Revisit to the Ennin's Diary

Ihl Hugh*

1. Who is Ennin?

In the beginning of this paper, I would like to introduce Ennin(圓仁) most of all.

"Ennin is a Japanese Buddhist monk, cross the sea to China in the year 838 and during the next nine and a half years kept a detailed diary of his travels through the vast T'ang Empire until he finally return to Japan in 843. The lengthy record of his wanderings and his tributions and triumphs is not only the first great diary in Far Eastern history; it is also the first account of life in China by any foreign visitor" said Professor Edwin O. Reischauer who translate Ennin's diary into English.

His lengthy diary got out worldwide through the translation by Edwin O. Reischauer who was a professor of Harvard University and the Embassdor of the United States of America to Japan.

Ennin's travel began on June 13th 838 AD and ended on December 14th 847 AD according to lunar calendar.

His diary is enough to arouse men's interest. I am neither a historian nor a man who has ability to read the book written in Chinese chracters throughly. As a seaman, however, I have fallen under the spell of the first and last part of his diary written in the style of ship's log book.

I am involved in this study with reckless courage because the recorder, Ennin himself, English translator, Prof. Reischauer and Korean translator, Prof. Shin who were not seamen, they have might overlooked a fault on some points.

I revisited to his diary from the departure to the agrounding point around the Jueguang(掘港) in a seaman's point of view refering the copy of block

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book published by Munhae Chulpansa Inhang(文海出版社 有限公司 印行), a book rewritten and published by Shanghai Kojuk Chulpansa(上海 古籍 出版社), English version by Prof. Reischauer and Korean version by Prof. Yong Bok Shin published by Jungshin Sekesa(精神世界社).

2. Departure

The Diary begins from June 13th, Jowa(承和) fifth year (Sixth moon 13th day; according to Reischauer's translation), and it is saying that the Embassy got on board(諸使駕舶), but not about where they departed. It seems to me that Ennin got on board prior to the Embassy's boarding provided that the diary begins from that day.

Prof. Reischauer supposed that they departed some place probably Shimonosheki(下關) or Kitakyushu(北九州) 30 nautical miles apart to the west of Shikanoshima(志賀島), in the view of 10 hours run, according to the following record "17th day in the middle of the night, profiting from a stiff wind, we hoisted sail and set the ships in motion. At 10 A.M. we reached the sea east of Shiganoshima.."

Indeed, it took 10 hours. However, we have to give attentions to that they hoisted sail profiting from Lan(嵐)breeze. Lan breeze has two meanings, namely called "stiff" wind(Prof. Reischauer's opinon) and the wind blowing from mountain(大漢和辭典, 諸橋轍次, 大修館書, 1984). The mountain breeze blowing in midnight is "land breeze" which is well known to sailors. It is very difficult to manuev from the port to outside of port and takes long time even with todays' engine equipped ships. It is more difficult and takes more time in case of departures with the sail equipped ships which only depend upon the land breeze from the calm cape surrounded by land. 10 hours is not so long time for the sail ships to set out. Now, supposing they started from near Shiganoshima, the departure would be Hakata Bay close to the great adminstrative center, Dazaifu(大宰府)at that time, about 10 nautical miles apart from Hakata Bay to the southeast even if Prof. Reischauer hesitated to be positive about that point.

3. Crusing Speed

They departed from Shiganoshima at 1000 hours on June 22nd profiting from Genfeng(艮風: 東北風, 倭道銘 歐陽僧) and arrived in Ukushima(有救島) at 1000 hours on June 23rd. They left there at 1800 hours of the same date again, and the sailing was kept on until the unfortunate agrounding point, around the Jueguang(掘港) at 1700 hours on June 28th.

The estimation of Hours Underway, Distance Made Good and Average Speed Made Good is shown in the Table 1.

Table 1.

