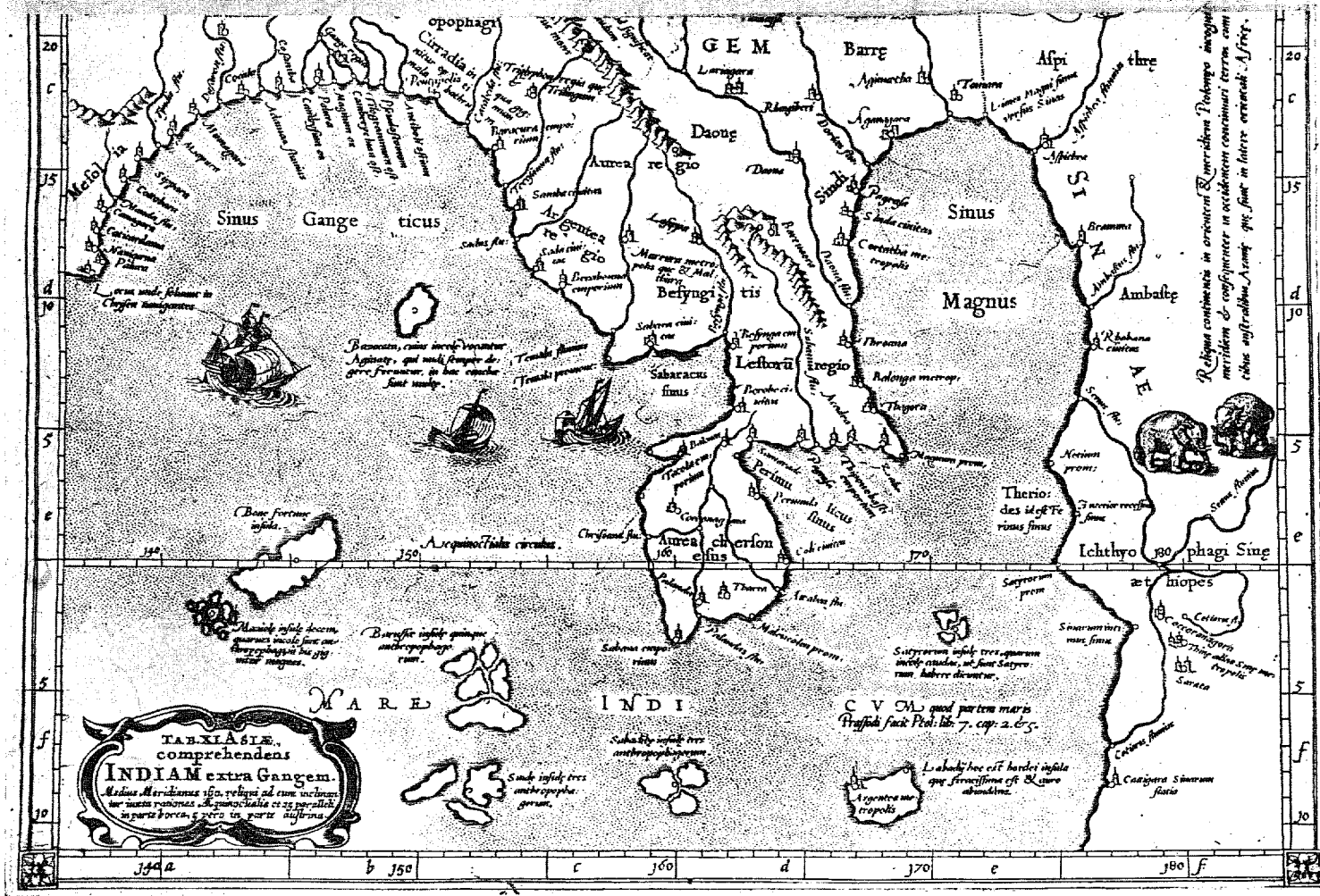
