

THE DESIGN AND COMPILATION OF TOURIST CHARTS

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Abstract

Along with the development of sea tourism, tourist charts come into being. They may be a combination of tourist maps and nautical charts, but are different from either the former or the latter. This paper discussed the design and compilation of tourist charts.

The tourist map is a kind of thematic maps that serves directly and specially the needs of tourism. It has a long history. In China, the tourist maps may date back to Song Dynasty, even hundred years ago. In the last several decades, along with the development of tourism, tourist maps have become more mature and abundant in the types. At present, tourist maps can be classified into three groups: general tourist maps, thematic tourist maps and tourist atlas. The general tourist map is most popular, for example, the urban tourist map. Thematic tourist maps, with the specific purpose, present outstandingly one or two subjects, such as mountaineering, archaeology, navigation, etc. The tourist atlas is a book containing various tourist maps, general or thematic, other pictures and written materials. In another more common sense, tourist maps may be distinguished as urban tourist maps and sea tourist maps, etc. Among them, the sea tourist map (tourist chart) is being more and more needed.

1. The significance of producing tourist charts

Since 1960's, an unprecedented craze of sea touring has arisen all over the world. The three S. Sun, Sea and Sand, have offered many attractions. It is reported that sea tourists in Germany account for fifty percent of all tourists, in England seventy percent and in Belgium eighty percent. In Spain, which is famous for its "sale of sunshine and beaches", the annual income received from foreign tourists is as high as ten billion US dollars. Tourism in China sea is also developing rapidly. In addition to the original activities such as sightseeing and swimming, many others are also put forward, for example, surfing, boating, yachting, fishing, exploring, sports, etc. It is reported that the number of sea tourists in China is increasing by thirty percent every year. Unfortunately, at present tourist charts do not meet the needs of the rapidly developing sea tourism. The quantity of charts are not sufficient. The type and content are still very simple. The quality is not high. In short, there is much to do about the design and compilation of tourist charts.

2. Functions of tourist charts

Every kind of maps has its specific purpose and functions, and the tourist chart is no exception. Generally, the functions of tourist charts may be summarized as follows: Firstly, as a guide of common tourists; it is the main purpose of tourist charts. To many tourists, the sea is attractive. However, by coming to a beautiful seaside city or a famous scenic spot, they may find themselves in a strange place. They may not know what the beach is like, what kinds of tourist activities they may take part in. If they want swimming or yachting in the sea, they may not know the water temperature, the currents, the tide and the relief of the sea bottom. Thus how can they enjoy themselves? With the help of a well-made tourist chart, all these problems are easy to deal with. Secondly, as an instrument of tourism planning and managing; Tourism is a profitable business. In order to make more profits, tourist enterprises should provide many facilities for tourists, and should delimit various areas for swimming, fishing, surfing, yachting, etc. All these do need tourist charts.

3. The design of tourist charts

Though the tourist chart is a kind of thematic tourist maps, it may also be considered as a general tourist map. The situation is similar to that of the nautical charts. It is thematic because it represents mainly the sea and seaboard, which is different from land tourist maps. The generality of tourist charts lies in the fact that they give a general description of the tourist area, not only the sea itself but also all other information related with sightseeing, entertainment, living, communications and nautical charts and tourist maps. Of course it doesn't mean that can just put the two kinds together to make a new one. We can indeed learn a lot from them, especially from nautical charts. In order to discuss more clearly, we might as well have a look at the following table, which shows information about two tourist charts published in Australia and U. K. These two charts may be good examples of tourist charts (see table 1).

Table 1

Title	Sydney (Aus.)	Bristol Channel (U. K.)
Scale	1:25,000 (TM Projection)	1:114,500 (Mercator Projection)
Sheet	Horizontal 100 cm×89.0 cm Folding 24 cm×14.5 cm Two sides, multicolored	Horizontal 104 cm×70 cm Folding 26.5 cm×14 cm Two side, multicolored
Purpose and Characteristics	A general tourist chart, mainly showing coast, harbor and channels. Navigational information, photos and pictorial maps are also represented.	For yachting. Safety of navigation is stressed. Notices to Navigation are issued every two months, published non-governmental mapping service.