Place of Dep/Arr	Date and Hours	Hours under Way	Dist made good	Average speed
Shiganoshima(L) Ukushima(A)	6/22, 0600 6/23, 1000	28 hours	67 N.miles	2.39 Knots
Ukushima(L) Jueguang(A)	6/23, 1800 6/28, 1900	121 Hours	403 N.miles	3.33 Knots

4. Choice of Departing Season

4.1. Wind

By means of wind frequency in every three monthes of the Sailing Direction China Vol.III (Fig.1.1-1.4), it is not pertinent to sail westward in January. If they departed from Ukushima(有救島) in this season, they have might been drifted toward South China Sea by the prevailing NW'ly wind.

It is improper to sail westward at April because wind directions are evenly distributed over all directions.

The prevailing wind of September is N-NE'ly. This season is the most

suitable time to navigate from Japan for the east coast of China. But they have might arrived at the southern part of east China by set causing difficulty to travel on foot for Changan(長安), the final destinetion of tribute.

In July, the prevailing wind directions of the west of Japan is NE'ly, and S-SE'ly in the east coast of China.

According to Ennin's diary of June 13th and June 17th, they were idling for 3 days and 5 days respectively after the ready for sea. At last they hoisted sails when the NE'ly wind came up and "they never afraid change of wind direction from NE'ly to SE'ly(June 24th)". The safest season to depart for the northern part of the east coast of China is July, that is, on June in lunar calendar.

Fig.1.1 Mean wind frequency distribution in January.

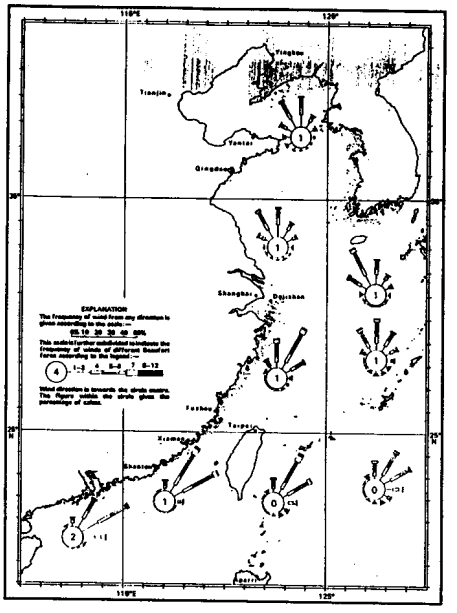


Fig.1.2 Mean wind frequency distribution in April.

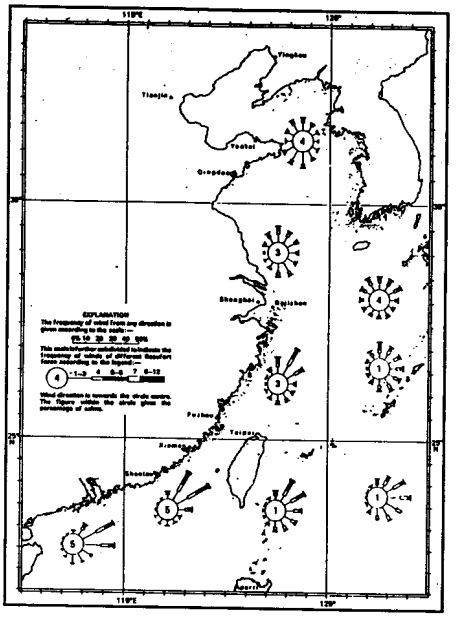


Fig.1.3 Mean wind frequency distribution in July.