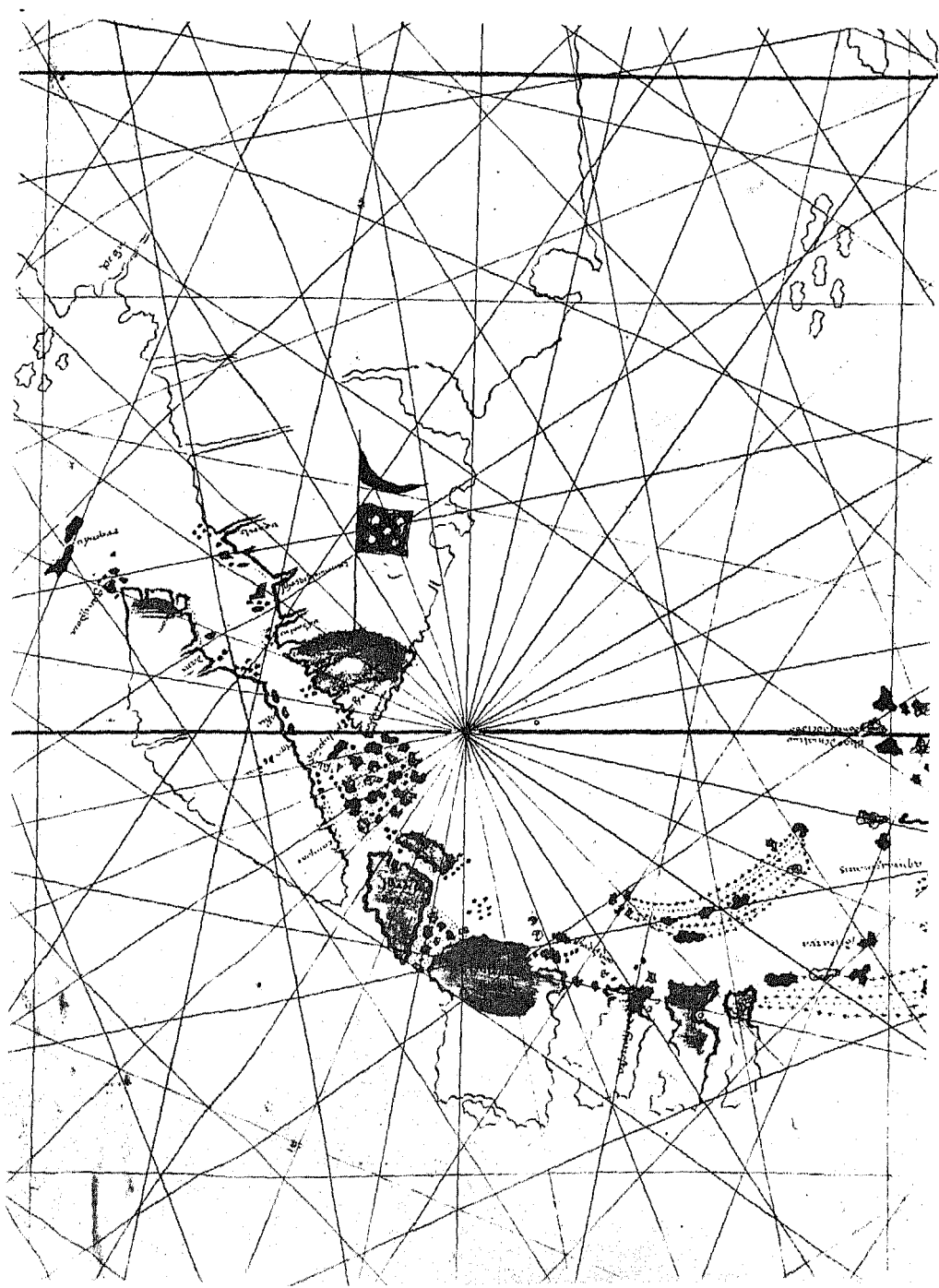


