প্রথম জ্ঞাত উদাহরণ হলো ১৬০৯ খ্রিস্টাব্দে নির্মিত টাঙ্গাইলের আতিয়া মসজিদ (মিচেল ১৯৭৮ : ৪০)। অবশ্য সুলতানি বাংলার এক গম্বুজ বিশিষ্ট মসজিদের সম্মুখে গম্বুজ আচ্ছাদিত বারান্দা সংযোজনের প্রমাণ পাওয়া যায়। এগুলোর মধ্যে সর্বপ্রাচীন উদাহরণ হলো ১৪৬০ খ্রিস্টাব্দে নির্মিত দিনাজপুর জেলার গোপালগঞ্জ মসজিদ (হাসান ১৯৭৯ : ১১৪)। এ ধরনের বারান্দাযুক্ত এক গম্বুজ মসজিদের অন্যান্য উদাহরণ হলো পনের শতকে নির্মিত দিনাজপুর জেলার সুরা মসজিদ (ইসলাম ২০০২ : ১৪৫-৪৬), ১৪৬৫ খ্রিস্টাব্দে নির্মিত গৌড়ের খানিয়াদীঘি মসজিদ (হোসেন, ১৯৯৯ : ৭৬-৮২), বরিশালের মসজিদবাড়ী মসজিদ (বারী ১৯৮০ : ২১৪-১৮), পনের শতকে নির্মিত বারোবাজারের গোড়ার মসজিদ (আহম্মদ ২০০০ : ৯৭) প্রভৃতি। বারান্দা বিশিষ্ট মসজিদ নির্মাণের রীতি এ দেশীয় শিল্পীদের নিজস্ব উদ্ভাবন নয়। বরং সেলযুক ও প্রথম উসমানীয় শাসনামলে তুরস্কের আনাতোলিয়াতে উক্ত রীতির মসজিদ নির্মাণ যথেষ্ট জনপ্রিয় ছিল বলে জানা যায়। উদাহরণস্বরূপ কারামানে বাইলিক দাবগাডোস মসজিদ (হোসেন ১৯৮২-৮৩ : ৯) ও ১৩২৬ খ্রিস্টাব্দে নির্মিত ব্রুসার আলাউদ্দীনের মসজিদের (উন্সাল ১৯৫৯ : ১৯-২০, প্লান-৩D) নাম উল্লেখ করা যায়। তবে বহু গম্বুজ বিশিষ্ট মসজিদের সম্মুখে গম্বুজ আচ্ছাদিত বারান্দার সংযোজন বাংলার স্থাপত্যে সুলতানি আমলে নির্মিত হতে দেখা যায়। যেমন ১৪৭৯ খ্রিস্টাব্দে নির্মিত গৌড়ের দরাসবাড়ী মসজিদ (হোসেন ১৯৯৯ : ৬৭-৭৫) ও ১৫২৬ খ্রিস্টাব্দে নির্মিত বড়সোনা মসজিদ (দানী ১৯৬১ : ১৩০-৩৩)। সুতরাং একথা অনুমেয় যে, ভাঙ্গনী মসজিদের সম্মুখে বরান্দা সংযোজনের ধারণাটি সুলতানি বাংলার স্থাপত্য থেকে গৃহীত এবং উক্ত মসজিদদ্বয়ই এর প্রেরণার উৎস। অবশ্য বাংলার বাইরে উসমানীয় তুর্কি স্থাপত্যে এ ধরনের মসজিদ নির্মিত হতে দেখা যায়। উদাহরণস্বরূপ ১৪৫০ খ্রিস্টাব্দে নির্মিত ইস্কি জামে মসজিদের কথা বলা যায় (গুডউইন ১৯৯৭ : ৫৬ ভূমি নকশা অনুসারে)।

ভাঙ্গনী মসজিদের চার কোণায় গোলায়িত কৌণিক বুরুজের সংযোজন মোগল বাংলার মসজিদ স্থাপত্যের ইতিহাসে একটি ব্যতিক্রমধর্মী উদাহরণ। এ ধরনের গোলায়িত কৌণিক বুরুজ সুলতানি বাংলার স্থাপত্যে বিশেষ করে খান জাহান আলী রীতির স্থাপত্যে পরিদৃষ্ট হয়[১]। এ রীতির অন্যতম উদাহরণ হলো বাগেরহাটের ষাট গম্বুজ মসজিদ (১৪৬০ খ্রি.)। কোণস্থিত গোলায়িত বুরুজের ব্যবহার বাংলার মুসলিম স্থাপত্যে কোনো নতুন উদাহরণ নয় বরং এ রীতির উৎসস্থল ছিল ভারতে। উদাহরণস্বরূপ ১২৩১ খ্রিস্টাব্দে নির্মিত সুলতান ঘারির সমাধির কথা বলা যেতে পারে (গ্রোভার ১৯৮১ : ১৫)। পরবর্তীকালে ভারতবর্ষের তুঘলক স্থাপত্যের কোণে বুরুজ সংযোজন এক অন্যতম গুরুত্বপূর্ণ বিষয় হয়ে দাঁড়ায়।[১] উদাহরণস্বরূপ ১৩৭৫ খ্রিস্টাব্দে নির্মিত দিল্লীর খিড়কি মসজিদ এবং ১৩৮০ খ্রিস্টাব্দে নির্মিত কালান মসজিদের কথা বলা যায় (মিচেল ১৯৭৮ : ২৬৯; ব্রাউন ১৯৭৫ : প্লেট-১৫)। প্রসঙ্গত উল্লেখ্য যে, ইমারতের কোণে বুরুজ সংযোজন কেবল পাক-ভারত উপমহাদেশেই প্রচলিত ছিল না বরং এ বৈশিষ্ট্যের

