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ORIENTATION, NAVIGATION AND SEAFARING IN MALAY ISLAMIC HISTORIOGRAPHY FROM 14TH TO 19TH CENTURIES

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Abstract: Southeast Asia with the Malay world being a part of it, is one of the most important centers of human civilization, known by many names: Yavadvipa, Malayadvipa, Suvarnadvipa, Suvarnabhumi from Indian *Ramayana* and *Jataka* text; Jabadiu, Chryse, Argyre, Golden Khersonese, in Ancient Greek and Latin tradition; Ch'ih-t'u, Shih-li-fo-shi, Tun-Sun, Ko-Lo, etc., in early Chinese historical sources. The Nusantara, being composed of an archipelago and a long, relatively narrow peninsula with many navigable rivers, was provided with thousands of miles of coast line, which made it one of the ancient world's ideal locations for local and long-distance trading. The involvement of Malays in the world trading system would be impossible without the existence of some well-developed tradition of seafaring, navigation, shipping and boat-building. The spread of Islam led to the fundamental changes not only in religious, but also in the economic life of the population of the Malay-Indonesian Archipelago. Gradually the Malays became a part of the world system of free trade and international seafaring developed within the framework of Islamic civilization. A significant amount of information regarding seafaring, ships and navigation may be found in Malay Islamic historical texts of the 14th–19th centuries, including various toponyms, objects of nature, weather, monsoons, references to the special fields of knowledge related to the seafaring and navigation, sailors and maritime legal systems, travels and travelers etc. This essay explores this information to show that navigation and seafaring was a very important part of the Malay Muslim tradition from very early time until now.

Keywords: Malay world, Malay Muslim historiography, seafaring, navigation, monsoons, toponyms, *malims*.

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Southeast Asia with the Malay world being a part of it is one of the most important centers of human civilization. This region was known since very early times and was mentioned in different ancient historical sources with various place-names: Yavadvipa, Malayadvipa, Suvarnadvipa, Suvarnabhumi from Indian *Ramayana* and *Jataka* text; Jabadiu, Chryse, Argyre, Golden Khersonese in Ancient Greek and Latin tradition; Ch'ih-t'u, Shih-li-fo-shi, Tun-Sun, Ko-Lo etc., in early Chinese historical sources¹. According to R. Braddell, commercial and cultural links between Nusantara and Mesopotamia existed from 1400 BC [Braddell, Douglas, 1980, p. 324]. The geographical position of the Malay Archipelago was fundamental in its development. Located on the convergence of two major sea routes, it was linked to the great markets of India and China by the annual monsoon wind systems [Andaya, Andaya, 2001,

¹ More regarding ancient toponyms from different historical sources see: [Wheatley, 2010].

p.11–12]. D.G.E. Hall mentioned that “the people of this culture develop high skill in navigation and boat-building; they are hardy seafarers with some knowledge of astronomy. They travel far and wide as merchants, and it is interesting to note that some of their trade names for weights and measures (like *tahil* and *kati*) are still used in India and China” [Hall, 1995, p. 8]. *Fig. 1*

Prof. Kenneth R. Hall wrote about the Malay sailors as follows: “They sailed thousands of kilometers from their homes, navigating by means of swell and wave patterns, cloud formations, winds, birds and sea life. This sophisticated and complex knowledge was passed orally from generation to generation. They measured their peoples by ‘boatloads’, and on the slightest pretext boatloads would leave islands where they were already concentrated and sail off to set up new communities on uninhabited islands, so that these Malayo-Polynesian peoples eventually stretched halfway around the globe, from Madagascar on the East African coast to Eastern Islands in the Pacific. ... They were *prime movers* in the link created between larger centers, as well as potential impediments to those links once they were created. Exactly WHEN this far-reaching maritime activity began is unknown, but ‘Malay’ (Kunlun) sailors were known in China by the third century BC, and there is evidence that they were settling along the East African coast by the first century BC. By the time of the Roman Empire, there were permanent communities of Malay-Polynesian speaking peoples on the coast of Malagasy, where they remain to this day” [Hall, 1994, p. 185–186].

This detailed description of the Malay sailors affirms their role in the early history of seafaring and navigation. According to Chinese records, some of these old Malay ships *Kun-lun-po/bo* were very big, around 50 m long. They could carry from 250 to 1000 tons of kargo. It could be on board up to 500 sailors and up to 1,000 passengers. *Fig. 2*

The spread of Islam in the Malay-Indonesian Archipelago radically changed the economic and political life of the Malays. The appearance of new economic realities – free trade and new trade rules, equal for all segments of society, new system of loans and trade receivables, new system of taxation; new forms of investments etc., should be mentioned among the elements of these crucial transformations². The development of free trade spurred the growth of art and craft. It inevitably led to the emergence of new non-agrarian population and increased the level of urbanization of the Malay society. Urban development, in turn, contributed to the socio-political, cultural and economic progress of the local community. Gradually the Malays became a part of the general Islamic civilization. *Fig. 3.*