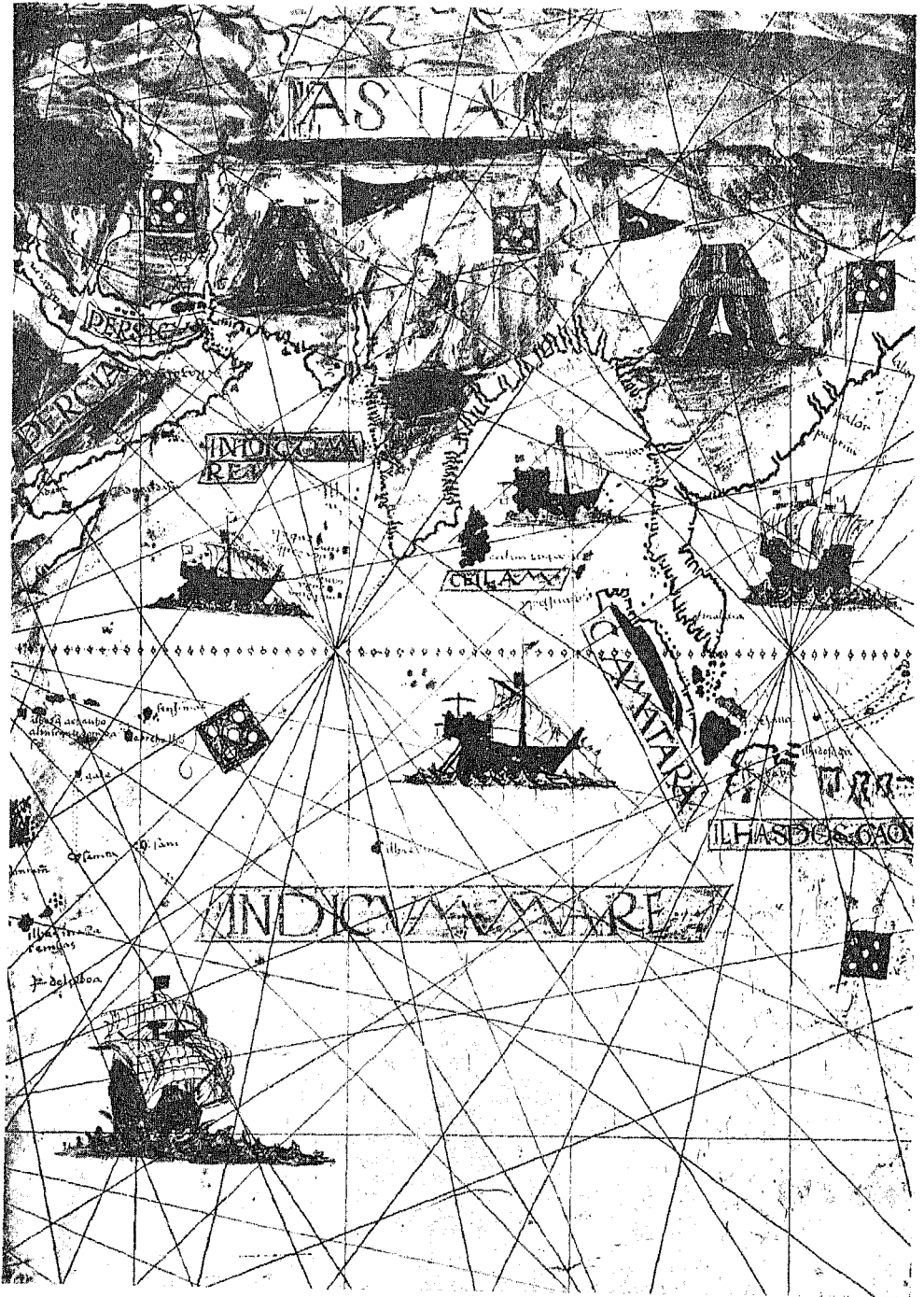
Map I. Map of the World in Ptolemy's Geographia edited and redrawn by Donnus Nicolaus Germanus at Florence and printed by Lienhart Holle at Ulm in 1484 from wood block.