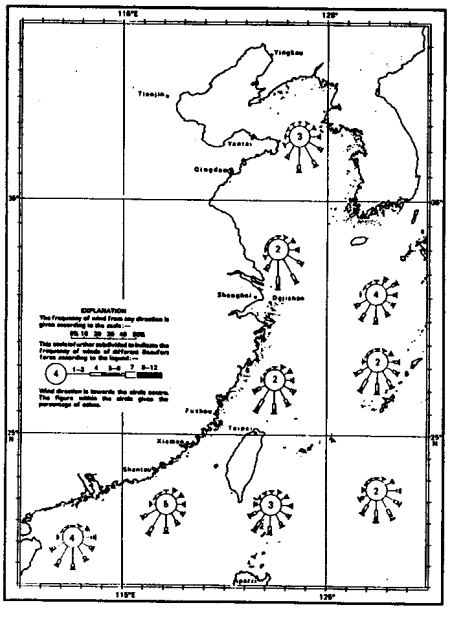
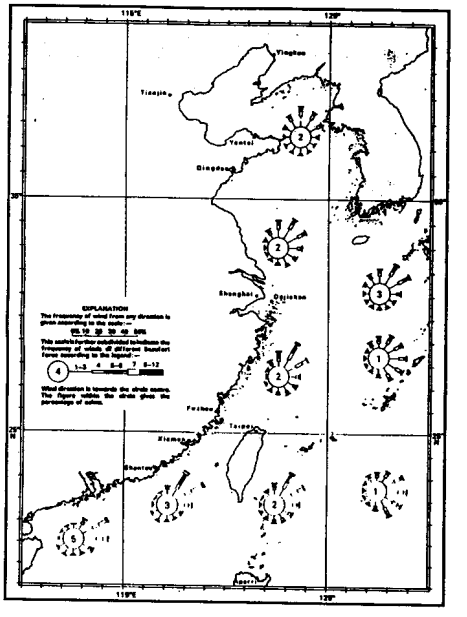


Fig.1.4 Mean wind frequency distribution in September.



4.2. Ocean Current

Let's investigate the ocean current see(Fig.2.1-2.4).

First, from December to February there are 0.25 knot of counter current asgainsts the course they had to sail around the southern part of Jejudo(濟州島) and northern part of Kyushu, and 0.25-0.5 knot of southern current around the east coast of China bring them to be drifted southward. This season is not suitable for their sailing.

Second, the 0.5 knot of NW'ly branch of Kuroshio(黑潮) exists at the south of Jejudo from March to May. It is a not hadicap for them, but they could not set out considering wind directions on the same season.

Third, from June to August, the branch of Kuroshio runs NW'ly in speed of 0.25 knot at the east of Kotto Retto(五島列島) and 0.25 knot of the northern current at the east of Jejudo. Moreover, the coastwise current of the east of China is divided in two directions, that is, one runs in the direction of Haizhu(海州) Bay of China and the other Huksando(黑山島) for Korea.

Fourth, from September to November, the current runs at about 180 nautical miles southward from Jejudo is divided in two directions, that is, NE and NNW. The NNW'ly current gradually changes its direction to NW, west WSW and finaly south, and its speed is increasing to 0.5 knot when its direction changes to the south at the east coast of China. The current of this season itself was not so bad for Ennin's travel, but considering wind directions, they did not choose this season.

The ship which started sailing by the NE'ly wind in this season would encounter the counter current or drift toward South China Sea by set.

In the sail ship age, the keys whether they can achieve their sucsessful sailing or not, were wind directions and currents. In conclusion, their choice of departing season was the best.