SOURCES

A significant amount of information regarding seafaring, ships and navigation may be found in Malay Islamic historical texts (*Hikayat Raja Pasai*³, *Sejarah Melayu*⁴, *Undang-undang Laut*⁵, *Hikayat Aceh*⁶, *Taj al-Salatin*⁷, *Bustan al-Salatin*⁸, *Hikayat Iskandar Zulkarnain*⁹, *Hikayat Bayan Budiman*¹⁰, *Peringatan Sejarah Negeri Johor*¹¹, *Hikayat Siak*¹², *Tuhfat al-Nafis*¹³). These old texts contain information on the various aspects of life of the Malay community, including seafaring

² Regarding the contribution of Islam into the socio-economical development of the Malay-Indonesian Archipelago see also: [Richards, 1970; Denisova, 2011].

³ *Hikayat Raja Pasai* (HRP, 13th–14th cc.) [Jones, 1999].

⁴ *Sejarah Melayu* (SM, 16th c.) [Salleh, 1997].

⁵ *Undang-undang Laut* (“Maritime laws of Malacca”, UUL, 15th c.) [Liaw Yock Fang, Hassan Ahmad, 2003].

⁶ *Hikayat Aceh* (HA, 17th c.) [Iskandar, 2001].

⁷ *Taj al-Salatin* (“The Crown of Kings”, TS, 17th c.) [Roorda, 1827].

⁸ *Bustan al-Salatin* (“The Garden of Kings”, BS, 17th c.) [Harun, 2004].

⁹ *Hikayat Iskandar Zulkarnain* (HIZ, 18th c.) [Hussain, 1986].

¹⁰ *Hikayat Bayan Budiman* (HBB, 14th c.) [Winstedt, 1966].

¹¹ *Peringatan Sejarah Negeri Johor* (“Memorials of the History of Johor State”, PSNJ, 18th c.) [Kratz, 1973].

¹² *Hikayat Siak* (HS, 19th c.) [Hashim, 1992].

¹³ *Tuhfat al-Nafis* (“The Precious Gift”, TN, 1865) [Matheson, 1998].

and navigation. It should be emphasized that these texts are not some *kitab*s devoted directly on navigation and seafaring. They reflect the general *public* level of knowledge in this field, rather than some special works of professionals: captains or navigators.

The information regarding seafaring and navigation may be classified under the following headings:

- toponyms (names of places) and geographical objects (seas, gulfs, bays, straits, rivers, lakes, etc.);
- weather and natural phenomena (winds, monsoons, storms, typhoons, calm etc.);
- the time of travel;
- special fields of knowledge (*ilmu nujum*, *ilmu falaq*, etc.);
- travelers and navigators;
- stories about episodes, incidences and other events that happened during the travel.

TOPONYMS AND GEOGRAPHICAL OBJECTS

All old Malay texts are full with toponyms and the information of different geographical objects. Names of places in old Malay chronicles are often mentioned in context of travel description. Based on textual analysis we can divide it into following groups:

- local toponyms (*Aceh*, *Fansur*, *Jawa*, *Johor*, *Lamri*, *Lingga*, *Melaka*, *Pasai*, etc.);
- neighboring toponyms (*Campa*, *China*, *Keling*, *Kemboja*, *Siam*, etc.);
- alien (outlandish) toponyms (*Badar*, *Belanda*, *Darab*, *Farsi*, *Hindustan*, *Inggeris*, *Irak*, *Istanbul*, *Jeddah*, *Kaaba*, *Kabul Kandagar*, *Khurasan*, *Ma'abri*, *Madinah*, *Mawar al-Nahr*, *Mekkah*, *Mesir*, *Mokha*, *Musykat*, *Peransis*, *Peringgi*, *Portugal*, *Semer Kendi*, *Turkistan*, *Yaman*, etc.).

Majority of these toponyms was well-known entrepôts of international trade net system from 13th to 19th cc. They are referred to in the texts as the start, intermediate and end points of navigation:

Malay text	Paraphrase
“Beberapa lamanya dia di laut, maka sampailah ia ke Jambi, setelah itu lalu ia mudik ke hulu Jambi; setelah sampai ia ke hulu Jambi, lalu ia naik ke darat Periangan” [Jones, 1999, p. 67].	He arrived at Jambi after sailing for a long time, and then from the upstream of Jambi he went to ashore of Periangan.
“Maka Maha Indera Bahupala pun berlayarlah dari Benua Keling. Berapa lamanya di jalan maka sampailah ia ke Singapura” [Salleh, 1997, p. 35].	Maha Indera Bahupala arrived at Singapura after sailing from Benua Keling for a very long time.