উৎপত্তি ছিল আরো অনেক গভীরে। উমাইয়া ও আব্বাসীয় আমলে নির্মিত কুসাইর আমরা (৭৪৪ খ্রি.), কাসর আল-হাইর আল-গারবী (৭২৭ খ্রি.), কাসর আল-হাইর আস-শরকী (৭২৮-২৯ খ্রি.), মাসাত্তা (৭৪৩-৪৪ খ্রি.), বাগদাদ (৭৬২-৬৬ খ্রি.), রাক্কা (৭২২ খ্রি.), উখাইদির (৭৭৮ খ্রি.) সামাররা (৮৩৬ খ্রি.) প্রভৃতি প্রাসাদ ও দুর্গ নগরীতে কোণস্থিত বুরুজ ব্যবহৃত হতে দেখা যায়। কিন্তু ঐসব বুরুজের চেয়ে বাংলার মুসলিম স্থাপত্যের চারকোণায় ব্যবহৃত বুরুজগুলো ভিন্নতর ও বিশেষ তাৎপর্যপূর্ণ (শামসুল, ১৯৯১ : ২৯০)। বাংলার মুসলিম স্থাপত্যে বুরুজ সংযোজনের ধারণা এ দেশের গ্রামাঞ্চলের বাঁশ, খড় বা ছনে নির্মিত কুড়েঘরের চারকোণে স্থাপিত চারটি বাঁশের খুঁটির সাথে তুলনা করা যায়। বাংলার কুড়েঁঘর নির্মাণের এ রীতিটি মুসলিম স্থাপত্যে চারকোণের চারটি বুরুজ হিসেবে ব্যবহৃত হয় এবং জালাল উদ্দীন মুহাম্মদ শাহের রাজত্বকালে (১৪১৫-৩২ খ্রি.) এ ধরনের নির্মাণ রীতির বিকাশ ঘটে (দানী, ১৯৬১ : ১৪; রহমান, ২০০৫)। এক কথায় বাংলার মুসলিম স্থাপত্যে কোণস্থিত বুরুজ সংযোজনের ধারণা এ দেশের দোচালা কিংবা চৌচালা কুঁড়েঘরের চারকোণার বাঁশের খুঁটির অনুকরণ বললেও মোটেই অত্যুক্তি হবে না।[২] বাংলার মুসলিম স্থাপত্যের (সাধারণত মোগল ইমারতসমূহের) কোণস্থিত বুরুজগুলো বপ্রকে অতিক্রম করে আরো উপরে উত্থিত হয়ে কখনো স্তম্ভযুক্ত ছত্রি অথবা নিঃছিদ্র কিউপোলাতে সমাপ্ত। উল্লেখ্য যে, উসমানীয় তুর্কি স্থাপত্যে সুউচ্চ মিনারাকৃতির কোণস্থিত বুরুজের ব্যবহার দেখা যায়। উদাহরস্বরূপ ১৪৩৫ খ্রিস্টাব্দে নির্মিত ইল্‌দ্রিনের ইউসি সেরিফলি জামে মসজিদ ও ১৪৬৯-৭০ খ্রিস্টাব্দে নির্মিত সেলিমিয়া মসজিদের কথা বলা যায় (গুউডইন, ১৯৭১ : ১০১ আলোকচিত্র-৯৬ ও)।[৩] তবে লক্ষণীয় বিষয় হলো তুর্কি স্থাপত্যের মিনারাকৃতির কোণস্থিত বুরুজগুলোর শিরোভাগ ছুঁচালো পেন্সিল আকৃতির অথচ ভারত উপমহাদেশের মোগল ইমারতগুলোর কোণস্থিত বুরুজ সুউচ্চভাবে নির্মিত হলেও শিরোভাগ ছত্রিতে সমাপ্ত এবং শীর্ষ বিন্দু শীর্ষদণ্ডে শোভিত।