Fig.2.1 Surface current, Dec-Feb

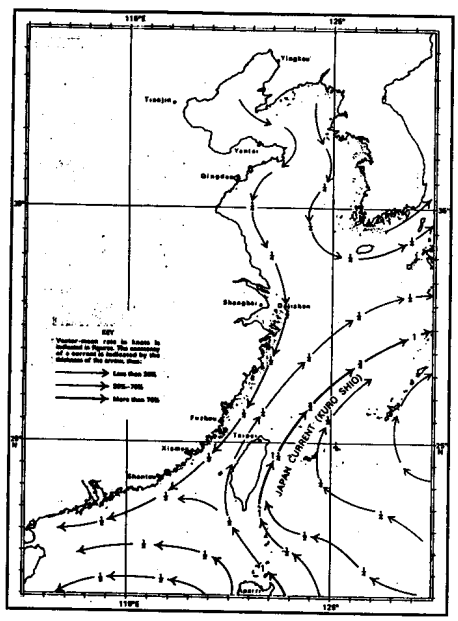


Fig.2.2 Surface current, Mar.-May

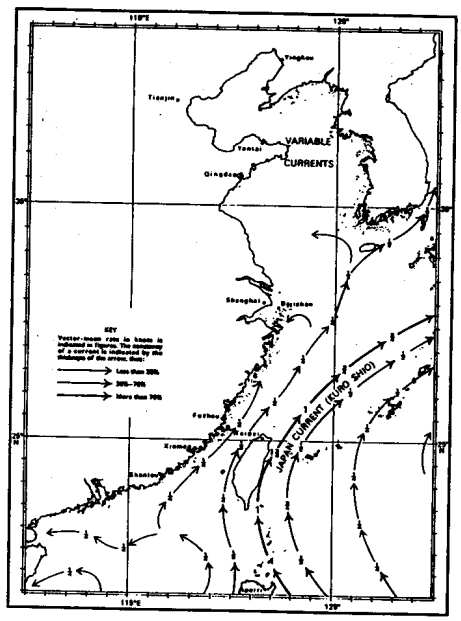


Fig.2.3 Surface current, Jun.-Aug.

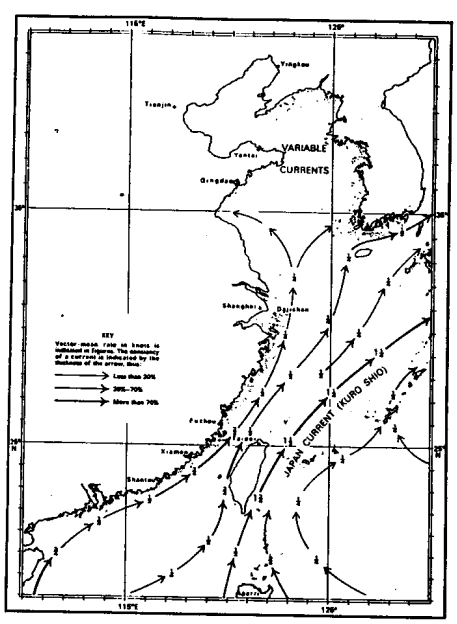
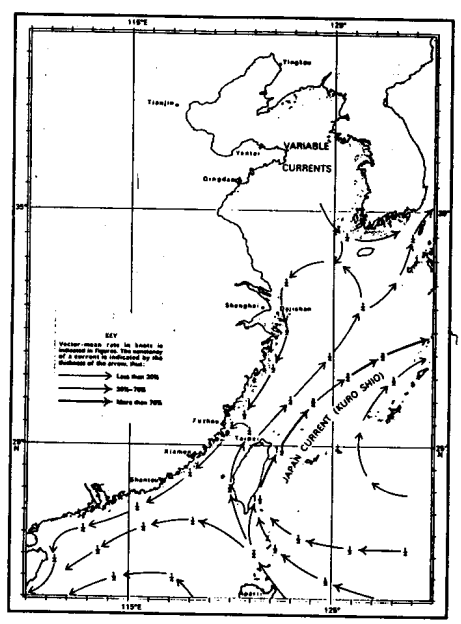


Fig.2.4 Surface current, Sep-Nov



5. Skills of Navigation

5.1. Night Time Sailing.

Ennin said, "We did not seek again a cove, and on into the night, we went in the dark." on his diary. He is saying that they had to continue the night time sailing due to the failure of finding a cove to anchor until the daybreak. I have been asked so often by the strangers or beginners of sea life this question. "Do the ships go on sailing in the night time?" It is very misunderstanding point of them. Ennin has might repeated the same mistake for fear of her running in the dark. However, if the ship proceeded in made good speed of 3.0 knots, according to "3.Cruising Speed" I mentioned above, they have might been sailing the open sea near Azudioshima(的山大島) at 2000 hours on June 22nd. In my opinion, this night time sailing is exceedingly usual in such circumstances. Therefore, it is clear that they were voluntarily sailing in the night time.

5.2. Signaling

They exchanged sigalings with lights(兩舶火信相通) on June 24th. They have might promised each other the methods and meanings of. signalings. It has much higher efficiency to make a signal with light at night compare to carring flags or shapes during the day time. This suggests that signaling light is a legal equipment even for the modern ships.