The list of toponyms is different in the various texts. These variations reflect changes in the common net of seafaring in the Malay world in the 13th–19th cc., depends on time and real historical situation. For example, toponym *Aceh* did not mentioned in *Hikayat Raja Pasai*, because that time Sultanate Aceh Darussalam did not establish yet. But *Hikayat Aceh* contains 205 references to this toponym. Later in Johor historical texts toponym *Aceh* (*Acheh*) mentioned few times only (*Hikayat Siak* – 2 times, *Tuhfat al-Nafis* – 6 times), because in the 18th century Aceh lost its importance as a center of regional power and ceased to be an important international entrepôt and point of navigation. Toponyms *Pasai*, *Lamri*, *Fansur*, *Ferlak* (*Perlak*) mentioned in *Hikayat Raja Pasai* and *Sejarah Melayu*, but disappeared from the chronicles of Johor (18th–19th cc.) with probably same reasons, these ports have lost their importance as main destination's points in local and international seafaring.

Among the geographical objects most frequent mentioned are as follows: *laut* (“sea, ocean”), *kuala* (“estuary, firth”), *selat* (“strait”), *teluk* (“bay, golf”), *sungai* (“river”), *tasik* (“lake”), etc. Statistical analysis shows that definitions related with maritime navigation (*laut*, *kuala*, *strait*, *teluk*) considerably prevail terms related to river or inland navigation (*sungai*, *tasik*, etc.) It shows the predominance of seafaring over the river traffic.

WEATHER, WINDS AND OTHER NATURAL PHENOMENA

It is an obvious fact that weather and seasonal nature of the wind circulation is one of the most important factors of seafaring and navigation, especially in Southeast Asia. It is no exaggeration to say that before the days of steam the movement of shipping in the waters of the Malay Indonesian Archipelago was at the mercy of the monsoons¹⁴. In April westerly winds in Indian Ocean herald the onset of the south-west monsoon which approaches the Sumatran coast. In May, it moves to the Malay Peninsula, Thailand and Indo-China. Monsoon reaches its peak strength in July when the southerly winds over the South China Sea attain speeds of as much as 30 knots (50–60 km per hour and wave's high around 4 m). During August and September wind forces and constancies slacken and by October the north-east monsoon is developing in the northern part of South China Sea. By January, it covers all of the equatorial Southeast Asia, except southern Sumatra and Java which are under a westerly air-stream from the Indian Ocean. The following months see a gradual retreat of the north-easterly winds accompanied by a decrease in their strength and constancy. And finally, in April the new cycle begins. This seasonal wind cycle induced a corresponding rhythm in the seafaring and navigation in the Indian and China Seas. Fig. 4.

The dependence of communication, trade and seafaring on the rhythm of the wind season, monsoons and other natural phenomena, which continues throughout all historical periods, is clearly exemplified in old Malay texts. In the description of location or long-distance travels Malays often used the terms: *atas angin* ("windward, upwind") and *bawah angin* ("leeward", "downwind", "below the wind").

"... maka ada yang diceriterakan oleh orang yang yang empunya ceritera ini, negeri yang dibawah angin ini, Pasailah yang pertama membawa iman akan Allah dan akan Rasulullah" [Jones, 1999, p. 3].	As being narrated by the person who owns this story, the leeward country of Pasai was first to bring faith in Allah and the Messenger.
"... datang sebuah kapal dari atas angin" [Salleh, 1997, p. 69].	...came a ship from windward.
"Maka masyhurlah dari bawah angin datang ke atas angin bahawa negeri Melaka terlalu besar" [Salleh, 1997, p. 65].	It was so renowned from upwind and downwind the country of Melaka is too great.

Malay historiography contains a lot of stories about winds and typhoons, sea currants and waves rein gushes and thunderstorms.

Storm and waves destroyed the ship:

"... pergi beramai-ramaian ke Pulau Permain. Setelah datang ke tengah laut maka ribut pun turun, ombak pun besar. Maka perahu itu rosak" [Salleh, 1997, p. 83].	...I went to Pulau Permain in a large group. After sailing to the middle of the sea, the boat broke down due to a storm and big waves.
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Thunderstorm:

"Adapun keci perang itu apabila sudah lepas Yang Dipertuan Muda naik ke darat maka pada malam kenalah ia panah halintar pada tiang agung itu, patah sekali" [Matheson, 1998, p. 361].	At night when Yang Dipertuan Muda had gone up to the shore after the small war, thunderstorm broke the mast.
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¹⁴Regarding monsoons in the Malay world see also: [Jacq-Hergoualc'h, 2002, p. 19–21].

Strong easterly wind:

“Maka angin timur pun bertiup. Maka larat sauh segala angkatan itu” [Iskandar, 2001, p. 28].	The Easterly wind blew and pulled off all anchors.
“... dan tiada berapa lamanya, sampailah angin timur dan Raden Jaafar pun datang ke Belitung melanggar Tengku Salim” [Hashim, 1992, p. 568].	...and after a while, Raden Jaafar came with the easterly wind to Belitung to violate Tengku Salim.