আলোচ্য মসজিদের আর একটি অন্যতম বৈশিষ্ট্য হলো এর কেন্দ্রীয় প্রবেশপথ ও কেন্দ্রীয় মিহরাবের উভয় পার্শ্বে সংলগ্ন সরু ক্ষুদ্র বুরুজ সংযোজন। এ বৈশিষ্ট্যটি বাংলার মুসলিম স্থাপত্যে ১৫৯৫ খ্রিস্টাব্দে নির্মিত মালদহ জামে মসজিদে সর্বপ্রথম লক্ষ করা যায় (মিচেল, ১৯৮৪ : ১০৬-০৭)। কেন্দ্রীয় প্রবেশপথের উভয় পার্শ্বে ক্ষুদ্র বুরুজ সংযোজনের এ রীতিকে অনেকে সেলযুক-পারস্য ও আনাতোলিয়ার প্রভাবে প্রভাবান্বিত বলে অনুমান করে থাকেন (হেগ, ১৯৭৭ : ২৮৮; রহমান, ১৯৯৬ : ২৭)। পরবর্তীকালে এ রীতি ইন্দো-মুসলিম স্থাপত্যে ব্যাপকভাবে অনুসৃত হয় যার উদাহরণ হলো দিল্লীর আড়াই দিনকা ঝোপড়া মসজিদ (১১৯৯ খ্রি.), মথ-কি-মসজিদ (ষোড়শ শতাব্দী), কিলাই-ই-কুহনা মসজিদ (১৫৪১ খ্রি.) প্রভৃতি (নাথ, ১৯৭৮ : ১৭)। এ রীতি আরও অধিক সুচারুরূপে ব্যবহৃত হয়েছিল দিল্লীর প্রাদেশিক স্থাপত্যে (গুজরাট স্থাপত্যে) যার অন্যতম উদাহরণ হলো পনের শতকে নির্মিত আহমদাবাদ জামে মসজিদ (আহমদ, ২০০৩ : আলোকচিত্র-৫৩)। পরবর্তীকালে মোগল আমলে বিশেষ করে সতের শতকে নির্মিত মসজিদ ও সমাধি স্থাপত্যে এ রীতি চরম উৎকর্ষ লাভ করে। বাংলার মসজিদ স্থাপত্যের এ বৈশিষ্ট্যটি তাই উত্তর ভারতীয় মোগল মসজিদ স্থাপত্যের এক জনপ্রিয় অনুকরণ যার উদাহরণ হলো ১৫৭৫ খ্রিস্টাব্দে নির্মিত ফতেপুর সিক্রি জামে মসজিদ ও ১৬৪৮ খ্রিস্টাব্দে নির্মিত আগ্রা জামে মসজিদ (হোসেন, ১৯৭০ : ১০৩, আলোকচিত্র- ৩৫; ব্রাউন, ১৯৭৫ : প্লেট-৮৬, আলোকচিত্র-১)।

গম্বুজ নির্মাণের ক্ষেত্রে বর্গ থেকে গম্বুজের বৃত্তাকার নিম্নভাগে পৌঁছানোর জন্য অবস্থান্তর পর্যায় কৌশলগত দিক থেকে অত্যন্ত গুরুত্বপূর্ণ। ভাঙ্গনী মসজিদের উক্ত পর্যায়ে পান্দানতিফ পদ্ধতির ব্যবহার লক্ষ করা যায়। তবে পান্দানতিফ বাইজান্টাইন শিল্পীদের উদ্ভাবিত একটি রীতি কৌশল (আলী, ১৯৮৮ : ৩০)। বাইজান্টাইন স্থাপত্যের গৌরব ইস্তাম্বুলের হেগিয়া সোফিয়া গির্জায় (৫৩২-৩৭ খ্রি.) ত্রিকোণ পান্দানতিফ পদ্ধতিতে গম্বুজ নির্মিত হতে দেখা যায় (ইন্সাইক্লোপেডিয়া ব্রিটানিকা, ১৯৭৩ : ৩২০)। মুসলিম স্থাপত্যে সম্ভবত কুসাইর আমরা প্রাসাদে (৭১১-১৫ খ্রি.) সর্বপ্রথম গোলাকার ত্রিকোণ পান্দানতিফ পদ্ধতির ব্যবহার পরিদৃষ্ট হয় (হোসেন, ১৯৭৯ : ৯৪)। পরবর্তীকালে আব্বাসীয় স্থাপত্যে হাম্মাম আস-সারখ ও উখাইদির প্রাসাদে পান্দানতিফ পদ্ধতির ব্যবহার লক্ষ্য করা যায় (হাসান, ১৯৮৭ : ১৮)। এমনি ভাবে ইন্দো-মুসলিম স্থাপত্যেও এর ব্যবহার বিশেষ তাৎপর্যপূর্ণ হয়ে উঠে। কিন্তু বাংলার মুসলিম স্থাপত্যে আনুভূমিক সমতল স্তর এবং কোণ বিশিষ্ট ধারা বা কোণ একটু বের করে এ দু শ্রেণীতে ইষ্টকগুলো পালাক্রমে সজ্জিতকরণের মাধ্যমে এক নতুন কলা কৌশলিক পদ্ধতিসহ কর্বেল পান্দানতিফের ব্যবহার অত্যন্ত তাৎপর্যপূর্ণ। এরূপ আনুভূমিক শ্রেণীবদ্ধকরণ প্রক্রিয়ার জন্যই হয়তবা প্রফেসর এ. বি. এম. হোসেন একে যথার্থভাবে 'বাঙ্গালী পান্দানতিফ' (হোসেন, বাং ১৩৮৩ : ৩০) বলে অভিহিত করেছেন যেমনিভাবে উসমানীয় তুর্কি স্থাপত্যে উল্লম্ব পান্দানতিফকে 'তুর্কি পান্দানতিফ' বলে অভিহিত করা হয় (কুরান, ১৯৬৮ : ৩০-৩১)।

