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Inland sea as a unit for environmental history: East Asian inland seas from prehistory to future

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Abstract

The boundaries of landscape policies often coincide with political or economic boundaries, thus creating a situation where a unit of landscape protection or management reflects more its present political status than its historico-geographical situation, its historical function and formation. At the same time, it is evident that no unit can exist independently of the context that has given birth to it and that environmental protection in isolated units cannot be very effective. The present paper will discuss inland sea as a landscape unit from prehistory to modern days and its implications for future landscape planning, using East Asian inland sea (Japan Sea and East China Sea) rim as an example. Historically an area of active communication, East Asian inland sea rim has become a politically very sharply divided area. The authors will bring examples to demonstrate how cultural communication on the inland sea level has influenced the formation of several landscape features that are now targets for local or national landscape protection programs, and how a unified view could benefit the future of landscape policies in the whole region.

Key words

Inland seas, Landscape protection, Environmental history, Asian landscapes

Introduction

Ever growing need for finding a solution to aggravating environmental issues and a sustainable model for future development in our present highly imbalanced and unsustainable socio-economic systems, has brought the general attention to environmental history. In trying to come up with a developmental strategy or a protection plan for present and future, there naturally surges a question how did the humankind manage ecosystems earlier? How has the present situation come into being? Are environmental issues something entirely new or can we see destructive developments in earlier human civilizations as well? Has there ever existed a fully sustainable ecosystem where human activities were just one part of the self-contained change cycles of the environment without unbalancing it or endangering the other life forms and their niches? Supposing that it is human activities that cause the deterioration of the environment, the depletion of the resources and the loss of biodiversity, then at what point in human history did we become a burden? Was there a moment when humans lived in a complete harmony with the rest of the "nature"? And last, but not least, is there such a thing like "nature" at all? The discussion on the early stages of domestication suggests that there is no such thing as pristine man-independent environment even before incipient agriculture, since man goes on pruning and altering his everyday landscape much earlier (Ellis and Ramankutty, 2008; Uchiyama, 2006, 2008). And further, if that is the case, then under what circumstances do the humans develop a cultural mindset that starts harming the very environment that they are embedded into?

A wealth of environmental historical research has been written to tackle these questions and a comprehensive overview is not possible within the limits of the present paper. While the general tendency is to focus more on the modern period starting with the industrialization in the West, there are, however, also scholars who turn their eyes to pre-modern history, prehistory (specifically Neolithic

revolution) and non-European cultures (Ponting 2007[1991]; Ruddiman 2005; Crosby 2002; Simmons 1996; Roberts 1998; Richards 2003; Hughes 2001; Hornborg *et al.,* 2007 *to* name just a few).

As the material to be revised poses its limits to individual researchers, we can also see a tendency to concentrate on smaller areas, such as one geographical region or a country. Most of the attempts on global environmental histories lack (understandably) comprehensiveness, jumping from one period and location to another. Environmental history in East Asian countries is no exception: apart from some attempts for comprehensive large-scale histories (Totman, 2004), the field is dominated by smaller-scale research that is restricted to one epoch, country or aspect of the regional environmental history with a clear preference for well defined case-studies (for example, Marks ,2006; Maohong, 2004; Muscolino, 2009; Elvin, 2004; Elvin and Ts'ui-jung, 1998; Aikens *et al.* 2009 in English). However, characteristically for East Asian academic environment, detailed explanations of climate changes and somewhat deterministic conclusions drawn from climatic data prevail in many individual papers.

The present paper proposes inland sea as a unit for environmental history from prehistory to present and discusses its implications for future landscape planning, using East Asian inland seas (the Japan Sea and East China Sea) rim as an example.

Inland seas: Historically densely populated, inland sea areas have played a major role as world-wide trading spots and collision spots for various cultures and civilizations. Chase-Dunn (1997) claims, that even though world systems tend to be born at big river basins, it is at inland seas that the major civilizations grow and flourish.

Inland seas play both a uniting and separating role for the cultures on its shores. Since maritime transport was much easier compared to land transportation and made it possible to cover much longer distances, the cultural and economic contacts between the cultures in the region were extensive, creating a certain unity between the cultures. At the same time, unlike on dry land, the relations where loose enough to allow for considerable cultural diversity to remain. It is also important to remember that before the emergence of railway system, motorways and air traffic, and the appearance of very sharply defined borders of national states, the movement across the sea was times easier than travelling on land. Thus, the movement on land was more limited in distance and was more time-consuming than seafaring.