Strong north wind:

“Hangin keras utara, perahu Tengku Jafaar pecah” [Hashim, 1992, p. 636].	The strong north wind destroyed Tengku Jaafar’s boat.
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Strong southerly wind:

“Seketika berperang itu turunlah ribut angin selatan yang amat keras, maka perahu Panglima Bongsu dan perahu Encik Kalung terdampar ke darat...” [Matheson, 1998, p. 111].	During the war, the very strong south wind hit the boat of Panglima Bongsu and Encik Kalung and they dumped off to the beach.
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Malay texts contain a lot of special references to the southerly wind, which used to be extremely strong. This southerly wind of southwest monsoon, which speed may be more than 30 knots, was often attributed to some kind of “magic” power or described in Malay Muslim Historiography as some divine punishment or *azab*.

The navigator who leads the ship in local seas undoubtedly must know seasons and directions of wind circulation in the area of the Malay-Indonesian archipelago; otherwise he will never get to his destination:

“Opu Dahing Kelola pun keluar dari Betawi berlayar maksudnya hendak pergi ke Riau dahulu. Kemudian dipukul oleh angin barat tepat, maka lalu jatuh ke Mempawah” [Matheson, 1998, p. 91].	Opu Dahing Kelola came out from Betawi to sail to Riau but got hit by right easterly wind and reached Mempawah. (the ship lost the way)
“Maka dengan taqdir Allah Ta’ala angin besar pun turun. Maka Tun Telani dan Menteri Jana Putera bias (terkelencong) ke Berunai” [Salleh, 1997, p. 106].	A great wind came by the destiny of Allah Ta’ala and diverted Tun Telani and Menteri Jana Putera to Berunai. (the ship was taken away from the initial direction)

TIME OF TRAVEL AND ITS DURATION

One of the very important elements of the description of the location and navigation is the information about the time of travel and its duration. The beginning of the voyage Malay chronicler usually associated with the onset of the suitable monsoon – *musim*, *musim angin* (“season of monsoon”), *angin paksa*, *angin tepat* (“monsoon wind”), etc.:

Malay text	Paraphrase
“Setelah musim datang maka baginda Mani Purindan berlayarkah ke Melaka dengan segala lasykarnya” [Salleh, 1997, p. 67].	Mani Purindan and his troops sailed to Melaka when the season of monsoon came.
“Hatta datanglah musim akan pulang. Maka raja China pun menitahkan Li Po berlengkap akan mengantarkan anakanda baginda ke Malaka” [Salleh, 1997, p. 105]	When the season for return came, the King of China ordered his daughter Li Po to get ready to be sent to Melaka.
“Angin paksa pun bertiup. Maka berigaplah sultan... berlayar kembali ke Aceh” [Iskandar, 2001, p. 24].	The Sultan hurried up to sail back to Aceh when the monsoon wind came.
“Maka ada kira-kira dua musim angin. Setelah itu maka sekaliannya kelengkapan itu pun berlayar...” [Jones, 1999, p. 66].	There are about two wind seasons. After that, all the equipment will be sailing.

In this last phrase the reference to the monsoon season was used to determine how long the ship was staying in the port. The navigator had to know when the season will start and when it will finish, to plan his ship departure. He also had to consider if this season begin in time or no. In case if the wind comes too late, the navigator had to postpone his journey:

Malay text	Paraphrase
“Baginda hendak berlayar, dan ditahan bendahara. Baginda tiada mahu, karena angin kasep...” [Hashim, 1992, p. 524].	The ruler wants to go to sail, but he had to wait because the wind was late.
“Setelah sudah baik, lalu berlayar. Enam hari enam malam, sampailah ke Murik, lalu masuk Serasan, menanti angin” [Hashim, 1992, p. 576].	When the season is good, the sailing is for six days six nights to reach to Murik and then stopped at Serasan to wait for the wind.

Malay historical sources contain less specific information about the duration of the voyage from one place to another. Usually it is just mentioning of how many days the ship was on the way. The duration could be very different depends on weather conditions and wind season.

Malay text	Paraphrase
“...telah sampai ke Trengganu, seorang pun tiada mengadap maka Maharaja Denda pun kembali [ke Riau]. Adalah lamanya pergi datang itu empat puluh hari” [Kratz, 1973, p. 56].	The voyage duration of Maharaja Denda from Terengganu to Riau and went back to Terengganu again was 40 days.
“Maka Sultan Mahmud pun berlayarlah dari Kelantan itu ke Siam. Adalah kira-kira lima belas hari sampailah ie ke negeri Siam” [Matheson, 1998, p. 467].	The voyage duration of Sultan Mahmud from Kelantan to Siam was 15 days.
“Ada sepuluh hari Tengku Akil duduk di Busung Ara ... Dan tiga hari, sampailah di Lingga, bertemu dengan wangkang, maka berjual untung” [Hashim, 1992, p. 576].	The voyage duration of Tengku Akil from Busung Ara to Lingga was 3 days. He made business at Lingga.

Further detailed analysis of this information together with other sources could provide interesting data to clarify the intensity of navigation and seafaring in the Malay-Indonesian archipelago.