বাংলার মোগল স্থাপত্যের আর একটি উল্লেখ্যযোগ্য বৈশিষ্ট্য হলো কোণস্থিত বুরুজের উপর ছত্রি বা কিউপোলার ব্যবহার যার উদাহরণ হলো আলোচ্য মসজিদ। কোণস্থিত বুরুজের শিরোভাগে এ ধরনের ছত্রি দ্বারা মণ্ডিতকরণ বাংলার মুসলিম স্থাপত্যে কোন নতুন উদাহরণ নয় বরং এটি হিন্দু স্থাপত্য রীতি থেকে উৎসারিত (হুইলার, ১৯৫০ : ৭২)। ইন্দো-মুসলিম স্থাপত্যে এ ধরনের ছত্রির ব্যবহার প্রথম পরিদৃষ্ট হয় সৈয়দ ও লোদী স্থাপত্যে যার অন্যতম উদাহরণ হলো ১৪২১ খ্রিস্টাব্দে নির্মিত মোবারক শাহ সৈয়দের সামধি (ব্রাউন, ১৯৭৫ : প্লেট-১৬৬, আলোকচিত্র- ২; রহমান, ১৯৯৬ : ১৬৮, আলোকচিত্র-৮৮)। পরবর্তীকালে মোগল ভারতীয় স্থাপত্যে এ রীতি ব্যাপক অনুসৃত হয়েছিল। তবে বাংলার স্থাপত্যে কেবলমাত্র কোণস্থিত বুরুজের উপর ছত্রির ব্যবহার দেখা যায় এবং এগুলো নিরেট পলেস্তারায় নির্মিত (soild plastered type)। কিন্তু উত্তর ভারতীয় মোগল স্থাপত্যে ছত্রি সাধারণত উন্মুক্ত প্যাভিলিয়ন আকৃতির (open pavilion type) যেগুলো কোণস্থিত বুরুজের পাশাপাশি মসজিদের ছাদের উপরে সম্মুখ সারিতে দেখা যায়। উদাহরণস্বরূপ ফতেপুর সিক্রি জামি মসজিদ ও আগ্রা জামি মসজিদের কথা বলা যেতে পারে (ব্রাউন, ১৯৭৫ : প্লেট-৭৩, আলোকচিত্র-১ ও প্লেট- ৮৬, আলোকচিত্র-১)।

নান্দনিক সৌন্দার্যের জন্য ব্যবহৃত এ মসজিদের গম্বুজ শীর্ষে পদ্ম ও কলস শিরোচূড়ার সংযোজন মোগল বাংলার মসজিদ স্থাপত্যের একটি উল্লেখ্যযোগ্য বৈশিষ্ট্য। ইন্দো-মুসলিম স্থাপত্যে আলাই দরজাতে (১২২১-৩৬ খ্রি.) সর্বপ্রথম শীর্ষদণ্ডের ব্যবহার লক্ষ করা যায় যা হিন্দু মন্দির স্থাপত্যে আমলকী প্রতীক হিসেবে ব্যবহৃত হয়েছিল (নাথ,

১৯৭৮ : ৪৮; রহমান, ১৯৯৬ : ৭৫)। অনেকেই এ ফলককে হিন্দু দেবতা বিষ্ণুর প্রিয় ফুল নীল পদ্মের গোটার প্রতীক বলেও মনে করেন (হ্যাভেল, ১৯৭৮ : ৮; রহমান, ১৯৯৬ : ৯৩, পাদটিকা-৬ক)। শীর্ষদণ্ড হিসেবে কলসের ব্যবহার ভারতীয় হিন্দু মন্দিরের চূড়াতে দেখা যায়। উদাহরণ হিসেবে কাঞ্চিপুরামের কৈলাশনাথ মন্দির (আনুমানিক ৭০০ খ্রি.) ও খাররাহের মন্দিরের (আনুমানিক ১০০০ খ্রি.) কথা উল্লেখ করা যায় (রাওল্যান্ড, ১৯৫৩ : ১৮৩, প্লেট- ১১৭বি; কুমারস্বামী, ১৯৭২ : প্লেট-৬৪)। শীর্ষদণ্ড হিসেবে হিন্দু স্থাপত্যে কলসকে দেবতার পানীয় রসের পাত্রেরই প্রতীক হিসেবে গণ্য করা যেতে পারে। ভারতীয় মুসলিম স্থাপত্যের গম্বুজ চূড়ায় এ ধরনের পদ্ম ও কলস সম্বলিত শীর্ষদণ্ডের সংযোজন ব্যাপক পরিদৃষ্ট হয়। তবে সৌন্দর্যের খাতিরে এ ধরনের প্রতীক সম্বলিত শীর্ষদণ্ড মন্দির স্থাপত্য হতে অনুকৃত হলেও এতে হিন্দু ধর্মের প্রতীক ব্যাঞ্জনার কোন প্রতিফলন ঘটেনি। কেবলমাত্র আলঙ্কারিক উপকরণ হিসেবে বাংলার মুসলিম স্থাপত্যে এর সংযোজন ঘটে।