Map II. Ptolemy's Map Indiam extra Gangem. Reproduced Mercator's Edition of Ptolemy's Geographia, Cologne 1578–1584.



Map III. Carte Portugaise - Reinel 1517.



Map IV. Carte Portugaise - Ecole de Reinel 1520.

STUDY OF EARLY CARTOGRAPHY OF THAILAND (SIAM)

by

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Man is so small and he is tied so closely to his earth's habitat that he must employ among other techniques, that of cartography in order to see the broader spatial relationship that exists in this complex world.

Maps of some kind are as old as human culture, probably as old as the first attempts one human being made to communicate ideas to another.

The territory known as Siam inhabited by the people known as Siamese must have been known to early travellers coming from different directions. From India through Ceylon we learned of the Empire of Srivijaya (VIIth to XIIIth century) closely connected with the spread of Buddhism up through the central valleys of Menam Chowphya and Mekong.

There were travellers from China in the north and some of them stopped in the province now known in China as Yunan and are believed to have established a kingdom of Nanchow with their capital at Talifu, home of the original Thai in the seventh century. This kingdom was in turn totally destroyed by the Mongol Emperor Kublai Khan in A.D. 1254. The migration of the Thai towards the south was taking place some hundreds of years before this, and these Thai became ancestors of the Siamese as well as Shans and Laos. The region into which the various groups of Thais were continually migrating had been known to the Indians by the name of Suva-nabhumi, which we can assume to cover the south-east Asian peninsula.

Voyagers and settlers from the time of antiquity most probably possessed a certain amount of geographic information and made some manuscript maps of the routes over which they traversed and of the areas they settled. Unfortunately, there was nothing in the record until towards the end of the Middle Ages which approached anything

like scientific cartography with the exception of those of Ptolemy which represented the summary of Greek geography.

During the intervening period, Western Europe hardly showed progress in cartography. Only when the geographical renaissance of the 15th century in Western Europe was introduced by the rediscovery of Ptolemy's "Geographia" which was translated into Latin about 1409, was there notable improvement in both the science and art of cartography. Ptolemy's "Geographia" had never been lost. It had been preserved by the Arabs and through them part of its substance had been introduced in indirect form into the West during the Middle Ages. About four and a half centuries ago, we found maps of Siam produced by the West.

It has already been mentioned that one of the main directions from which voyagers, traders, and settlers came to Siam was from the north now known as China. In cartography the Chinese developed independently of the Western peoples, and it was flourishing in China when it was at its lowest decline in Europe during the Middle Ages. China had been mapped in detail before any European visited that country. It had been one of the important duties of each governor and prefect to prepare a complete geographical description of his lands and waters, usually accompanied by maps. The Chinese paid more attention to their inland waterways than to their seacoast, rarely sending scientific expeditions oceanward. Their contribution to the geographical knowledge was the result of notes and narratives of travelers, pilgrims, diplomats, traders, immigrants and military expeditions. There are old maps and materials available in the archives of many cities and they should bring important discoveries from future studies.

The correlation of many local maps were carried out by Pei Hsiu, who lived from A.D. 224 to 273. He was the real father of Chinese cartography. This work no longer exists.

Chinese map making had at this early period attained a scientific standard. In the use of network, Pei Hsiu was ahead of the cartographers of the West, but the Chinese conceived the earth

as a flat surface with China in the middle. In the period after Pei Hsiu, Chinese map makers gradually covered the entire territory from Persia to Japan.

The climax in the geographical knowledge of the Pacific was reached in the military expedition in the Ming, the great age of marine exploration in Chinese history. In 1405 the eunuch admiral Cheng Ho first brought Chinese seagoing junks to Borneo, Philippines, Java, Sumatra, Malaya and even to the Indian Ocean. Seven such expeditions were made during the next thirty years returning each time with much geographic information including sea routes, products, customs and inhabitants. Under the succeeding dynasties the use of maps became more and more widespread. When the Jesuit fathers came to China in the sixteenth century they found enough materials to produce an excellent atlas of the Empire. From this time on the maps of China were influenced by Western cartography.

It is unfortunate that many valuable pieces of work no longer exist. Still there are some rich materials available which should yield important geographic information in that country if some one would make serious studies.

The earliest authentic record in connection with the employment of art and science of cartography in portraying the region now known as Thailand can be traced to the work of Claudius Ptolemy. This famous scholar who lived in Alexandria, Egypt, from A.D. 60 to 165, was primary a mathematician and was led into geography through the door of cartography. He concerned himself with problems of presenting the spherical surface of the earth on a flat piece of paper and recognized the inevitability of deformation in the process. Ptolemy might be considered as the earliest real counterpart of the modern-day cartographer. In general he did what the modern cartographer does.

Ptolemy's *Geographia*, a Greek manual on the construction and drawing of maps, was written at Alexandria about A.D. 160. Little is known of the fate of the book for a thousand years after Ptolemy's time.

On the collapse of the Byzantine Empire, the surviving Greek manuscripts were brought to Italy by fugitive scholars before A.D. 1400. The eight books into which the manuscripts were divided contained general instruction for map-making, tables of towns and physical features with their geographic coordinates. There were ten maps of Europe, four of Africa, twelve of Asia with descriptive text, and one of world map.