FOREIGNERS IN THE LOCAL SEAS: PROBLEMS OF NAVIGATION

Malay Muslim historiography contains a lot of information regarding foreign sailors who visited the Southeast Asia, Indochina or Malay-Indonesian Archipelago and seas nearby. They came from different countries and for different reasons and with different goals. Some of them came with peace, other came to conquer, but all of them faced the same problem: they got lost because they didn't know how to navigate in local seas. And there were local sailors and navigators who guided them to the right destination, or sometimes purposely cheated them. Stories about it were recorded in many texts. I chose 2 examples only.

First is the story about the ship from Mecca with the Muslim missionaries on the board who traveled to the Malay-Indonesian archipelago to fulfill the order of the Prophet Muhammad to disseminate the new religion among the Malays. This tale first was found in *Hikayat Raja Pasai* (13th c.) and recorded also in *Sejarah Melayu* (16th c.):

Some time after this saying of the Prophet (may God bless him and give him peace), the people of Mecca came to hear of the name of Semudra, and the ruler of Mecca sent a ship there with regalia on board ... The master of the ship was one Shaikh Isma'il. And the ship set sail. ... After they had been some while at sea they came to a country called Fansuri, and all people of Fansuri embraced Islam. ... But the fakir said to himself, "This is not the country spoken of by our Prophet Muhammad (May God bless him and give him peace)". So Nakhoda Ismail sailed on until after a time they came to a country called Lamiri. And the people of Lamiri embraced Islam. ... The fakir then went back on board the ship and the voyage was resumed, until after a time they came to Haru, where all inhabitants embraced Islam. ... And the fakir asked the people "Where the country is called Semudra?". And they answered 'You have sailed past it'. So he went back on board the ship, and they sailed on again until they made a land-fall at Perlak, where the fakir admitted the people to the Faith of Islam. The ship then sailed on to Semudra [Brown, 1970, p. 31–32].

Second story describes how the lack of knowledge about local navigation and orientation disrupted the capture of China by Raja Chulan:

And news reached China that Raja Chulan is going to invade our country with an army that no man can number, and is already at Tumasek (Singapore). ... Raja China addressed his ministers and officers saying: "What think you is our best plan for averting this calamity?" ... And the chief minister replied "We will deliberate upon the matter, o Lord of the Earth". ... Thereupon the chief minister ordered a ship pilu to be made ready and he had it filled with worn-down, rusty needles. He then collected a number of kesmak and bedara and other fruit trees that had fruited and had them planted on board the ship. He chose out also a number of men so old that their teeth had all fallen out and they also were put on board the ship, which he then ordered to sail to Tumasek. When the ship reached Tumasek, word was brought to Raja Chulan that a ship had arrived from China. And Raja Chulan ordered men of his to go and to inquire of the Chinese how far it was from Tumasek to China. And they went and asked the men in the ship, who replied: "When we left China we were all of us mere boys barely turned twelve years old, and these fruit trees you see here were planted by us from seed. Now we are old men, our teeth have all fallen out and the trees we planted are bearing fruit: and it is only now that we have arrived here". And they took several needles and shewed them to the Kalinga men (men of Raja Chulan), saying: "These pieces of steel were as thick as a men's forearm when we left China. See how they are worn down to nothing

now! That will give you an idea of how long we have been upon our journey, more years than we can reckon". ... And when Raja Chulan heard their words, he said, "If it is as Chinese say, China must be a very long way away. When should we ever get there? We had better go home". And the war-chiefs replied, "What your royal Highness says is very true" [Brown, 1970, p. 31–32].

That is how the lack of knowledge about local coasts and travel duration can change the history!

REFERENCES TO THE SPECIAL FIELDS OF KNOWLEDGE RELATED TO THE SEAFARING AND NAVIGATION (ILMU NUJUM, ILMU FALAQ, ETC.)

Old Malay texts contain also some references to the special fields of knowledge or special sciences related to navigation and seafaring – *ilmu nujum* and *ilmu falaq*, i.e. astrology and astronomy. According to the text of *Hikayat Bayan Budiman* (1371) astronomy (*ilmu falak*) was compulsory subject to learn for a proper leader. Knowledge about stars and navigation was also opened for ladies:

"... puteri itu mualim, tahu ia pada ilmu syair, dan baik khatnya pada menyurat, dan paham ia pada ilmu falak" [Winstedt, 1966, p. 146].	...the princess is knowledgeable in poetry, writings and knowledge about stars and navigation.
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Same message we found in *Hikayat Iskandar Zulkarnain*:

"Raja Palang anak Raja Nashrah, ada ia terlalu pendeta dan tahu. Adapun ayahnya pula yang terlebih tahu pada ilmu falak" [Hussain, 1986, p. 305].	Raja Palang the son of Raja Nashrah is a wise and knowledgeable man. His father is an expert in navigation and seafaring.
"Setelah tetaplah aku dalam kerajaan, maka ujarnya, "Aku turut diajarnya ilmu nujum, dan diajarkan daku ilmu tawarikh, dan kisah segala anbia hingga tersebut di dalamnya..." [Hussain, 1986, p. 118].	As I inherit the throne, I was taught knowledge in navigation and seafaring. Also, the knowledge of history and the story of prophets.