The focus of the present paper and the project that we run, is the East Asian inland seas region, i.e. the Japan Sea Rim and the East China Sea Rim (Fig. 1) that were shaped geologically by two great river systems: the Amur and Yellow river systems. East Asian inland seas region contains a remarkable cultural, climatic and environmental diversity ranging from the sub-boreal foraging cultures on Hokkaido and Russian Far East to the sub-tropical Oceanic cultures of the Ryukyu islands.

East Asian inland seas as a unit in prehistory: As the Mediterranean is historically a sea of cultural exchange, so have been the East Asian inland seas throughout history over these 15,000 years after the last Ice Age.

For example, the East Asian inland seas are known as the area where the world's earliest potteries appeared from 15,000 years BP, while already such early samples show a wide distribution crossing over the coastal zones (Fig. 1; ceramics are indicated with red squares). It is noteworthy here that the earliest potteries spread throughout the circum-inland sea region first, then moved into inland areas, from east to west (Jordan and Zvelevil, 2010), suggesting that the inland sea region was already culturally well-connected at that time (Aikens *et al.,* 2009).

In later periods, we can often see ornaments of similar designs, like slit-stone earrings (Fig. 1; green circles), for example, both on the continent and the Japanese Archipelago. For instance, rare materials with high value are quite often found in regions that are remote from production centres. On Fig. 1 we indicate the range of distribution of obsidian (black triangles) and jadeite (green stars) with their original production places. As the production places of both obsidian and jadeite are very few, it is easy to trace the origin of the findings. It is noteworthy that both obsidian and jadeite from Honshu island have been found on the continental mainland as well. These facts strongly suggest that frequent inter-cultural contact across the sea existed since the very early stage of Neolithisation. Long distance trading activities are apparently the force behind such a situation.

In contrast to the Mediterranean, agriculture appeared in the very last stage of Neolithisation in the East Asian inland seas. Millet cultivation appeared in the Northern end of East China Sea around 8000-9000 BP and moved through Northern Korea to Russian Far East in around 5000 BP and later to Hokkaido by 5000 BP and Northern Honshu by 4500 BP (Fig. 1, dotted arrows). Rice agriculture that has now become almost emblematic of the region, originated in China around 8000-5000 BP, then spread to Northern and Southern Korea around 4500 to 3000 BP and to Japan around 2500 BP (Fig. 1, solid line arrows). We see that despite their "belated" appearance, farming cultures spread rather quickly throughout the inland sea coasts, apparently via the historical inter-regional network that had already been established.

Considering such historical and cultural background, we can divide the East Asian inland seas in the period of Neolithisation into four areas (Fig. 1; divisions are indicated with green circle-dotted lines): the sub-tropical island zone and the incipient rice agriculture zone in the south, the freshwater adaptation zone in the centre, and the millet cultivating foragers' zone in the north. It is noteworthy here that these zones are not consistent with any national boundaries, crossing the sea and bridging the continent