The Latin translation of the *Geographia* was completed in 1409, the redrawing of the maps in Italy from about 1460, the first printing of the maps in 1477. After that there were additions in manuscript and subsequent printed editions and copied many times during the fifteenth century. In the eight-volume *Geographia* and its maps, Ptolemy summarized the geographical knowledge of the ancient world. His world map was better than any other even in the fifteenth century, a thousand years after its original construction.

In the construction of his world map, Ptolemy based his dimensions of the earth on the results of Poseidonius (about 130-50 B.C.) rather than the larger and more nearly correct figure of Eratosthenes, a mathematical philosopher (about 276-194 B.C.)

Despite the inaccuracies, the concept of this small figure of the earth was carried over to the time when there was a general rebirth of culture in Western Europe in the 15th century. Ptolemy's *Geographia* was recognized as a genuine relic of classical science by humanists and cosmographers. During the intervening period the art and science of cartography declined and reverted to the status of fancy and imagination with mythical kings and kingdoms replaced the carefully cartographic determinations of the Greek and early Roman periods.

The discovery of America and achievements of Magellan and others simply grafted their new knowledge to the stock of Ptolemy.

In preparing his *Geographia*, Ptolemy leaned heavily on the excellent library facilities of Alexandria and gathered his materials from various sources from accounts of sailors and travelers. Of

the some 8,000 places in his gazetteer and atlas only a few were located by instrumental observation. His work became a foundation stone of modern cartography after lying dormant for a thousand years. Appended are reproductions of four very early maps pertaining to Siam.

The first is a Map of the World in Ptolemy's *Geographia* edited and redrawn by Donnus Nicolaus Germanus at Florence and printed by Lienhart Holle at Ulm in 1484 from wood-block. The original size was 16" × 22". It shows the Ptolemic world extending 180° of longitude and 88° of latitude, with the Indian Ocean as a landlocked sea bounded on the south by unknown lands labelled "Terra incognita esundum Ptolemeam". The map was drawn on Nicolaus spherical projection. In the right-hand and top and bottom margins of the map are degrees marked and at the left are shown Ptolemy's parallel giving the length (in hours) of the longest day at different latitude. For inscriptional lettering Roman capitals of different sizes are used for names of continents, countries and oceans, and for other names and legends minuscules are used. Mountain ranges are outlined in plan, a convention introduced by Nicolaus.

As is generally accepted even by scientific cartographer that a map should please the eye, along the border of this world map are the twelve wind faces with their Greek names enclosed in scrolls being the only decoration.

Ptolemy's *Geographia* includes the region which is now known as Indo-China Peninsula and which comprises Siam of the early period and the present territory of Thailand. It is marked India extra Gangem and is shown in the second map. This map is a reproduction copy from a photocopy of Ptolemy's map kindly supplied by Mr. J.J. Boeles, Director of the Research Center of the Siam Society. The map is a Mercator's edition of Ptolemy's *Geographia* (*Asiae Tabula XI*) printed in Cologne in 1578 and 1584 using line-engraving method. Size of original is 13½" × 13". Roman minuscules are used for the name of provinces, peoples, and gulfs and fluent italic for other names. The sea is stippled and

mountains are drawn as overlapping cones. River sources are shown as small ponds. The small strapwork cartouche and the rosettes at the corners are the only formal decorations. 'Voride places' in the sea are relieved by ships and on the land by local fauna.

The Geographia contains the first collection of anything like authentic data on Thailand and should be of value for the study of certain historic, philologic, ethnologic and early geographic aspect of the country although the geographical science at that remote period was still in its infancy.

It is my intention here to consider only the geographic aspect of the Ptolemy's Geographia of India Extra-Gangem in the designation of place names which are related to Thailand and which can be located in the present state of geographic knowledge.

Since the time of Ptolemy the extent of Thailand has had many changes. According to Ptolemy the region lying to the south of the Mekhong River on the west and Tongkin on the east up to about 18 degrees parallel of latitude was known to him as the country of the Doanai, and this corresponds approximately to northern Thailand.

The region of the Gulf of Thailand extending eastward to Cambodia and the delta of Saigon and northward was known as the country of the Lestai. Adjoining this to the south Ptolemy named the region as the Golden Khersonese. Ptolemy made his Golden Khersonese begin with Takuapa and end at Chumporn after which the land of the Lestai commenced.