In *Bustan al-Salatin* and *Taj al-Salatin* there is more detailed information about *ilmu falak* and *ilmu nujum*:

"...Kata segala hukama dan segala raja-raja yang pada zaman dahulukala, seyogianya bagi segala katib itu mengetahui tiga perkara: Pertama-tama hendaklah ia mengetahui ilmu falak, kedua ilmu tabib, ketiga ilmu syair" [Harun, 2004, p. 572].	Saying of all the jurists and kings of those days, the scribe should know three sciences which are the knowledge of navigation and seafaring, the knowledge of medicine and the knowledge of poetry.
"...orang itu yang mengetahui segala ilmu nujum itu dan perkara ilmu itu yang sukar membicarakan dia nyatalah padanya seperti pengetahuan segenap falak dan dua belas buruj dan tujuh bintang yang siarat namanya dan segala bintang lain-lain yang thawabat namanya..." [Roorda, 1827, p. 183].	The person who knows navigation and seafaring and all the matter of that knowledge which is difficult to explain, surely should know a lot, including the twelve constellations and the seven stars with all whose names are called.

“...hendaklah ia mengetahui peri perjalanan matahari dan bulan berapa lamanya berhenti ia sesuatu burj dan peri penglihatan segala bintang dan peri bilangan segala hari dan bulan dan tahun dan hendaklah ia mengetahui segala angin yang datang daripada segala pihak dan dengan sekalian itu” [Roorda, 1827, p. 145].	He must know in details; the seasons, movement of sun and moon, constellation period, image of the stars and numbers of days, months and years. He must also know the direction of the winds specifically and generally.
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The above examples provide a detailed description of what was necessary to know for a navigator. The fact that this knowledge was also considered mandatory (compulsory) for the governor and senior dignitaries proves the paramount importance of astronomy and mathematical geography in Malay society, from the 12th to the 19th century.

In Johor historiography as well as in Malay historical poetry (*syairs*) we find a lot of details, related to navigation and astronomy. There are also at least two famous works on astronomy and astrology were produced in Riau in the 19th century: *Saat musytari* – a chart with astrological calculations by Said Muhammad Zain al-Qudsi (1856) and *Syair raksi macam baru* by Raja Haji Ahmad (19th c.).

According to *Tuhfat al-Nafis*, Raja Ahmad, father of Raja Ali Haji (the author of this work) has studied *ilmu falaq* with Syekh Abd al-Rahman Misri in Batavia in 1822: “Ada satu tuan Syed Umar namanya, iaitu tuan sayid bangsa Arab, berkenalan-kenalan dengan Raja Ahmad itu di dalam Betawi takkala Raja Ahmad itu pergi berulang-ulang mengaji ilmu falakiya kepada Syekh Abd al-Rahman Misri di dalam Betawi itu” [Matheson, 1998, p. 358] (“There is an Arab named Syed Umar who knew Raja Ahmad in Betawi as Raja Ahmad is going back and forth to Betawi to learn the knowledge of navigation and seafaring from Syekh Abd al-Rahman Misri”).

Probably from him also Raja Ali Haji got his knowledge on mathematical geography and astronomy that he displayed in his *Syair awai* (“Poem of the unfortunate”, 1868)¹⁵. One of the striking parts of the *syair*, is the passage in which the author described the geographical positions of Malacca and Ambon and the consequences regarding the time difference between these two locations. This determination on the geographical longitude is followed by a calculation of the distance in degrees and the difference in time between two places. Need to be emphasized that Raja Ali Haji found it important enough to include this information in his work even it was a poetical masterpiece. The technical terms used in the *syair* are Arabic: *tul* for “longitude”, *daraja* for “degree” and *daqiq* for “minute”.

From very early time Malay navigators as well as rulers and scholars were familiar with astronomy, astrology, mathematics, geography and other disciplines which deal with the shape, dimensions, rotation of the earth, with the determination of the meridians, with time calculation, with sea streams and monsoons etc. According to Van Putten, “Islamic scientific tradition can be considered as the source of this knowledge. Geography as well as related field of astronomy, was therefore a compulsory part of the education of Islamic scholars and has a very long history in the Islamic science” [Putten, 1997, p. 180].

Very important information we found in the text of *Undang-Undang Laut*¹⁶ – the maritime Law codex, written in Malacca in the 15th century. This masterpiece described laws and usages of the Malays at sea and aboard the ship. The Codex itemized the members of the ship’s crew and defined in detail their duties. One of the most authoritative figures on the ship is a navigator – *malim*,

¹⁵ Here and below citation were taken from: [Putten, 1997, p. 99–133].