ভাঙ্গনী মসজিদ একদা পলেস্তারায় আচ্ছাদিত ছিল যার নমুনা এখনও দেখা যায়। মুসলিম স্থাপত্যে পলেস্তারার ব্যবহার এসেছে মূলত বাইজান্টাইন, সাসানীয় ও মধ্যএশিয়া স্থাপত্য থেকে (খান, ১৯৮৮ : ২৫)। অবশ্য এস. কে. সরস্বতী মনে করেন যে, গুপ্ত আমল থেকেই বাংলার স্থাপত্যে পলেস্তারার প্রচলন ছিল (খান, ১৯৮৮ : ৩০)। যাহোক উমাইয়া প্রাসাদ কাসর আল-হাইর আল-গারবীর (৭২৪-২৭ খ্রি.) পলেস্তারারকার্য মুসলিম স্থাপত্যের প্রাচীনতম নির্দশন বলেই মনে হয় (ক্রেসওয়েল, ১৯৬৮ : ৫১১)। পরবর্তীকালে এ রীতি পারসিক স্থাপত্যে চরম উৎকর্ষ লাভ করে যার অনন্য উদাহরণ হলো নিসাপুর জামি মসজিদ (আঠার শতক), নায়িন জামে মসজিদ (নয় শতক), ইস্পাহান জামি মসজিদ প্রভৃতি (পোপ, ১৯৩৯ : ১২৬৬, ১২৭০ ও ১২৯১)। পারসিক স্থাপত্যের এ জনপ্রিয় রীতি ইন্দো-মুসলিম স্থাপত্যেও অনুসৃত হয়েছিল। এমনি ধারাবাহিকতায় বাংলার মুসলমানেরা সেই উপাদানটির বহুল প্রচলন নিশ্চিত করে বলে মনে হয়। তবে সুলতানি আমলে নির্মিত কোনো কোনো ইমারতে যেমন গৌড়ের গুণমন্থ মসজিদ (১৪৮৪ খ্রি.) ও ঝনঝনিয়া মসজিদে (১৫১৫ খ্রি.) পলেস্তারার অলঙ্করণ পরিদৃষ্ট হয় (খান, ১৯৮৮ : ৩০)। তবে এ যুগে পোড়ামাটির ফলক নকশার প্রাধান্য অব্যাহত ছিল। কিন্তু বাংলার মোগল স্থাপত্যে গাত্রালঙ্কারে পোড়ামাটির ফলক নকশার পরিবর্তে পলেস্তারার অলঙ্করণ সর্বাধিক মাত্রায় ব্যবহৃত হয়েছে এবং এর অসংখ্য উদাহরণও বিদ্যমান রয়েছে।

লতানো ফুলের নকশা এ মসজিদের একটি অন্যতম আলঙ্কারিক বিষয়বস্তু। গম্বুজের নিম্নাংশে ও সম্মুখ দেয়ালের প্যানেলের অভ্যন্তরভাগ ফুল, লতা-পাতার নকশায় শোভিত। অলঙ্করণ বিষয়বস্তু হিসেবে ফুল, লতা-পাতা সুলতানি আমলের অনেক ইমারতে স্থান পেয়েছে, যেমন পান্ডুয়ার একলাখী সমাধির প্রবেশপথের প্যানেলে, তাঁতীপাড়া মসজিদের কেন্দ্রীয় মিহরাবের প্যানেলে ও দরাসবাড়ী মসজিদের কেন্দ্রীয় মিহরাবে অনুরূপ লতানো ফুলের নকশা বিদ্যমান (খান, ১৯৮৮ : প্লেট-১৮, ২৩ ও ২২)। প্রসঙ্গত উল্লেখ্য যে, লতানো ফুলের নকশা সুলতানি আমলের মসজিদসমূহের মিহরাবের প্যানেল অলঙ্করণের ক্ষেত্রে ব্যবহৃত হলেও মূলত মোগল আমলেই আলঙ্কারিক বিষয়বস্তু হিসেবে এ ধরনের নকশার প্রাধান্য অব্যাহত ছিল। যেমন ১৬৯৬ খ্রিস্টাব্দে নির্মিত কুমিল্লার ওয়ালীপুর মসজিদের মিহরাবের ত্রিকোণাকার ভূমিতে ও ১৯১৪-১৯ খ্রিস্টাব্দে নির্মিত চট্টগ্রামের ওয়ালী খান মসজিদের মিহরাবের ত্রিকোণাকার ভূমিতে ফুলেল নকশা খোদিত (বারী, ১৯৮৯ : ১২৬ ও ১১০)। এমনকি ষোল ও সতের শতকে বাংলার হিন্দু স্থাপত্যেও অনুরূপ ফুলেল নকশা পরিলক্ষিত হয়।