3. 1 *Mathematical foundation*

As we know, every map must have two mathematical elements, the projection and the scale. Usually, tourist maps, like most large or medium scale topographic maps, adopt the Cause Projection. This is suitable. As to tourist charts, it is quite another matter. Firstly, as discussed above, a major function of tourist charts is to serve yachts or other boats sailing on the sea. Therefore, the projection must be suitable for navigation. As a famous projection, Mercator Projection is used on almost all nautical charts. Its biggest advantage is that parallels are perpendicular to meridians and all are straight lines. Thus it is very convenient for chart users (navigators) to draw their navigating routes on charts. Secondly, when compiling tourist charts, we must use nautical charts as basic cartographic materials. If the two kinds of charts have the same projection, i. e. , the Mercator Projection, it would be very easy for chart makers to transfer the cartographic material (nautical charts) to the new chart (tourist charts). From the above two points, we can easily get to the conclusion that Mercator Projection is the favorable projection for tourist charts. Sea tourist activities are different, but we can distinguish them into three groups; activities on beach or swimming nearby, yachting and long distance traveling. As to the first group, the tourist activities take place within small range, for example on a beach or in a bay. Therefore, large scale charts are needs. The scale may be larger than 1:50,000. As to the second group, the activities take place along the coast, and they need a relatively large region. Thus the scale of the charts may be about 1:100,000. To serve the long distance touring, the charts must get their scales between 1:200,000 to 1:500,000. Another important thing is that, unlike many tourist maps, parallels and meridians should be drawn on the charts. The chart scales should also be written clearly and correctly.

3. 2 *Sheet Designing*

Sheet Designing is another important thing of chart designing. In the step, there are mainly two tasks; determining exactly charting area and the shape of the chart. About Sheet Designing, there are some principles that we should abide by. Firstly, we must keep the whole tourist area comparatively complete, including the land and the sea. Secondly, we should pay much attention to the balance between land area and water area. On nautical charts, the proportion of the land area to the water area must be no more than two to three, so that more space could be remained for the sea and consequently for navigation. As for tourist charts, the proportion between land and sea may not be strictly defined, but we should always keep in mind that beaches and sea are the areas that must be kept prominent. In accordance with the charting area, tourist charts may take different but suitable shapes. Generally speaking, a horizontal chart is preferable to a vertical one, because the former is more convenient to use. The sizes of charts depend on the sizes of charting areas and chart scales. Usually, small scale charts (with large charting region) may be full sheet (about 98 cm × 68 cm), and large or

medium scale charts may be half sheet or quarter sheet (about 68 cm × 48 cm or 48 cm × 32 cm). Besides, for the convenience of carrying about, the charts should also be folding.

3.3 Chart Datum

As for the height datum plane, we use the Mean Sea Level. About the depth datum place, somebody may also use the Mean Sea Level to determine the depth of sea water. This is not correct. In order to guarantee the safety of vessels, we should use another suitable datum plane, e. g. , the Theoretical Depth Datum used in China, as the depth datum.

4. The contents

The selection and representation of chart features should be concordant with the purpose of the chart. As mentioned above, tourist charts have two basic purposes: one is for general sightseeing and swimming, etc. , another is for yachting. Therefore, the contents of tourist charts should include not only those general tourist features, but also the navigational information. In the following, we take large scale charts as example and, in common sense, discuss the questions. With regard to land features, the selection and representation are similar to that of land tourist maps. For example, a plan map of a city may be drawn on the chart, in which roads, streets and names, communications, hotels, restaurants and department stores, etc. , should be represented. Scenic spots are also shown. In addition, we may represent various photos and other pictures to describe more vividly the natural and artificial scenery. It is not necessary and not possible here to discuss more depth datum.

4.1 Seashore

Seashore is the most important field for touring. It includes seaside land, coastline and beaches. We may use line symbols to show the coastline and use various figurative symbols to describe clearly the different kinds and characteristics of beaches (rocky, sandy, muddy or reedy, etc.). Besides, in order to show the beautiful scenery of the seacoast, we may also use stereo representations such as bird-views, pictorial maps and perspectives.

4.2 Relief of sea bottom

The relief of sea bottom is the basic but principle part of charts, especially when the chart is used for navigation as well. the relief may be represented mainly by soundings and depth curves together with tints. Because yachts or other boats usually have a small draught, the depth of sea water may not be as important as that to a nautical chart. Therefore the density of soundings may be smaller. The main factors deciding the sounding density are the distance to the coast and the depth of sea water. Shallow areas and areas nearby the coast are the main fields where tourists carry on their tourist activities. Therefore in these areas soundings must be dense (e. g. , 1.5 cm between each two soundings) While in the farther or deeper areas,

the sounding interval may become larger (e. g. , 3. 0 cm). As an auxiliary method, depth curves also have an important function. The curves shown on charts may be 1, 2, 3, 5, 10, 20, 30 and 50 meters.