¹⁶ For more Information regarding *Undang-undang Melaka* and *Undang-Undang laut* see: [Liw Yock Fang, Hassan Ahmad, 2003; Raffles, 1879, p. 62–84].

etymologically originated from Arabic *mu'alim*. According to Ibn Majjid dictionary, *mu'alim* means “learned master”. He occupied the chief position among the crew, for it was his job to guarantee that the ship reached its destination. He began while the ship was still at anchor by setting up the compass and making sure that the captain and the crew will adhere to his warnings with regards to dangerous currents. According to D.A. Agius, the title of *mu'alim* was given only to an ocean-going navigator, one who is knowledgeable on the depths and shallow waters of the sea. The title *mu'alim*, as well as *nakhoda*, is given for life [Agius, 2006, p. 130].

The *Undang-Undang Laut* says about the navigator as follows: “It is duty of the *malim* to remember the proper course to steer, and to know the sea and the lands, the wind and the waves, the currents, the depths, and the shallows; the moon and the stars, the years and the seasons, and the bays, and the points of land; the islands and coasts, the rocks and shores, the mountains and hills, each and every of them; and also to know where is *Perahu* (ship) may be at any time. With the whole of these the *malim* should be well acquainted, in order that everything may go on prosperously, as well at sea as on land; and that the *malim* may be free from fault. While a *perahu* is at sea *malim* (here *malim angin*) shall have charge of all the cordage and rigging; he shall give orders respecting the same to *Tukang Agung* (petty officer on ship), whose duty is to see that the *Anak perahu* (crew and all officers) do what is necessary respecting the same. If the *malim* forgets the course he is to steer, and through his ignorance the *perahu* is wrecked, he shall suffer death; for such is the Law”.

These quotations from the text of 15th century law codex proof that:

a navigator in Malay society has a lot of authority as well as responsibility. He guides *nakhoda* (captain) and give orders to all members of crew, including officers. Everybody have to follow him, because he is the one who has knowledge. But if he is ignorant or his ignorance led to the loss of the ship, he can be executed and killed.

In the first quotation listed what a navigator must know to be appointed as a *malim*. The analysis of this short piece of text proofs that local navigators knew already how to navigate in the open sea, how to read stars and moon's positions, means, most probably, they knew how to use an astrolabe. And this knowledge was **compulsory** for a *malim*. And it was **written** in the law. And the violation of this law could lead to death.

There is also something very important in the original Malay text of *Undang-undang Laut*¹⁷ that is missing in Sir S. Raffles translation:

1. *Apabila sudah diketahuinya demikian itu, maka dapat ia menjadi mualim itu...*

(only after you got all of this knowledge, you can be a *malim*).

2. *Sekalian itu hendaklah diingat mualim itu baik baik supaya selamat dianugerahkan Allah Taala, supaya boleh selamat sempurna di laut dan di darat semua itu.*

(All of these a *malim* need to remember properly to survive in the sea and on land and Allah SWT will give him reward and save him).

3. *... dan ingatnya minta doa kepada Allah Subhanahu wa Ta'ala dan kepada rasul Allah saw* (or in other manuscript – *kepada Tuhan malik al-Jabbar*) *supaya selamat daripada bahaya.* (he needs to make *doa* to Allah SWT to be rid of danger)

4. *Adapun mualim itu upama imam, demikian adatnya.*

(*malim* shall be as an imam in the sea, as it is his duty to direct the course of the vessel)

I would like to emphasize the last statement. Here was actually formulated the main purpose and function of navigation within the Islamic framework, i.e. *spiritual* navigation. To navigate means to follow the right path (*sirat al-mustaqim*). *Sirat al- mustaqim* lead a believer to Allah

¹⁷Text quoted from *Undang-Undang Laut* (8:5–7) see: [Liaw Yock Fang, Hassan Ahmad, 2003, p. 155–156; Salim, 2005, p. 7–8]

SWT and that is why a *malim* – a learned master, who has knowledge to direct people to the proper way is mentioned as an *imam* on the ship.

As a conclusion with regard of this issue of the *spiritual navigation* I would like to offer some interesting point: according to the Islamic theological tradition (*aqidah*), the right path (*sirat al-mustaqim*) lead a believer to the God and finally to Paradise. From this point of view let us try to look on the old European map i.e. the *Beatus Map*¹⁸ or Beatine Map – one of the most significant cartographic works of the European High Middle Ages. It was originally drawn by the Spanish monk Beatus of Liébana (730–800) for his book *Commentaria In Apocalypsin* (*The Commentary on the Apocalypse*)¹⁹. The Beatus manuscripts are especially acclaimed on account of their expressive illustrations. Among them stands out the marvelous *mappa mundi* that displays the evangelization of the world by the apostles. This image, already present in the archetype manuscript, experienced an interesting evolution as the Commentary on the Apocalypse was copied and edited between the 10th and 13th centuries. This early medieval *mappa mundi*, with south at the top, locates the Earthly Paradise in Southeast Asia. Fig. 5.