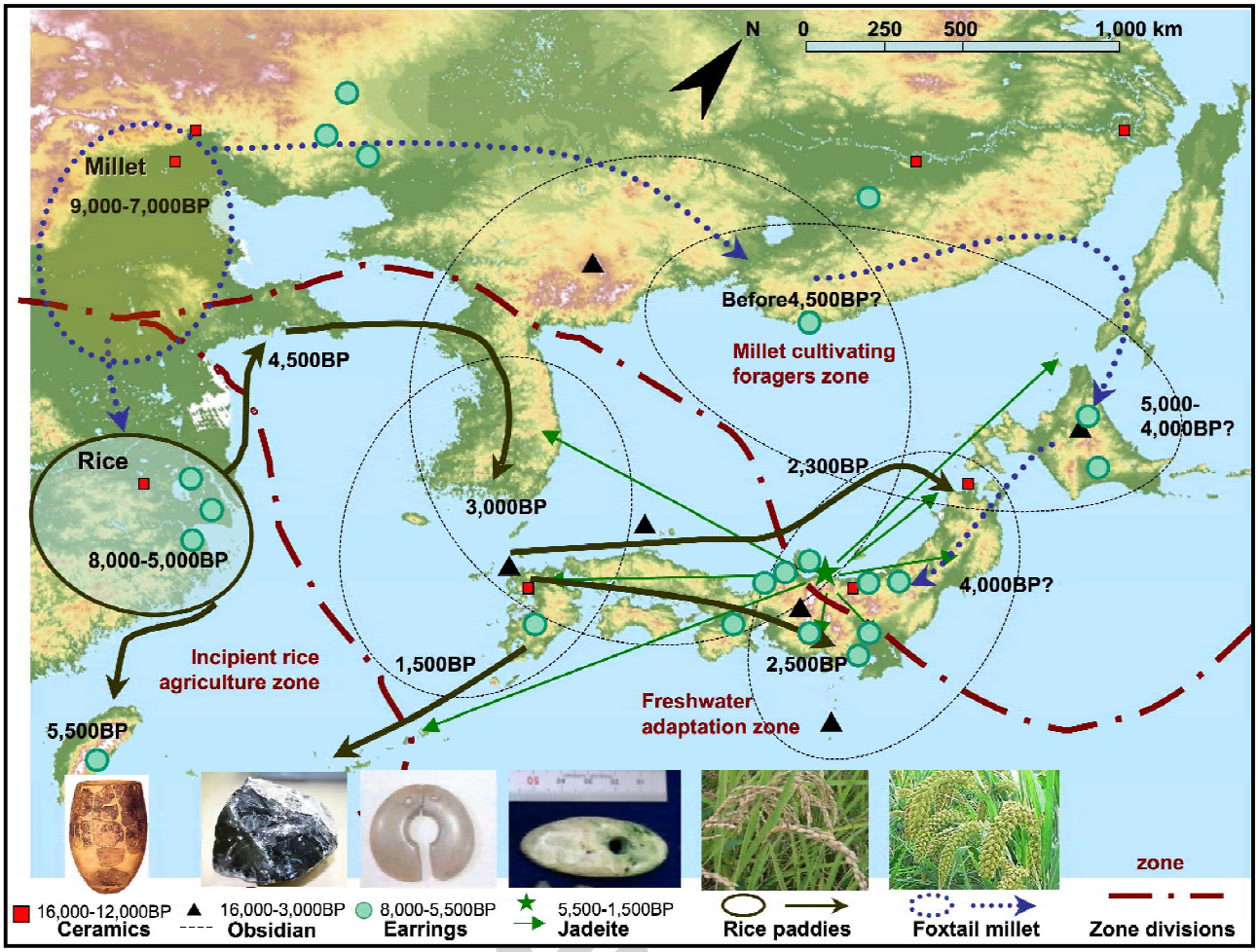

Fig. 1: The four cultural zones (divided by –•–) at East Asian inland seas (East China Sea and Japan Sea) in prehistory: the findings of early pottery (□); the distribution and production centres of obsidian (▲) and jadeite (☆); the distribution of slit-stone earrings (○); the source and expansion route of millet (dotted arrows →) and rice agriculture (solid arrows →)

and islands, forming four interdependent areas of inland sea area as a whole.

We have stopped longer on the prehistoric period, because it is often believed that long-distance connections would have been impossible in the period of small-scale settlements of foraging or early agriculture societies. However, developments in agriculture and trading activities cited above (along with many other findings) and the findings of dugout canoes as early as 8,000 BP in Kuahuqiao culture (Lower-Yangtze, China) and 6,000BP in Early Jomon (Honshu, Japan) should leave no doubt about the functioning of the inland sea as a cultural unity from early prehistory.

East Asian inland seas in later history: With some reservation we can say that these four zones in the East Asian inland seas remained same until the 17th century, with the incipient rice agriculture zone and freshwater adaptation zone (dominated by the Chinese culture) gradually dominating over the peripheral ones (foragers in North and Austronesian cultures on the Southern islands). The innovations that spread over the sea in later ages were Buddhism and Confucianism among others and the trade in lacquerware and Chinaware from one side and furs from the other extended over the whole inland sea region. While the Ainu people from Hokkaido are often considered self-sufficient like most other forager cultures, there is ample evidence about strong relations of trade with both Japanese on Honshu islands and other Northern peoples.

