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Remote sensing the margins of the gold trade: Ethnohistorical archaeology and GIS analysis of five gold trade networks in Luzon, Philippines in the last millennium BP
By Michael Armand P. Canilao
Oxford: BAR International Publishing, BAR International Series 2988, 2020,
119 pages
ISBN: 9781407357065

Historical and archaeological studies on the trade of commodities over great distances have commonly adhered to the World-Systems Theory, which emphasizes the dominance of core areas in the trade of vital items sourced from exploited peripheries. In his work on the gold trade involving five sites in Northwestern Luzon (NWL), which predates Spanish colonization by several centuries, Michael Armand P. Canilao offers an alternative interpretation of the historical experience of groups whose mined gold reached the major polities of the China and Indian Ocean areas.

By triangulating archaeological material, archival documents, historical accounts, and anthropological data with the abilities of geographic information systems (GIS) and remote sensing (RS) software to visualize and identify features of past landscapes beyond what these aforementioned materials could offer, the author reveals that peoples in NWL's uplands used their agency to build trails, establish bulking villages where gold mined and processed in the mountains were stocked, and set up evanescent or permanent markets along the coast to exchange their gold with the produce that they valued. In the development of these trading landscapes, some of these bulking villages were mainly built by upland groups in places offering a view of the coast, thus allowing their occupants to identify the arrival of trading ships. This served as their cue to initiate trade in temporary markets when it served their interests. Some peoples even competed in reaching these ships, while others established exchange and kin relations with lowland communities in the process of trading gold for items, such as porcelain jars and plates, jewelry, cloths, iron implements, and even livestock. One trade system, which used the Abra River as part of a network of paths to move goods to both the lowlands and uplands in bulk, led to the establishment of permanent, river-based markets. These were dominated by lowlanders who did not require a bulking station with a view of the coast, and

which led to more exploitative relations with their upland brethren. According to Canilao, these networks of mines, trails, bulk villages, and markets that were identified, traced, and illustrated through traditional (historical, archaeological, and ethnographic) sources with GIS and RS tools reflected the ability of peripheral people to negotiate their position in the Indian Ocean and China gold trade using their local knowledge, control of their resources, and distance from the center. However, as the exchange of gold with other items became more intense and as this trade came under the control of coastal communities, the agency of upland peoples became compromised.

Canilao's work may be concise, yet it clearly has many strengths. *Remote Sensing the Margins of the Gold Trade* (hereafter referred to as *Remote Sensing*) is an example of how the methods used in some academic work is just as important as the messages they convey. The author's use and corroboration of historical, anthropological, and archaeological sources as well as the GIS and RS know-how makes a case for the viability of interdisciplinary research and collaboration and its ability to provide a more nuanced understanding of our past. Canilao's work suggests that the openness of social scientists to new technologies, if used properly, can enhance the spatial and temporal range of traditional sources and methods.

Historians would appreciate how *Remote Sensing* provides a deeper appreciation of upland and lowland relations and how such interactions, borne out of wider processes (i.e., Indian Ocean-China gold trade network) yielded differential relations, outcomes, and even landscapes. Canilao's research studies settlement and trade relations set in pre-Colonial Philippines, thus filling a yawning gap in Philippine historiography. This work's spatial data also revealed how interior settlements in the NWL were sites of resistance towards Spanish colonizers and that colonization during that period was far from absolute. In addition, the five NWL trade networks and settlements identified and explained by the author are a contribution both to Philippine local history and a growing literature of "histories from below." Moreover, this work should encourage historians to explore the use of archival maps and photographs, not only to situate their studies but also to use these as vital historical documents that can push further our understanding of the past.

Geographers would also greatly appreciate the perspectives and insights offered by this aforementioned work. Human geographers would find useful how a common stimulus, gold, can lead to different outcomes in various places. This bolsters the argument that localities and landscapes respond to and are influenced differently by similar wider processes. Humanistic geographers would also recognize how Canilao's research brings out the forgotten *voice* of those from the past, which have long remained in the margins, both in the temporal and spatial sense. *Remote Sensing* also demonstrates the importance of scale—

localities and regions—in understanding social phenomena. One could even argue that regional studies, a somewhat dying field in the geography discipline, should be revisited. The layout of mines, trails, bulking stations, market areas, and other travel ways would appeal to urban and rural geographers interested in studying built environments as artifacts of society and human agency, while the importance of physical features and waterways in trade and trade intensification would be of interest to transportation geographers. At the same time, Canilao's research could encourage GIS and RS practitioners, especially those in the geography discipline, to explore new topics by which their tools can be used, hopefully in collaboration with researchers from other fields.

If *Remote Sensing* has any drawbacks, this is concerned mainly with how the work has been laid out and edited. Canilao's work, which consists of seven sections, including the introductory and concluding chapters, reads more like a dissertation than a book. Thus, its audience could be limited to academics, GIS and RS researchers, and students at the graduate level. Reading the work can also be a challenge, as the texts are not well-integrated with their maps and visual aids. Specifically, one must be familiar with the places discussed to properly imagine the different components and networks being discussed. The language, particularly in the chapters with GIS and RS information and methods, could be overwhelming at times. In what may seem like a lack of proper editing, there is a tendency to mention the surnames of authors in initial chapters and their full names in succeeding sections. Moreover, there are misspelled words in various pages of the text.

Nonetheless, *Remote Sensing* is a clear outcome of disciplined and creative research, which adds to our understanding of a particular aspect of pre-Colonial Philippines and should appeal to those in the fields of archaeology, history, geography, Philippine studies, and Cordillera studies.

REVIEWER

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