5.3. Sence of Measuring Distance

Ennin estimated the distance from a distance ship on his 23rd diary as following. "We saw at a distance the fourth ship going ahead of us separated from the first ship by about thirty Li,(相去三十里)" Then, now, let's calulate how far it was and whether the ship can be found at that distance. Li(里) equals to 300 Bu(步, 孔子家言 王語解) or 360 Bu(正字通). 1 Bu equals to 6 Chi(尺) by Zhou Chi(周尺). 1 Chi equals to 1.82m. Hence, 30 Li

becomes about 18,000m i.e 10 nautical miles. Geographcal Range D=2.074 ($\sqrt{H}+\sqrt{h}$)n.m., and D=2.074($\sqrt{5}+\sqrt{5}$)≒9.3(when H=5, and h=5; H, h: Height of eyes of 2 ships)nautical miles. This figure is very close to the above calculation 10 nautical miles, and it tells that Ennin's estimation was correct. However, this estimation of the distance seems not by Ennin who was a beginner of the sea life because it is very difficult to estimate the distance at sea. He has might been advised by a seaman, I guess. Since the ability of distance estimations at sea comes from long experiences, the coasting ability of the crew of Ennin's ship was upper middle class in my point of view.

5.4. Estimate Position and Dead Reckoning

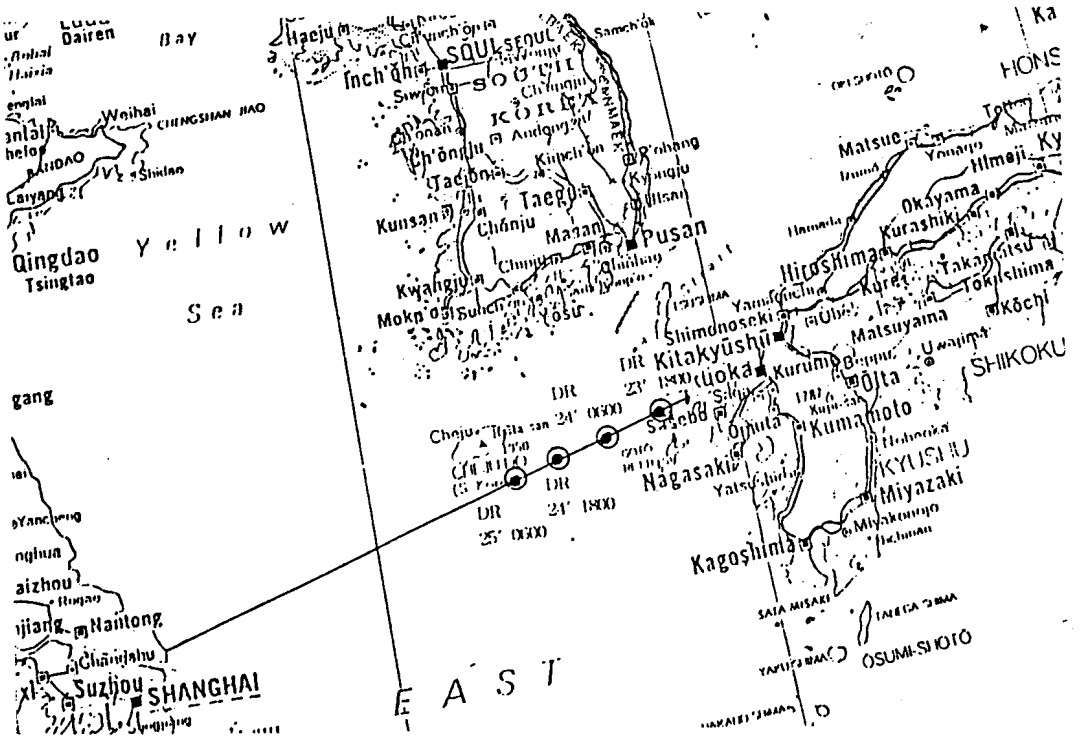
Nevertheless, I regard that the crew were inexperienced on ocean going voyages. Ennin was describing the detailes about the Embassy, and this means Ennin and the Embassy were boarded on the same ship which have might been organized with the best crew members in quite natural. The reasons I regard them as the inexperienced are as follows.