ভাঙ্গনী মসজিদের মিহরাবের গহ্বরে ব্যবহৃত গোলাপ নকশা বাংলার সুলতানি ও মোগল স্থাপত্যের একটি উল্লেখযোগ্য আলঙ্কারিক বিষয়বস্তু। সুলতানি আমলে নির্মিত বাংলার অনেক মসজিদে এ ধরনের নকশা পরিদৃষ্ট হয়। যেমন গৌড়ের দরাসবাড়ী মসজিদের কেন্দ্রীয় মিহরাবের ত্রিকোণাকার ভূমিতে (খান, ১৯৮৮ : ২০৪), বাঘা মসজিদের খিলানাকৃতির প্যানেল ও মিহরাবের খিলানের ত্রিকোণাকার ভূমিতে (আলী, ১৯৮৮ : ১৭৬-৭৭), গৌড়ের ছোটসোনা মসজিদের মিহরাবে (হাসান, ১৯৮৭ : ৫৭) গোলাপ নকশার ব্যবহার দেখা যায়। মোগল আমলেও কোনো কোনো ইমরাতে, যেমন টাঙ্গাইলের আতিয়া মসজিদের মিহরাবের অভ্যন্তরে, এগারসিন্ধুর সাদীর মসজিদের প্রবেশপথের খিলানের ত্রিকোণাকার ভূমিতে (খান, ১৯৮৮ : ২০৪ ও ১০৯), ঢাকার করতলব খান মসজিদের গম্বুজের অভ্যন্তরের শীর্ষ বিন্দুতে, রাজশাহীর কিসমত মারিয়া মসজিদের কার্নিশের নিম্নাংশে ও ঢাকার সাত গম্বুজ মসজিদের গম্বুজের অভ্যন্তরে শীর্ষ বিন্দুতে এ ধরনের গোলাপ নকশা স্থান পেয়েছে (বারী, ১৯৮৯ : ১১৮, ১৭৫ ও ১৭১)। তাছাড়া মোগল আমলে নির্মিত এ দেশের অনেক হিন্দু মন্দিরে আলঙ্কারিক বিষয়বস্তু হিসেবে গোলাপ নকশার ব্যবহার দেখা যায়। যেমন দিনাজপুরের কান্তজীর মন্দির (হক, ১৯৮০ : প্লেট-১৪৬) ও পুঠিয়ার পঞ্চরত্ন বড় গোবিন্দ ও চৌচালা ছোট গোবিন্দ মন্দিরের বহির্গাত্রে (রহমান, ১৯৯৭-৯৮ : ১৭৯) এ ধরনের নকশা বিশেষভাবে লক্ষণীয়।

এ মসজিদের আর একটি অন্যতম বৈশিষ্ট্য হলো পূর্ব দেয়ালের উপরিভাগে তিন সারি আয়তাকৃতির প্যানেল নকশা।[৩] বাংলার স্থাপত্যে সুলতানি আমলে নির্মিত অসংখ্য মসজিদে প্যানেল নকশার অলঙ্করণ পরিলক্ষিত হয়। যেমন বাঘা মসজিদ ও কুমিল্লার গোয়ালদি মসজিদের দেয়ালগাত্রে (হাসান, ১৯৮৭ : ৫৮ ও ৫৫), শাহজাদপুর মসজিদের দুটি প্রবেশপথের মাঝে ও দেয়ালগাত্রে (ইসলাম, ২০০০ : ১৯৮) প্যানেল নকশা বিদ্যমান। বাংলার মোগল স্থাপত্যেও অনুরূপ প্যানেল নকশার ব্যবহার দেখা যায়। যেমন বগুড়ার খেরুয়া মসজিদের খিলানপথসমূহের মধ্যবর্তী দেয়ালগাত্রে, রাজশাহীর শাহ নিয়ামত উল্লাহ ওয়ালীর মসজিদের সম্মুখ ও অভ্যন্তরীণ দেয়ালগাত্রে, কুমিল্লার শাহ সুজার মসজিদের প্রধান প্রবেশপথের ভিতর ও বাইরে এবং চট্টগ্রামের ওয়ালী খানের মসজিদের কেন্দ্রীয় প্রবেশপথের উদগত অংশে প্যানেল নকশা পরিদৃষ্ট হয় (বারী, ১৯৮৯ : ১৩০, ১৩৯, ১৮৭ ও ১১০) । অলঙ্করণ বিষয়বস্তু হিসেবে লতানো ফুলের নকশা ও গোলাপ নকশা বাংলার নিজস্ব বৈশিষ্ট্যকেই বিধৃত করে। প্রাচীন বাংলার মন্দির স্থাপত্যে এগুলোর প্রচলন ছিল (রহমান, ২০০৫)। আর প্যানেল অলঙ্করণ বহির্দেশীয় মুসলিম স্থাপত্য রীতি থেকে অনুসৃত বলেই মনে হয়।