Before one can identify Ptolemy's stations, their given geographic coordinates must be correlated to some definitely known places because there were too few geographic control points and Ptolemy's world was only 180° in longitude and 88° in latitude.

The followings are some of the stations mentioned in Ptolemy's Geographia which can be traced in their corresponding present location :—

<i>Name of Ptolemy's Station.</i>	<i>Corresponding designation and location</i>
Perimula	Nagorn Sridhamaraj
Balongka	Chumporn
Samarade	Nagorn Chaisri (Nagorn Pathom)
Pagrasa	Trad

After Ptolemy there was a steady decline in the art and science of cartography. At the same time that the cartographers depicted an imaginary world, however, a new type of map appeared. These maps called "portolan charts" were based on a survey by compass which came into general use about this time. The lettering was confined largely to harbours, capes and other coastal features, and the land surface was left blank or decorated with coat of arms and flags. Rivers and a few inland cities were occasionally shown approximately. One striking feature of the maps was the elaborate system of compass roses and rhumb lines which criss-crossed their entire surface.

The third map is the earliest map by which one sees the Gulf of Siam represented. It is a "portolini" or portolan chart which belongs to the Bavarian Army of Munich. A copy was executed at Munich by Otto Pregel and is in the possession of the National Library of France. The part relative to Siam is reproduced here. According to Dr. E. Hamy* this map is of Portuguese origin the author being Pero Reinel and the date approximately 1517.

One can see that this map gives only a very approximate delineation of the eastern coast of the Malay Peninsula without knowing the reason, because that coast was known much earlier and was frequented by the Portuguese.

As early as 1511 Malacca had fallen into the hands of d'Albuquerque and as soon as it was solidly installed, the Portuguese sent expeditions after expeditions into the east to search the "Isles of Spice" and they possessed numerous and minute details of their

*Hamy "L'oeuvre géographique des Reinel et la découverte des Moluques dans Bulletin de géographie historique et descriptive 1891." pp. 117 et suiv.

attempts which they made in that direction. At about the same time we learned that some Portuguese commercial expeditions were launched toward China.

In fact d'Albuquerque had known of Siam and had sent Dante Fernandes to Ayuthia as ambassador to King Rama Tibodi II of Siam in 1511. Dante Fernandes was well received by the King.

We know also by a letter of d'Albuquerque dated April 1, 1512 that he had in his hands an original Javanese chart or rather Arabian chart on which were indicated "terra del rrey de Syam".

From historical record we learn that the Portuguese were the first Europeans to come to Siam. They had the freedom to establish friendly relations and commerce; they had been to Ayudhya and had known the coast of this country. More details could have been put in the map.

The next earliest map we know of is an anonymous map of the Portuguese school of Reinel. This is shown as map number IV. It is of a much smaller scale than the previous one and does not contain any detail of the coast of Siam, but gives a delineation of the country a little nearer to reality. The coast which projects out and which is prominently recognizable of Cochin China is not clearly marked. Dr. Hamy was of opinion that the map was made by a navigator who sailed from Malacca by a straight route favoured by monsoon arriving at Cochin China in a straight direction without following the coast of the Malay Peninsula and by consequence the navigator would not have known the deep hollow of the Gulf of Siam.

There are three inscriptions on the coast of China on this map, viz., Poulo-Tim, Palor and Lobo. Poulo-Tim has been identified as the Island of Tayas which lies on the north of Hai-Nan. The other two names are not quite definite. Between these two points we see a Portuguese flag erected. Although the name of the spot where the flag was erected does not figure on the map, it has been identified as Canton. The placing of the Portuguese flag on the soil of China was attributed to Peres d'Andrade. This navigator obtained

from the Governor of Canton some extremely important concessions and the Portuguese began to establish a firm footing in China. Before Peres d'Andrade departed from Canton in September 1518, he sent one of his men to identify a large island of which he was told named Lequeia and which is probably Formosa. Allowing for the time taken after Peres d'Andrade's departure from China to Malacca and the time involved in reporting his mission to Portugal, the date of execution of this map must be about the last month of 1519 or early in 1520. The map is unquestionably of the Reinel school and the work of producing it might be manated from Reinel himself.