Iamgo Mundi:
Cosmology and Cartography

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This paper begins with an old problem in the historiography of early Southeast Asia. The problem is: what can a map of the world allegedly drawn by an obscure 2nd century Greek cartographer and astronomer Klaudios Ptolemaios tell us about the history of Southeast Asia in the 2nd century A.D.? By now three, perhaps four generations of scholars have dedicated a vast amount of energy into unravelling what Ptolemy may have been telling us.

This unravelling is a complex task because the earliest surviving copies of the Ptolemic text in question, the *Geographia* or *Cosmographia*, are copies made by Byzantine monks in the late 13th and early 14th centuries. And there are several different versions of these early copies of the *Geographia*. The map that we have all been studying is part of a series of 26 or 64 maps, depending upon which version one consults.

Of the series, the map in question outlines a Golden Peninsula and the accompanying text provides a list of co-ordinates for about 30 settlements on that Aurea Khersonesus. Is this Golden Peninsula the Malayan Peninsula? If the Golden Peninsula is the Malayan Peninsula, as most scholars assume, then is the Sabara emporion located at the southern tip of this peninsula the island we know as Singapore today? It will indeed be wonderful and reassuring to know that Singapore has been around for a thousand and eight hundred years.

I will not discuss the identification of Ptolemaic place-names in early Southeast Asia, but I will discuss what is, for me, the more fundamental issue and its implications, of why we have devoted so much attention to the work of a 2nd century Greek cartographer and astronomer.

This attention to Ptolemy has to some extent been at the expense of other geographers like the 15th century Arab *mu' allim* Ahmad ibn Majid or the Tang dynasty scholar Jia Dan. Paul Pelliot's study of Jia Dan is still the only major and definitive study of the *Huang hua si da ji*. It was published in 1904. Ibn Majid has been more fortunate. G.R. Tibbetts in 1971 published a major study and translation of Ibn Majid's *Kitab al' Fawa'id fi usul al' bahr wa' l-qawa' id*. Before that we were dependent on Gabriel Ferrand's 1925 study. In contrast, Ptolemy continues to hold the attention of major scholars like Louis Malleret, Paul Wheatley and W J. van der Meulen.

I find this attention to Ptolemy especially strange since most of us have accepted the conclusions of Leo Bagrow's 1943 study that the Byzantine copies of Ptolemy's *Geographia* were not faithful and accurate copies of earlier texts written by Ptolemy and now lost or no longer existing. Bagrow argued that Ptolemy probably wrote only the first of the eight books of the *Geographia* attributed to him. The other seven books are the result of 12 centuries of compilation and edition and attributed to Ptolemy to give it more credence and authority. The maps are an even later addition. The only map that may be of an earlier date is the world map by Agathodaimon. In other words, Ptolemy's *Geographia* gives us a map of the world, a mappa mundi, in the 14th century, and not the 2nd century.

But all this is not to decry Ptolemy. For Ptolemy and the *Geographia* attributed to him were critical to the historical development of our world. Ptolemy is important because he developed in the first book of his *Geographia* a system of describing and mapping the world which later generations and we today accept. Ptolemy developed a grid system for mapping the world which remains the basis of cartography today. For this system of mapping the world, Ptolemy borrowed from earlier Greek geographers, especially Strabo (64 B.C.? - A.D. 24?), Eratosthenes (276-196 B.C.?) and Hipparchus of Nicaea (c. 165-c. 127 B.C.). Common to these early Greek geographers was the assumption that geography was more a science derived from philosophy and developed by philosophers than a tradition of sailors and navigators. These Greek philosophers were not interested in compiling descriptions and accounts of foreign lands brought back by sailors and travellers. They were more interested in fundamental questions of the nature and shape of the earth — was it a flat disc floating on the sea or a segment of a cylinder or a sphere?

As far as we can ascertain it was Plato in his Phaedo who argued that the earth must be spherical because the sphere is the most perfect mathematical form. Later Greek philosophers like Aristotle refined the mathematics for a spherical earth and provided some astronomical observations to back up their ideas. It was Eratosthenes, perhaps the greatest of the ancient Greek geographers, to first calculate the circumference of the earth from the difference in the length of the shadows cast by the sun at noon at Alexandria (where he resided and at Syene (or modern Aswan). Eratosthenes, incidentally, was only 15% off in his calculation of the circumference of the earth at 28,700 miles. Eratosthenes also attempted to develop a grid for his maps based,

in deference to the demands of sailors and human convenience, on prominent landmarks such as Alexandria, the Pillars of Hercules, Sicily, among others. It was an irregular network which his successor the astronomer Hipparchus radically improved upon.