In the 17th century, Japan decided to close their ports to foreigners following the example of China and Korea who had done that earlier. This reduced drastically the traffic on the East Asian inland seas as it put an end to the savaging of Japanese pirates. However, the isolation was not as complete as many historians like to believe, as Japan was still open towards the Ainu foragers in the North and Ryukyu kingdom in the south that acted like communication hubs towards the other inland sea areas. For example, our data on the agricultural production in the area around Lake Biwa in Central Honshu demonstrates

that the farmers used extensively Hokkaido herring as a fertilizer on rice paddies.

Inland seas as a unit for protection: Up to now we have seen some examples of how East Asian inland seas have functioned as a cultural unit in the history. But after the establishment of strong nation states and under the burden of the 20th century world politics, East Asian inland seas rim has become a politically very sharply divided area (Communist China and North Korea versus South Korea and Japan; Russia versus Japan and "the East"; indigenous versus colonial culture; Okinawa and Ainu landscapes versus Japan), where hardly any cooperation exists between enemies. The question that we face in managing, developing and protecting the landscapes and the environments of the region is how to do it in a way that respects its historical background and unity.

An important step towards recognizing seas as a separate unit in environmental protection is the The Regional Seas Programme under the auspices of the United Nations Environment Programme (UNEP). The aim of the programs is "To promote the sustainable use and conservation of coastal and marine ecosystem and the services they provide, for the human well-being of present and future generations" launched in 1974, there are now altogether 13 regional seas programs with 140 member states and six partner programs (http://www.unep.org/regionalseas/). The Regional Seas programmes function through an action plan. In most cases, the action plan is underpinned with a strong legal framework in the form of a regional convention and associated protocols on specific problems.

And here we get to the first problem in East Asian context: there are actually two programs that cover the East Asian inland seas, dividing the area that is historically and culturally one big unit into two separate programs that do not follow the ecohistorical logic. The main program that concerns the areas is North-West Pacific Programme, including Japan, China, Russia and Southern Korea, basically coinciding with the Japan Sea basin. The other program, however, is East Asian Seas programme, that includes members from China to Cambodia and Australia, forming a political body which in no way can contribute to a holistic solution for East Asian inland seas problems (and is most probably too large to form a fully functional unit anyway).

Apart from that, the regional seas programmes and many other bilateral agreements on environmental protection have their own specific problems, which make them fall slightly short of their promises. First of all, they focus mostly on pollution issues and biodiversity (the problem of overfishing or whale hunting). While both are extremely important topics and must form a part of any policy that concerns seas, they limit the object of interest to certain foreign particles/ objects in water (that is, water quality) or to certain selected species, lacking a holistic view. There predominates an approach to marine environment and land is referred to mostly as a source of pollution, like a sort of waste pipe. Land and sea are seen as separate zones and are often a target of separate international treaties, thus separating an inseparable functioning whole into abstract categories.

As international water bodies are an area of conflicting international economic interests and the subject of international law, the programmes and treaties have adopted economical terminology and economy-based interpretation of mutual bonds (provider/ consumer etc). Whereas economical terminology has its clear advantages in regulating the inter-state relations and duties, it also has its drawbacks, since modern economy is just a relatively new way of describing the world and is not really capable of capturing complex intercultural systems, let alone to convey adequately the value systems related to non-economical living organisms. It is also obviously anthropocentric.

To compensate for the economical discourse, the international programmes have widely adopted ecosystemic description. Ecosystemic paradigm is no doubt the most widely accepted way to speak about environment and its protection and development at present. Ecology gives us invaluable information about living beings, their environment, needs and co-habitation but like all systemic descriptions, it lacks irregular dynamics and history that are always a part of life. Irrational human activities are often reduced to an abstract "human factor" and there is a general lack of cultural and historical reference, which makes this "human factor" absolutely unpredictable and renders the whole formula useless. A possible solution could consist in adopting "landscape" as a working term as put forth by the European Landscape Convention from 2000. Encompassing physical as well as mental part of the environment and endowed with a historical dimension, it could serve as a useful tool for planning, protection and management.