First, finding various floatings and changing in the sea surface color to the light green(大竹蘆根烏隨瀾而流.... ...海色淺綠), they decleared that the land was very close(人咸謂近陸). In accordance with the fact that they were able to distinct on the water color, we can notice that the observation had been made before sunset or after sunrise. Since the date of diary is June 24th, the time can be estimated as 2000 hours on June 24th or 0600 hours on June 25th approximiately.

Suppossed to be after the daybreak, the records had to be dated as 25th. And then the longest hours under way couldn't be less than 36 hours, and they were passing the southwast of Jejudo under 3.0 knots speed that we have already estimated before, and according to the following Fig.2. If they knew the exsistance of Jejudo there, would they say that land is close instead of the word "island" or directly pointing out the name Jejudo?

Second, Kim Chongnam, the Korean interpreter said that "he had heard it said..." according to Ennin's June 28th diary. It stronly expresses that nobody on board including Kim Chongnam, had been in China before.

Fig. 3. D.R. positions



5.5. Sounding

Sounding the depth of sea bottom is still very important even todays, when so many satellites fly in the space, to make sure ship's position and safe navigation. They, members of the Ennin's ship performed soundings twice and observed the results of it to estimate their position.

They sounded twice the sea bottom with "piece of iron tied to a rope(以繩結鐵沈)" instead of "piece of 'lead' tied to a rope(以繩結鉛沈)" regarded as the hand lead, the legal instrument for the mordern ships.

The depth were 5 Zhang(丈) and 5 Xun(尋), 15m and 9.15m respectively(1丈=10尺=10/33x10≒3m, 5丈=15m, 1尋=1.83m, 1.83mx5尋≒9.15m). "The envoy were afraid(使等懼)" after taking the second sounding 5 Xun. But, I believe, 9.15m is not so shallow to the ships of that age which were not used to be over couple of hundred tonage. The 10m contour line permits coasting of todays' 3,000 gross tonnage of ships. In this point, I have some

doubt if the unit Xun indicates less figure than Prof. Reischauer's suggestion. This supports that they used new unit 5 Xun instead of the figure equivalent 3 Zhangs.

6. Korean Interpreter Kim Chongnam

Ennin introduced Kim Chongnam as a Korean interpreter who could speak Chinese and Japanese as well as Korean. However, it is interesting that the sentence from Ennin's diary, "he had heard it said that it was difficult to pass through the dug channel of Yangchou.", which Ennin had heard from Kim Chongnam is giving a hint that Kim wasn't just a interpreter, but he also was what is called a coast pilot who gives a navigational advice tadays.

The vicinity of the rivermouth of a great river naturaly has shallow and uneven depth because of accumulation of sand and mud convayed by river flows. Moreover, collisions of river flows and tidal currents, in addition to wave and swell by wind put this area in a foul condition. This provides that why Kim Chongnam's advice was right.

7. Agrounding

Let's go to the fatal scene of the aground June 28th.

Since old time, they say in Korea that "too many captains let the ship climb to the mountain". There is the same kind of proverb at Western country also, that is, "too many cooks spoil the broth"

There have been produced the worth condition because of the river flow, tidal current, ocean current, shallow depth of sea bottom, above all, continously blowing east wind(東風切扇) and reflecting wave made by collided with coast.

In this serious circumsetance, I couldn't find any sentence of captain's dignified order had been made at that time on Ennin's diary, but only the

chaotic scene according to Ennin's following descripsions. "Some said that we should drop anchor and stop, going again tomorrow. Others said that we should lower sail halfway and send out boats to learn the depth of the way ahead and only then gradually advance. The proposal to stop seemed inadvisable." It is really unsolved puzzle fo me that there wasn't any mention about captain's order on such condition. At last, Ennin's ship dashed onto the shoal like surfer.

Ennin is describing the scene occurred after the agrounding with very realistic sentence. I would like to introduce that by Prof. Reischauer's translation.