অলঙ্করণ বিষয়বস্তু হিসেবে খাঁজখিলান নকশার ব্যবহার বাংলার মুসলিম স্থাপত্যের এক অন্যতম বৈশিষ্ট্য। এ ধরনের নকশা সুলতানি বাংলার স্থাপত্যে, যেমন গৌড়ের ছোটসোনা মসজিদের প্রবেশপথে, রাজশাহীর বাঘা মসজিদের মিহরাবে, শঙ্কর পাশার মসজিদের প্রবেশপথে এবং কুসুম্বা মসজিদের মিহরাব ও প্রবেশপথে পরিদৃষ্ট হয়

(দানী, ১৯৬১ : প্লেট- ৩৮, ৪০, ৫২ ও ৫৩) । অনুরূপভাবে মোগল আমলে ইমারতের সৌন্দর্য বর্ধনে খাঁজখিলান নকশার ব্যবহার পরিদৃষ্ট হয়। যেমন ঢাকার খাজা শাহবাজ মসজিদের অভ্যন্তরীণ খিলানে, সাত গম্বুজ মসজিদের প্রবেশপথে ও এগারসিন্ধুর সাদীর মসজিদের মিহরাবে খাঁজখিলান নকশা শোভা বর্ধন করে আছে (দানী, ১৯৬১ : প্লেট-৬৫, ৬৬ ও ৭৯)। মুসলিম স্থাপত্যে ব্যবহৃত খাঁজখিলান নকশা বৌদ্ধ স্থাপত্যের ত্রি-খাঁজখিলান নকশা থেকে উদ্ভূত বলে মনে হয় (তরফদার, ১৩৯৪ বাং : ৮৫)। আবার ধারণা করা হয় যে, রোমান স্থাপত্যের শড়ক খোসার অলঙ্করণের শিরালো খাঁজ নকশা থেকে এর উৎপত্তি যা পারস্যের সাসানীয় আমলে নির্মিত তাক-ই-কিসরা প্রাসাদের প্রধান ফটকের খিলানের সম্মুখস্থ খাঁজ সারি থেকে নীত হয়েছে (হোসেন, ১৯৯১ : ২৫৫)। এরূপ খাঁজখিলান নকশা উত্তর আফ্রিকার কায়রাওয়ান মসজিদ হতে আরম্ভ করে ফাতেমীয় আমলের অনেক ইমারতেই পরিদৃষ্ট হয়। ইন্দো-মুসলিম স্থাপত্যে এ খাঁজখিলান নকশা আজমীরের আড়াই দিনকা ঝোপড়া মসজিদের খিলান পর্দার কেন্দ্রীয় খিলানে লক্ষ্য করা যায় (রহমান, ১৯৯৬ : ২৭, আলোকচিত্র-৭)। পরবর্তীকালে এ খাঁজখিলান নকশা মোগল স্থাপত্যে চরম উৎকর্ষ লাভ করে যার উদাহরণ হলো দিল্লীর দিওয়ান-ই-আম ও রংমহল (ব্রাউন, ১৯৭৫ : প্লেট-৮৯, আলোকচিত্র-২ ও প্লেট-৮২, আলোকচিত্র-২)। এ ধরনের খাঁজখিলান নকশা মোগল আমলের পরেও ভারত উপমহাদেশে ব্যাপক সমাদৃত হয়েছে। সম্ভবত এটি একমাত্র উল্লেখ্যযোগ্য স্থাপত্যিক অলঙ্করণ যা আঠার ও উনিশ শতক বাংলার মন্দির স্থাপত্যেও অনুপ্রবেশ করেছিল। এ প্রসঙ্গে পুঠিয়ার পঞ্চরত্ন শিবমন্দির (১৯২৩-৩০ খ্রি.), পঞ্চরত্ন গোবিন্দ মন্দির (আঠার শথক প্রথমার্ধে) ও দিনাজপুরের কান্তজীর নবরত্ন মন্দিরের (১৭৫২ খ্রি.) কথা উল্লেখ করা যেতে পারে (রহমান, ২০০২ : ১৪২; রহমান, ২০০৪ : ২৩৬-৩৭ ও ২২৯)।

নির্মাণশৈলী ও অলঙ্করণের ক্ষেত্রে আঠার শতকের শেষার্ধে অথবা উনিশ শতকের প্রথমার্ধে নির্মিত আলোচ্য মসজিদটি বাংলার মোগল স্থাপত্যের ধারাবহিকতার ইতিহাসে এক অনন্য নিদর্শন। মসজিদটির স্থাপত্যশৈলীতে ব্যবহৃত আয়তাকৃতির ভূমি নকশা ও বারান্দার সংযোজন, গোলায়িত কোণস্থির্ত বুরুজ, কেন্দ্রীয় প্রবেশপথ ও কেন্দ্রীয় মিহরাবের উদগত অংশের উভয় পার্শ্বে সরু ক্ষুদ্র বুরুজ সংযোজন, গম্বুজ নির্মাণে অবস্থান্তর পর্যায়ে পান্দানতিফ পদ্ধতির ব্যবহার, অর্ধ-অষ্টভুজাকৃতির মিহরাব, ছত্রি ও শিরোচূড়ার ব্যবহার, পলেস্তারার অলঙ্করণ, অলঙ্করণ বিষয়বস্তু হিসেবে ফুল, লতা-পাতার নকশা, গোলাপ নকশা, খাঁজখিলান নকশা প্রভৃতির স্বার্থক প্রয়োগ এটিকে স্বদেশী ও বিদেশী প্রভাব পুষ্ট এক অনবদ্য স্থাপত্যে রূপান্তরিত করেছে।