Last but not least, many of the environmental programs function only on paper as they actually fail to address the current urgent problems and implement their legal conventions. This is also the case of programs for East Asian inland seas area, since West-Pacific Programme, for example, does not include Northern Korea. With one state rejecting the treaty and its responsibilities, the success of the whole program is largely curbed. Also the programme has not signed any new conventions but is trying to encourage the enforcement and mutual understanding of already existing law acts in member states. With such a diverse legal and political background, understanding and acceptance of each other's legal system alone can be a challenge.

History and regional unity for future landscape policies: So what would be the advantage of using inland sea as a cultural unit in the protection policies? And why should history be included in the discussion of environmental issues? In what follows we will bring three simple examples.

Mock heritage: First, understanding historical landscape development processes in the region as a whole helps to avoid creating "mock heritage" sites. By "mock heritage" site we mean a site which is protected as a heritage site but lacks the actual historical relevance to the area. For example, rice paddy landscapes in

Northern Japan, which may demonstrate high biodiversity and are strongly connected to the Japanese national sentiment, are not a part of the indigenous landscape of the region. As we have seen, Northern Japan belongs originally to the millet zone and rice paddy agriculture in the area is around hundred years old at most. Thus, decisions to protect typical rice agriculture sites should be treated with utmost caution with a full conscience that it should be done only if the site has additional values that have disappeared from the original rice paddy agriculture zones.

Landscape mummies: The knowledge of complex landscape formation and maintenance processes is extremely important in managing the so-called "landscape mummies". By "landscape mummy" we refer to a landscape heritage site, which might have a correct historical form (*e.g.* rice paddy in the rice agriculture zone), but lacks all the processes and social context to be maintained as such without forcing the locals to live in a "museum" or excluding them from the site and investing considerable funds on the expense of developing other regions. Exactly the same way as a mummy in the museum that has a shape of the human body but does not function as such and needs to be maintained by others in order to be preserved. Foreign influences must be excluded and a lot of effort and money has to be put into preserving a mummy – both a real one and a "landscape mummy" as well.

Maintaining a "landscape mummy" is always a political decision. For example, the preservation of the so-called *satoyama* landscapes in remote areas of Japan is often as good as attempts to preserve a mummy. Originally consisting of terraced rice paddy fields with intricate irrigation system that was a home for fish, and a forest behind the village that served as fuel resource, the villages are now empty or inhabited by elderly peolpe who are incapable of extremely labour-consuming maintenance of the rice terraces. Nor do the villages depend on the forests for fuel or manure, rendering all the original functions of the whole landscape unnecessary. In most cases, the inhabitants would either leave the villages or opt for a new kind of income and sustenance activities, if not obliged to maintain their rice paddies by the preservation policies.

That is not to say that heritage sites that lack their original function should not be preserved. But especially if we talk about seminatural or agricultural landscape heritage sites, it is important to realise their historical background to be able to make relevant political decisions and also understand the costs that incur from preserving them. Since it is clear that we cannot possibly stop the time on all different landscapes, it is important to establish clear categories for determining the landscapes that are worth preserving or even recreating. More often than not the preservation decisions have been taken without sufficient historical knowledge and from political nostalgia for some epoch in recent national history.

Protecting individual species: Environmental historical knowledge is also a necessary background for the protection of individual species. A good example of this is the case of storks (*Ciconia boyciana*) in Japan. Stork is a migrant bird species that in East Asia is associated with rice agriculture. As rice paddies are an object of strong nationalist discourse in Japan, the stork has become a strong cultural symbol. The storks were once common in Japan but recently they are less numerous because of the changes in agriculture. Concrete fortification of rice paddy irrigation channels has excluded fish from the paddies. Together with intensive use of pesticides and fertilizers, the number of insects and accordingly frogs has also decreased drastically, leaving the storks without their natural prey.

Storks remain fairly common in the continental mainland, but in Japan they are subject to extensive protection policies and reintroduction programs. All these programs enjoy high prestige and publicity (there are webcams following the life of storks!), and we have even seen the Japanese prince His Highness Akishino-no-miya ceremonially releasing two storks that were raised in captivity in the framework of a stork re-introduction program. However, as storks are migrant birds, they are also free to leave whenever they find their living conditions unfavourable. And reinhabit the area as they find it suitable again. Therefore, forceful reintroduction of a species into a deteriorated environment can not be successful. At the same time it is not necessary if the species is still numerous in its original habitat, that is in China, since with the appearance of suitable living conditions, the species is very likely to migrate into the area again.