Why Saint Beatus of Liébana and latter copyists chose this part of the world to locate the Earthly Paradise? Where this idea came from? Does it mean that this Spanish monk and a creator of one of the earliest European map was influenced by Islamic tradition? Or may be the anonymous author of *Undang-Undang Laut* knew about this European tradition to locate paradise in Southeast Asia? And that is why he likened a local *malim* to an *imam* who guide people to the right way, means to Paradise? Anyway, what we can be sure, that this statement as well as all other information from old Malay texts mentioned above shows that navigation and seafaring was a very important part of the Malay Muslim tradition from very early time until now. And, from the other perspective, it may indicate that sailing and navigation to the Malay world was extremely important for any of great civilizations in the world.

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¹⁸ Further detailed information regarding early medieval European cartography could be found in: [Perez, 2014].

¹⁹ *Commentary on the Apocalypse (Commentaria In Apocalypsin, 8th c.)* is a book written by the Spanish monk and theologian Beatus of Liébana (730–785) and copied and illustrated in manuscript in works called “Beati” during the 10th and 11th c. In detail see: [Beato de Liebana, 2004].

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Иллюстрации к статье Т.А. Денисовой

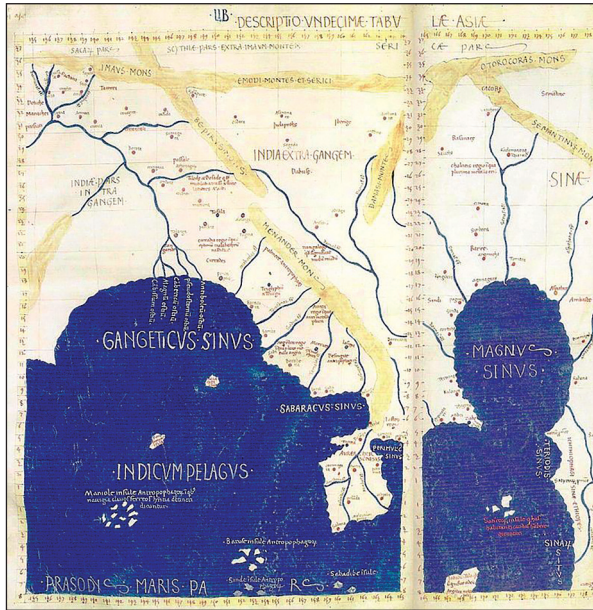


Figure 1. This map of the Malay Peninsula appears in Ptolemy's main work, *Geographia*.
(Source: https://en.wikipedia.org/wiki/Ptolemy%27s_world_map#/media/File:Ptolemy_Asia_detail.jpg)



Figure 2. Relief panel of a ship from the temple complex at Borobudur
(Source: <https://www.alamy.com/stock-photo-a-bas-relief-stone-carving-of-the-borobudur-ship-40084176.html>)



Figure 3. The Tabula Rogeriana, drawn by Muhammad al-Idrisi (1099–1165 or 1166) for Roger II of Sicily in 1154, one of the most advanced medieval world maps. Modern consolidation, created from al-Idrisi’s 70 double-page spreads, shown upside-down as the original had South at the top.
(Source: https://en.wikipedia.org/wiki/Muhammad_al-Idrisi#/media/File:TabulaRogeriana_upside-down.jpg)



Figure 4. An English map from the mid-18th century shows the directions and the active months of the monsoon winds.
(Source: <https://archive.aramcoworld.com/issue/200704/written.on.the.wind.htm>)

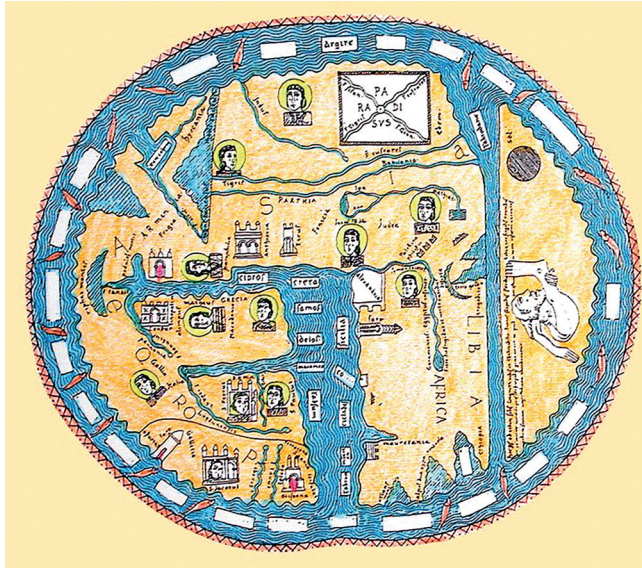


Figure 5. *Mappa Mundi*, The Beatus Map, or the Beatine Map (13th c.)
 (Source: <https://archive.aramcoworld.com/issue/200504/monsoon.popup6.html>)