Settlement Patterns in the Chifeng Region. Chifeng International Collaborative Archaeological Research Project. Center for Comparative Archaeology, University of Pittsburgh, Pennsylvania, 2011. 153 pp, 154 figures, 12 tables. Paper, US$ 29.00. ISBN 978-1-877812-91-0.

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My interest in this volume was stimulated by an earlier publication by the Chifeng International Collaborative Archaeological Research Project (2003) derived from a small-scale pilot project in the Chifeng area, about 300 km northeast of Beijing in the Inner Mongolia Autonomous Region, China. That volume described an ambitious follow-on project to assess population level changes over several thousand years across a large area employing survey and analysis methods that are rarely used in Asia, so I was interested to see how it turned out. The results as described in the reviewed volume indicate that it was quite successful, assuming you accept the underlying premise of the work.

Population level changes are commonly hypothesized as key drivers or outcomes of important archaeological models involving subsistence strategies, social hierarchy, environmental impact, and many other aspects of past lifeways. But determining population levels is something archaeology does poorly. In areas and time periods with substantial preserved housing remains, ethnographically based floor-space correlations with household size can provide insight, but they are usually very geographically restricted (due to the need to excavate house remains) and also suffer from uncertainty about the contemporaneity and function of identified structures. Site abundance and size measures do not account for differing intensities of occupation within sites, while surface artifact density variation may be more related to microscale differences in the processes that bring artifacts to the surface than to original occupation intensity. The Chifeng Project cleverly combines these approaches by obtaining artifact abundance data within a collection unit (nominally one hectare in size) and then producing a (very rough) population estimate for each collection unit by aligning collection unit artifact densities with the range of occupation densities of excavated sites from various time periods in the wider region as determined by house floor-space estimates. Their artifact abundance data was based on the number of ceramic sherds collected in a series of 3 m diameter circular areas randomly placed within a collection unit whenever more than two sherds are found within 100 m of each other during surface survey. Once population estimates are established for each collection unit, various rank-size and neighbor-distance calculations can be performed to combine collection units into settlement units (i.e., communities), each with estimated population sizes and known locations. These settlement units are then available for investigation of issues such as the development of centralization and hierarchy, and the population intensity in specific geographic situations. As each sherd was assigned to a specific time period, each analysis can be carried out for each time period and changes can be tracked through time.

Much of *Settlement Patterns* is dedicated to explaining and justifying this approach. The volume is organized into fourteen sections plus two appendices and includes references to an extensive online, freely accessible collection of illustrations, data sets, and maps. Authorship is attributed for the first thirteen sections, which introduce the project and describe its methods, but, unusually, the authorship of the key fourteenth chapter describing the results is not ascribed. Like the volume itself, that chapter is simply attributed to the project as a whole. In that spirit and to conserve space, I will not attribute authorship within the volume during this review.

Following a brief introductory chapter, the ceramic typology for the Chifeng region is described. Using pottery form, decoration

styles, and production method indicators, the ceramics are divided into eight types, all of which were previously established in the literature: Xinglongwa, Zhaobaogou, Hongshan, Xiaoheyan, Lower Xiajiadian, Upper Xiajiadian, Zhangou-Han, and Liao. Post-Liao ceramics were not included in the analyses. A subsequent section presents radiocarbon data from Chifeng Project excavations and elsewhere in the region for each type, and assigns precise time periods to each ceramic type. The treatment of chronology is unfortunately the most disappointing aspect of the report. The radiocarbon dates are only shown graphically, using one-sigma calibrated ranges without probability distributions or any attempt at Bayesian analysis. In fact, the radiocarbon dates are largely superfluous, since the ceramic type start and stop dates seem to be taken from the existing literature even when they do not fit the radiocarbon pattern very well (as in the Xinglongwa type or the boundary between Lower Xiajiadian and Xiaoheyan). While in general they are careful in the volume to discuss populations in terms of ceramic typology periods rather than cultures or historic ethnic groups, it is clear that the ceramic type start and stop dates are neither well understood in all cases nor instantaneous, and that Chinese dynastic historical information played a role in the assignment of some time periods to ceramic types. As the duration of each period must be accounted for when estimating population size based on ceramic types, some discussion about how their results would change if other ceramic typology date assignments were applied is warranted.