"In trepidation we immediately lowered sail, but the corners of rudder snapped in two places, while the wave from both east and west battered the ship and rolled it (back and forth). Since the blade of the rudder was about to break, we cut down the mast and cast away the rudder. The ship straightway floated with wave. When the waves come from the east, the ship leanded over to the west, and when they came from west, it inclined to the east. They washed over the ship (to a number) beyound count. All onboard put their faith in Buddha and in the (Shinto) deities, and there was none but did prey. The men were desperate, all from the head of the mission down to the sailors stripped and bound their loin cloth fast about them. Since the ship was about to break in the middle, we rushed to stern and bow, and each of us looked for a place that remain intact. Because of the shock of the wave the structual joint(of the ship) were all pulled them togather, striving to find a way to survive. Bilge water filled (the ship), which thereupon settle on to the sand bottom, and the official and private goods(inthe hold) washed about in the bilge water."

8. Records of Tide

Ennin described tidal condition several times on his diary.

Refering to the tide table of 1954, 1955, 1958, 1971, 1990 and 1996, the change of tide at Shanghai(31-24N, 121-31E) from June 28th to July 3rd in

lunar calendar(in case of the year contains June 30th, until July 2nd) is expressed on the graph in Fig.4, and there have been made analyses of them as followings,

June 29th, "At dawn the tide went out,"(曉 潮涸)

If we assume the Xiao as 0500 hours, his record is correct.

July 1st, "At dawn... ...the tide went out, they could not go on."(曉... ...潮落 不得進行)

Correct.

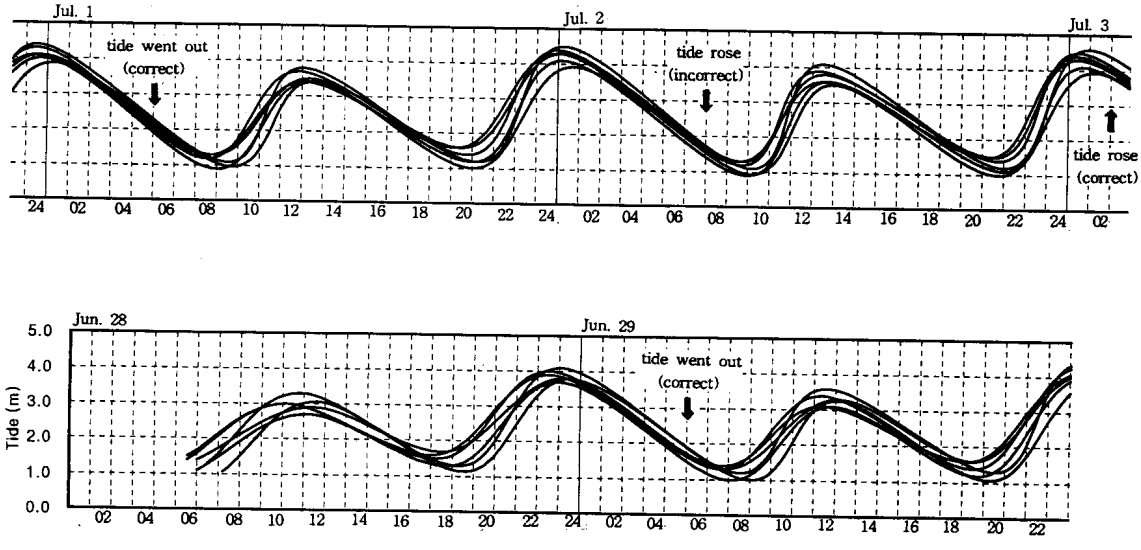
July 2nd, "Early in the morning the tide rose, and we were carried off some several hundred cho."(早朝潮生 追去數百町許)

Incorrect. I guess there would be some relations with the reverse order of July 1st and July 2nd entries on Ennin's diary.

July 3rd, "At 2 A.M. the tide rose, and, with the guide boat leading the way,"(丑時潮生 知路之船引 前)

Correct.

Fig. 8.1 Tides at the vicinity of Shanghai



9. The Others

It will be a intersting and useful subject for the future to investigate the ship of that age by examinating the names of structual part of ship recorded in his diary.