Hipparchus refused to peg his grid to geographical and historical landmarks, and instead worked out a grid pegged to the position of stars and other astronomical phenomena. The idea of dividing the world into 360 latitude parts and 180 parallel longitude parts is Hipparchus'. Ptolemy's skill and greatness was his ability to synthesise and attempt to improve upon the work of his predecessors. But, like his predecessors, Ptolemy lacked facts and data to verify and corroborate his theories and ideas. The consequences of this lack of facts and data we shall examine later.

If historians of early Southeast Asia see more value in the Ptolemic image of early Southeast Asia than in a medieval European world map, it is because the Ptolemic image of early Southeast Asia and its accompanying list of coordinates for toponym is based upon an imago mundi and cosmography that we subscribe to and identify with today. In contrast, the medieval European world maps offer a view of the world we would have difficulty identifying with today. Take for example the well known 13th century world map found in a Benedictine monastery in Ebstorf, near Ulzenon the Luneburg Heath which was rediscovered in 1830 but unfortunately destroyed in World War II. The circular map has Jerusalem in the centre and is drawn on a background of the figure of Christ crucified, with the head at the top of the map, the feet at the bottom and the two hands protruding out of the left and right of the map. The 'shoe' of Italy can just about be discerned, while the rest of the Europe can hardly be identified and Africa is distorted.

This Ebstorf world map and other medieval European world maps project a 'Christian topography' which rejects the shape of the world as a globe and reverts to the older concept of a flat disc-shaped earth surrounded by ocean. It is an imago mundi based on the *Topographia Christiana* of the 6th century monk Cosmas with the nickname Indicopleustes or 'Indian traveller' because he was a Byzantine traveller and trader who travelled as far east as Ceylon before becoming a convert to Christianity. His *Topographia Christiana* is a literal interpretation of what Saint Paul and the other disciples said about the geography of their world and set the framework for the cartography of Europe for the next six centuries. It is an imago mundi based upon a cosmography which none of us would subscribe to today. Not surprisingly, no historian of early Southeast Asia has even considered any medieval European map as a possible evidence on Southeast Asian history.

The relevance of the very few early Indian maps as evidence for early Southeast Asian history is also very little, in spite of the strong Indian link to the region through much of the first millenium. This is because the early Indian maps, like the medieval European maps, are based upon a vision of the nature and shape of the world described in the sacred literature known as the *Puranas*. In the puranic vision, the world is structured around the mythical home of the gods on Mount Meru located in the Himalayas.

This Mount Meru, or Sumeru for the Buddhist, is situated in the middle of the continent Jambudvipa or India. Surrounding Jambudvipa is the ocean and four other continents located at the cardinal points of Jambudvipa. According to chapter 48 of the *Vayu Purana*, the parts of Southeast Asia better known to Indians—Sumatra and Java—are one of the six provinces of Jambudvipa.

This puranic structure of the world can be discerned in a Maratha map of unknown date (now deposited in the India Office Library). The puranic cosmos is inscribed in the circle on the left of the map. The puranic continents are listed in the lower left corner of the map. This puranic cosmos sits at the north of the Indian subcontinent, which is surrounded by a heavily patterned sea. The triangular island on the extreme right of the map (i.e. south) is Lanka. The puranic cosmos is divided from the rest of the Indian subcontinent by the Himalayan range. For the historian of early Southeast Asia, making sense of these classical Indian textual references to the region has not been easy.

The Islamic maps in contrast appear more relevant for early Southeast Asian history. That may be because the early Islamic maps were largely based upon the Ptolemic image of the world. But the Arab geographers did not blindly follow Ptolemy. They challenged and changed parts of the Ptolemic vision. This is quite clearly seen in one of the earliest surviving Islamic world maps drawn by the astronomer-mathematician Mohammed Ibn Musa al-Khwarizmi in his *Kitab Surat al-ard* written in the early half of the ninth century. In the Ptolemic vision, east of the Golden Khersonese is a large gulf Sinus magnus, to the east of which is the coast of China which extends southwards and then runs west to link up with Africa, completely enclosing the Indian Ocean. Khwarizmi in contrast, has the Chinese coast extending south as a large peninsula, parallel to the Golden Khersonese. Khwarizmi has in effect, created two peninsulas in the east and a new ocean he names Bahr al Muslim, the Sea of Darkness.