While surface survey was the heart of the project, they also performed a series of excavations in two localities. These unfortunately yielded only Lower and Upper Xiajiadian deposits (with an occasional sherd from another period mixed in). Mixing of Lower and Upper Xiajiadian in the upper layers means that even that transition was not clear. The excavations were nevertheless of use in interpreting the Xiajiadian period. Four brief sections discuss the excavation methods and resulting lithics, fauna, bone artifacts, and plant remains. Of most interest is that the identified plant remains were dominated by domesticated species, mostly foxtail millet, but with significant amounts of broomcorn millet, particularly in unmixed Lower Xiajiadian contexts.

Following brief sections on the current and trans-Holocene environment in the area, the geomorphology (landforms) of the area is reviewed. The authors' main interest here is to argue that there could be few premodern settlements in the river valleys. That would be surprising since most modern villages are in the river valleys, but they convincingly argue that frequent floods, river course changes, and swampy areas would have made substantial occupation of river valleys impractical prior to the advent of concrete foundations. This is supported by a general lack of archaeological remains from modern construction sites within the river valleys. On this basis, the project survey area did not include the river valleys.

For many readers the most interesting segment of *Settlement Patterns* will be its clear, thorough description of the project's sherd collection methods and subsequent conversion of sherd location and quantity data into population estimates and settlement location data. Three sections discuss each of these in detail, including potential weaknesses and the rationales used in selecting particular approaches. A fourth section introduces the specific environmental features that will be used in assessing environmental factors in settlement distribution: distance from river valleys, ground slope, aspect, modern land use, and geology.

The results of these analyses are discussed in the final chapter. For each sherd type time period, the authors present the distribution of sherds, density surfaces showing occupation locations and relative amounts, histograms of community sizes, and a rank-size graph of communities. These are discussed in terms of their implications for the degree of centralization in the region and the agricultural landscape. There is some discussion of cross-period change, but surprisingly there is only a very brief subsection that ties the time periods together into a long-term social development narrative. Perhaps this has been or will be developed more fully in other publications (e.g., Drennan and Dai 2010).

While no editor is credited, the volume has clearly had extensive editing; despite multiple section authors, the writing is clear and concise and the arguments are presented in a straightforward and methodical manner throughout. Color versions of the figures are available on the web site, along with full data sets showing sherd counts, density calculations, excavation data, and site sketches. The website also provides GIS maps (in AutoCAD dxf or GeoTIFF formats) produced during the project. All of this website data is remarkably well documented, with good metadata that makes it easy to understand and incorporate into other projects (although the combination of dxf files and the use of a Chinese UTM system that is incompatible with the World Geodetic System datum may make the GIS data difficult for some scholars to use in wider contexts).

The entire settlement analysis rests on a single premise, that "larger populations leave more garbage on the landscape than smaller populations do" (p. 57). While this is likely for garbage in general, when it comes to ceramic sherds, it is less clear. One wonders whether the ceramic concentrations identified as ancient population centers instead were kiln sites or disturbed cemeteries. While the team apparently recorded archaeological architectural and grave features when encountered (p. 54), no use is made of this information nor is it included in the website data. This seems a lost opportunity, as it would be interesting to see whether settlement patterns detected by sherd analysis corresponded with structural features, at least for later time periods.

In sum, this is a volume of the sort one might think would be very common but in fact is vanishingly thin on the ground: a detailed explanation of the use of archaeological survey to address an academic (as opposed to strictly heritage management) question. As such it is of interest not only to those exploring the social development of northeast China, but to a wide audience of archaeologists concerned with maximizing the knowledge returned from survey work.

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4000 Years of Migration and Cultural Exchange: The Archaeology of the Batanes Islands, Northern Philippines. Peter Bellwood and Eusebio Dizon, eds. Terra Australis Volume 40. Canberra: Australian National University E Press, 2013. 254 pp. 141 figures, 32 tables. Color frontispiece in print copy. Paper, AU$58.00, ISBN 978-1925021271. Free ebook ISBN 978-1925021288, http://press.anu.edu.au/wp-content/uploads/2013/12/whole9.pdf

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The monograph is an important one, filling a large gap in our knowledge of this area by providing valuable and detailed data on the archaeology of the Batanes Islands. The monograph presents data from excavations carried out between 2002 and 2007 from sites located on four islands and covering 4000 years.

The Batanes are strategically located between Taiwan and the Philippines. The data presented here can allow one to assess the nature of colonization and subsequent inter-