Therefore, in order to protect a species we need to protect the everyday life-worlds in their original historical context: each protectable feature, be it a single species or a landscape element, has come into being as a part and parcel with its environmental context in the course of history. Only with respect for the developmental path of one or other protectable feature and only looking it as an integral part of its narrower and broader historical contexts, is it possible to create a functional developmental strategy. Inland seas as historical units of communication and cultural influences could form a perfect unit for ecohistory and accordingly for planning, maintaining and managing the environment of the area. It is through the everyday activities of living beings in the area that certain landscape elements have come into being and thus it is as an integral part of the whole cultural unit that it should be protected and/or maintained. As landscapes are the stage of everyday life where by definition physical environment meets the mental images and the historical perception of this physical environment, a possibility of East Asian Landscape Convention with East Asian inland seas as its basic cultural unit should be considered for the future development of the area.

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References

Aikens, C.M., I.S. Zhushchikhovskaya and S.N. Rhee: Environment, ecology, and interaction in Japan, Korea and the Russian far east: The millennial history of a Japan sea Oikumene. *Asian Perspect.*, **48**, 207-248 (2009).

Chase-Dunn, C. and D.T. Hall: Rise and Demise. Comparing world-systems. Westview Press, Colorado (1997).

Crosby, A.W.: Throwing Fire: Projectile technology through history. Cambridge. (2002).

Ellis, E.C. and N. Ramankutty: Putting people in the map: Anthropogenic biomes of the world. *Front Ecol. Environ.,* **6**, 439-447 (2008).

Elvin, M.: The retreat of the elephants: An environmental history of China. Yale University Press (2004).

Elvin, M. and L. Ts'ui-jung: Sediments of time: Environment and society in Chinese history. Cambridge University Press, Cambridge (1998).

Hornborg, A., J.R. McNeill and J.M. Alier: Rethinking environmental history: World-system history and global environmental change (2007).

Hughes, D.J.: An environmental history of the world: Humankind's changing role in the community of life. Routledge, New York (2001).

Jordan, P. and M. Zvelevil: Ceramics before farming: The dispersal of pottery among prehistoric Eurasian hunter-gatherers, (2010).

Mahong, B.: Environmental history in China. *Environment and History* **10,** 475-499 (2004).

Marks, R.: Tigers, Rice, Silk, and Silt: Environment and economy in late imperial South China (Studies in Environment and History) Cambridge, (2006).

Muscolino, M. S.: Fishing wars and environmental change in late imperial and modern China. Cambridge, London (2009).

Ponting, C.A.: New green history of the world. Vintage books, London. Rev Upd edition (2007[1991]).

Richards, J.F.: The Unending frontier: An environmental history of the early modern world (California World History Library). Berkley, Los Angeles (2003).

Roberts, N.: The Holocene: An environmental history. Blackwell Publishers, Oxford (1998).

Ruddiman W.F.: Plows, plagues and petroleum. New Jersey (2005).

Simmons, I.G.: Changing the face of the earth: Culture, environment, history. Wiley-Blackwell (1996).

Totman, C.D.: Pre-industrial Korea and Japan in environmental perspective. Brill, Leiden (2004).

Uchiyama, J.: The environmental troublemaker's burden: Jomon perspectives on foraging land use change. *In*: Beyond affluent foragers: Rethinking hunter-gatherer complexity (*Eds.*: C. Grier, J. Kim and J. Uchiyama), Oxbow, Oxford. pp. 136-137 (2006).

Uchiyama, J.: Vertical or horizontal landscape? The prehistoric long-term perspectives on the history of the East Asian inland seas. *In*: The east Asian Mediterranean: Maritime crossroads of culture, commerce and human migration. East Asian economic and socio-cultural studies: East Asian maritime history, 6 (*Ed.*: A. Schottenhammer). Wiesbaden, Germany, Harrassowitz, pp. 25-52 (2008).