Khwarizmi, as an astronomer-mathematician did not attempt to incorporate his map of the world with the descriptions brought back by Arab sailors and traders, but other cartographers and geographers did. And they amended and changed the Ptolemic vision even more. The mid-ninth century Ibn Khurdadhbih, an official in the postal service of the Caliph Al-Mu' tamid, was commissioned by the Caliph to compile a *Kitab al-masalik al' l-mamalik* (Book of the roads and kingdoms). His conception of Southeast Asia, based on the descriptions of sailors and traders is very different from that of Khwarizmi. Unfortunately Ibn Khurdadhbih did not leave us any charts or maps, only sailing directions. The Arab vision of Southeast Asia was to continue to change over the next six centuries as Arab sailors and traders brought back more detailed accounts of places they visited and their navigational techniques improved. We find Ptolemy, the Arab geographers of the ninth to the fourteenth centuries and the Arab navigators of the 15th and 16th centuries more reliable recorders of what may have been the state of our region than the Indian or medieval European cartographers. It is because the Greeks and the Arabs based their descriptions of our region upon a set of assumptions and more improtant, a vision of the shape and nature of the world which we subscribe to and therefore we can identify with.

In this context it may be interesting to speculate on the potential for Indian cartography if it had not adopted the puranic cosmogony of the world as a clod of earth bobbing on the cosmic ocean, which Indra as king of the Gods, pegged to the ocean floor with a great shaft. What if they perceived the world shaped as the Hiranyagarbha, the Golden Embryo or Cosmic Egg of the Vedas from which the universe developed?

Which brings us to an important implication. Our disagreement with the cosmography underlying a map is no justification to disregard and discard that map. It would be, I want to suggest, rather Eurocentric to evaluate maps according to how accurately and objectively they represent the landscape. Maps are not only a scaled two-dimensional representation of a landscape. Maps are more a graphic representation of how we experience and structure the space around us. And to the extent that we experience the world and the space around us differently, then the maps we draw will be very different. To dismiss Indian maps would be to fail to understand Indian concepts and cognition of space.

Maps can therefore be very revealing of how the cartographer and his society experiences the space around them and how they perceive the world they are mapping. Ptolemy's location of an Aurea Khersonese or the Ramayana description of Southeast Asia as a Suvarnadvipa, Golden Island or Peninsula may not only be an attempt to indicate that there were gold mines in Southeast Aisa, but perhaps more a perception of Southeast Aisa as a wealthy and rich region. By way of studying Ptolemy we can see that maps shape how others should view and perceive the landscape they depict. Ptolemy's influence on the course of our historical development has in this context, I suggest, been rather under rated.

Going back to Ptolemy, refugees fleeing the Turkish advance on Constantinople brought with them to Italy a number of Byzantine manuscripts, including Ptolemy's *Geographia*. The 1405 Latin translation of the *Geographia* caused a

sensation for at least two reasons. European sailors and navigators were starting to sail further in the search for alternative sea routes to the east. They were revising and expanding the classical navigation guides or *periplus* to the coasts they sailed along. The Italian navigators started producing from the 14th century a series of sea charts now known to us as *portolanos* to accompany the navigational guides. Understandably, the Italian navigators found Ptolemy's imago mundi and system of longitude and latitude coordinates a far better guide to their work than the medieval world maps. Furthermore, Ptolemy's maps and description of what lay over the horizon of the ocean provided a more credible guide and inspiration than the *Topographia Christiana*.

Ptolemy's influence is clear among the leading cartographers of the 16th century. Sebastian Munster for example produced a new edition of Ptolemy in 1540 with 12 new maps and a major text *Cosmographia* in 1544 which went through 56 editions in six languages in one century. Munster's world map follows Ptolemy's imago mundi of continents, all linked and enclosing the Indian Ocean. Martin Waldseemuller also produced an edition of Ptolemy and a world map which shows Ptolemy's influence. It was only in the 17th century that this Ptolemic image of Asia was corrected and revised when the European navigators became more familiar with our terrain.

Ptolemy not only provided European but also earlier Arab navigators the techniques to chart the waters they were exploring; more important, he provided the vision and inspiration of rich and vast lands —of golden peninsulas—waiting to be explored and exploited. The Ptolemic maps also helped shape European perceptions of Asia and influenced European attitudes and actions towards Asia.

As archivists we should not only evaluate and collect maps which meet western cartographic standards of accurate and objective representation of terrain. I have tried to show how we tend to accept or reject maps because of the cosmography underlying the map. And I argue this should not be the case. A map based on a cosmography we do not subscribe to and depicting the landscape in a manner we cannot identify with is still valuable because it can shape the attitude and behaviour of its viewers to the landscape depicted in the map.