টীকা

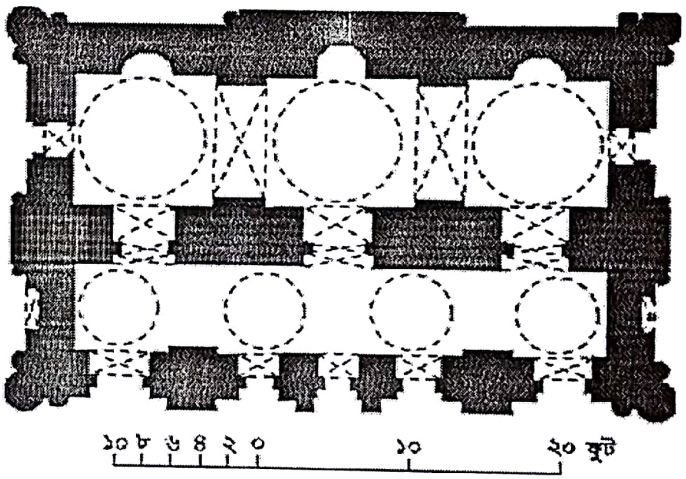
১. তুঘলক স্থাপত্যের বুরুজগুলো ছিল গোলাকৃতির ও অবনমন সম্বলিত। আর খান জাহান আলী রীতির বুরুজগুলো গোলাকার হলেও অবনমন ছিল না এবং এগুলো ব্যান্ড দ্বারা বিভক্ত হতে দেখা যায়।

২. বাংলার মুসলিম স্থাপত্যের কোণস্থিত বুরুজগুলো কখনো গোলায়িত আবার কখনো অষ্টভুজাকার বা বহুভুজাকার ও বাঁশের গিটের ন্যায় (ব্যান্ড দ্বারা বিভক্ত) বিভিন্ন স্তরে নির্মিত।

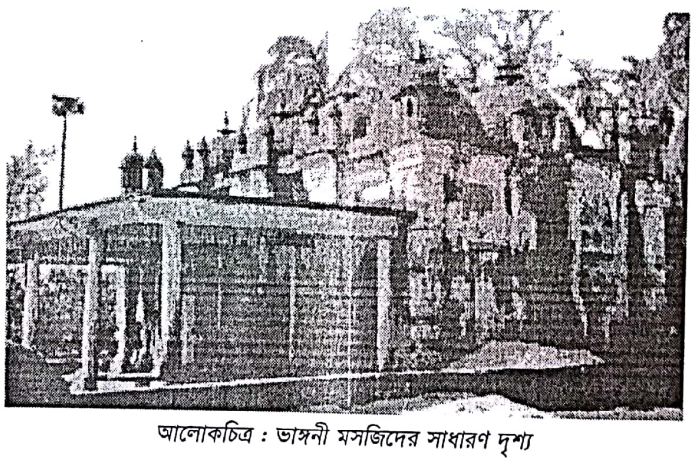
৩. উক্ত প্যানেল নকশা খিলানাকৃতির প্যানেলের ন্যায়।

Summary

The Vangni Mosque is situated in the village of Vangni under Mithapukur Upzila in the district of Rangpur. It is an oblong and well-preserved Mughal mosque of usual three-domed variety. The mosque is an extraordinary architectural monument in the Mughal Bengal. It consists of two parts - the main prayer chamber and the attached verandah in the east. The interior of the mosque is divided into three equal bays, which are covered by three domes. Over the roof of the verandah are four small domes. There are four circular corner towers or turrets, which rise above the horizontal parapet and are toped over by solid plastered cupolas. All the domes and cupolas are crowned with prominent lotus and kalasa finials. Inside the qiblah wall there are three mihrabs corresponding to the three entrances in the facade, the central being semi-octagonal and the others are semi-circular. There are two similar entrances in the northern and southern walls that are now used as windows. The arches of the side mihrabs are semi-circular type but that in the central is of multi-cusped design. There are five arched doorways in the east. The date of construction and the founder of the mosque are not known from any inscription. But local legends relate that Enayat Karim, a local figure, constructed the mosque. A close study of the mosque architecture of Bengal during the Mughal period reveals that the mosque appears to have been erected in the late 18th century or in the early 19th century.



ভূমি নকশা : ভাঙ্গনী মসজিদ (মিঠাপুকুর, রংপুর)



আলোকচিত্র : ভাঙ্গনী মসজিদের সাধারণ দৃশ্য

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৬. হোসেন এ বি এম ১৯৯৯, *গৌড়-লখনৌতি*, ঢাকা: এশিয়াটিক সোসাইটি অব বাংলাদেশ।

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