In order to increase the stereo effect of the representation of relief, in addition to soundings and depth curves, we must also use tinting method in the sea area together with the tinting in the land area. Usually, seaside land is tinted of brown yellow, plant areas are green; beaches are shown with symbols and no colors (i. e. , white); the sea areas between the depth of 0~1 m, 1~2 m, 2~5 m and beyond 5m are tinted of gradually darkened blue. With this kind of representation we can express figuratively the depth and the slope of the sea bottom. Although this kind of representation is different from that on nautical charts, it does accord with the real visual effect of human eyes, i. e. , the deeper the sea water, the darker blue it appears, and is easier for tourists to accept.

4. 3 Navigational aids and obstacles

As a guide to navigators, tourist charts should show various navigational aids such as buoys, lights and lighthouses. If possible, various sailing routes and prohibited areas also need to be shown.

For the safety of navigation, navigational obstacles such as reefs, wrecks and shoals must be shown obviously and prominently. Usually, a dangerous obstacle must be given an extra red circle around the symbol itself.

4. 4 Oceanographic Details

Oceanographic Details along coast are important not only for yachting but also for swimming. In fact, we often hear that swimmers are drowned because of the unfamiliarity to the oceanographic details. Therefore, in order to guarantee the safety of tourists, we should show information about winds, waves, currents, tides, whirlpools, torrents, etc. For example, a current may be represented by an arrow and a note attached to it; tidal information may be shown by a tide table.

5. Written Materials

One of the characteristics of tourist maps is that on the maps there are both maps and written materials. Not all information can be represented only by maps. Even if maps could do this, there is still another problem that many map users are not familiar with maps. Without help how much could they get from the map? In a sense, the written materials are of more importance than map itself.

5. 1 General Description of the tourist area

This part includes: the general situation of the tourist area (or the city nearby) such as

the location, population, story, etc.; communications and the working time table; introduction to scenic spots, hotels, department stores and entertaining facilities.

5. 2 *Knowledge Of Sea*

As a guidance to sea tourism, a tourist chart also needs to do something to help tourists know more about the sea. Thus, this part of written materials may include: knowledge about tide (local tidal type, neap and spring tides or low and high tides, height of tide, the daily and monthly change of tide, etc.) and other information (temperature and its change of local sea water, a time table for swimming, wave, wind, current, etc.).

5. 3 *Knowledge of Charts*

In order to enhance the utility of tourist charts, we had better write on charts some information about chart representation. It may include the knowledge of the determination of coastline, the concept of the Mean Sea Level and the Sounding Datum, the methods of chart representation, concepts of beaches, drying shoals, soundings and depth curves, etc.

6. Other Problems Concerning Chart Compilation

6. 1 *Cartographic materials*

Cartographic materials have an important bearing on the quality of tourist charts. Usually, we can use newest large scale topographic maps or city maps as basic cartographic source materials for the land area. As to the sea area, nautical charts are most suitable. Besides, we should also use other tourist materials as supplementary charting sources.

6. 2 *Correction and Renewal*

To tourist charts, the correction and renewal are very serious. As the aids to navigation, they must be kept renewed. Firstly, we can issue periodically or non-periodically Notices to Mariners to the regular chart users. Secondly, we may shorten the publishing periods. For example, the charts may be republished every half year or every year.

6. 3 *Symbol System*

It is necessary to design a suitable symbol system for tourist charts, and every tourist chart must have a legend of symbols printed on it. Of course these symbols have many similarities to those on maps or nautical charts. It doesn't mean that we can just copy maps or charts blindly and mechanically. For nautical charts, there is an international standard of symbol system. However, at present it may be too early to draw up an international standard for tourist charts.

6.4 Artistry

Cartography is a science, technology and art. The artistry of maps has its particularity. It is impossible that bright colored or beautiful symbols may simply enhance the artistic effects of the map. What are important are the collocation, the contrast and the harmony of the symbols and colors. Therefore, the crux lies in the chart design and reproduction. We should pay much attention to the front cover, layout, color collocation, symbol, etc.