

# The naval observatory in Tsingtau (Qingdao), 1897-1914

*German background and influence*

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## Abstract

From 1897 to 1914 the Qingdao area (i.e. the location of the present city itself and the Bay of Kiautschou) was occupied by Germany as a stronghold for the Imperial German Navy in the western Pacific. One major reason was to protect German commercial interests in the Far East. Tsingtau (the German name for Qingdao) was not a colony, but a protectorate under a 99-year lease treaty with China. The port and city of Tsingtau developed rapidly during the 17 years under direct administration by the Navy Department in Berlin. Docking facilities and coal supply were available for the Far East cruises and commercial vessels. Many buildings from the time of the German occupation are still standing today. The navy established an observatory, which today still overlooks downtown Qingdao, to serve the navy and merchant fleets. Its mission was to collect and evaluate local geophysical data (meteorology, geodesy, tides, magnetism and seismics). These were the first scientific activities to be carried out in that part of

China's coast. They may be regarded as a nucleus for the development of Qingdao as a marine science centre. In 1998 and 1999, the Tsingtau Centenary Exhibition was organized in Berlin, Wilhelmshaven and Kiel.

## The Tsingtau Centenary Exhibition in Berlin

One hundred years after the acquisition of the Kiautschou Territory as a naval base and commercial outpost of Germany in China, the Museum of German History (Deutsches Historisches Museum) arranged an exhibition in the 'Zeughaus' (arsenal) in Berlin from March to July 1998 to commemorate an almost forgotten period of German colonial history. As is probably known by those who are interested in German history, this country was rather late to enter the club of colonial and imperialistic powers with global naval ambitions. Bismarck, the first Chancellor of the newly formed Reich (1871), was reluctant to support the interests of German overseas trade compa-

nies and individual adventurers in Africa and elsewhere. However, after his dismissal by Kaiser Wilhelm II in 1890, there was a change in politics, and Germany demanded its proper share ('Platz an der Sonne' or 'place in the sun'). At the same time, a strong ocean-going navy was conceived and developed under Admiral Tirpitz, which proved to be an affront to the sea power supremacy of the British. As a consequence of the rapid industrial growth and expansion of its overseas trade, Germany emerged as one of the world powers prior to the First World War. However, subsequently two world wars and the colonies in Africa and in the West Pacific were lost, the country's sea power visions disappeared after 1919 and memories of old colonial ambitions faded away over the decades.

The Berlin exhibition 'Tsingtau – A Chapter of German Colonial History in China, 1897–1914' was well received by the general public and generated a new discussion about naval and colonial German interests in China a century ago. This is to be seen particularly against a new background of modern commercial, scientific and cultural exchanges and cooperation. The content of this exhibition can be consulted in considerable detail on the Internet ([www.dhm.de](http://www.dhm.de)). Furthermore, H.M. Hinz and C. Lund edited an excellent publication (1998) for this event, covering (in 26 papers) all aspects related to the 17 years of German rule in the Kiautschou Bay area. The subjects ranged from political, commercial, naval and administrative affairs to cultural interaction in the settlement and its Shantung Peninsula hinterland; included are background papers of a more general scope. This catalogue publication is a basic source of information

and has numerous illustrations covering both the German and the Chinese sides of the picture and taking into account the development of Tsingtau after the Germans left.

[Editors' note: See images in the article on ocean science and technology in Qingdao, starting on p. 465.]

The German outpost on the Chinese coast never became a German 'Hong Kong or Macao'. The development of Tsingtau – in its military and commercial as well as administrative aspects – is well covered in special chapters of some more general German colonial and naval history books (Graudenz and Schindler, 1982; Hinz and Lind, 1998; Wegener, 1910; and Schrameier, 1915). Of special importance are some monographs of Berlin geographers, who were involved in the establishment or running of the 'Institut und Museum für Meereskunde' (marine science institute and museum) at Berlin University (Richthofen, 1898 [sic]; Penck, 1911; see photo, p. 234). Furthermore, administration means paperwork and reporting, therefore an abundance of documents and files still exist in German archives. It would constitute a worthwhile challenge to study them in detail. Only a limited number of these sources were tapped for the Berlin exhibition.

Today Qingdao has about 2.3 million inhabitants, is one of China's flourishing sea-ports and is marked by a modern high-rise skyline. Nonetheless, upon closely observing the harbour, railway installations, public buildings (such as churches, hospitals and schools), some older administrative buildings as well as the German-style architecture of many villas in modern downtown Qingdao, one can distinguish traces of the 17 years of German

colonial past. The local population is largely aware of this phenomenon, as Yan Lijn (director of the Qingdao Historical Museum) stated in his contribution to the Berlin Exhibition publication and as most visitors to modern Qingdao probably realize.

China's First Institute of Oceanography (FIO) is located here, as well as the Ocean University of Qingdao [later renamed *Ocean University of China*, see article by Yao, p.465 in this volume.] In effect, higher education in Qingdao got its start on 25 October 1909 in a joint German–Chinese 'Hochschule' (institution of higher education). This institution was funded by the German Reich, supported by the Chinese Government and had all the privileges of an Imperial Chinese University (Graudenz and Schindler, 1982, p. 307). It included a branch for natural sciences.

When the Germans occupied Qingdao on Sunday, 14 November 1897 – with a surprise invasion by a detachment of German marines (30 officers and 687 men from the cruisers *Kaiser*, *Princess Wilhelm* [Fig. 1] and *Cormoran*) there were only a few buildings grouped around a Chinese fort at the entrance to Kiautschou Bay [today *Jiaozhou*, see Plate I, color section]. At that time, Tsingtau was the name of a mere fishing village. Not a shot was fired and, according to reports of several of the officers involved, everything went smoothly as planned, at least for the Germans. The local Chinese commander had to give up and evacuate Tsingtau with his small force three hours after an ultimatum was delivered by Vice-Admiral von Diederichs. At 2:30 p.m. that day the German flag was hoisted in a ceremony proclaiming the occupation, with a reference



**Fig. 1.** Cruiser *Princess Wilhelm*  
(Source: <http://kaiserliche-marine.de/>)



**Fig. 2.** German Naval Observatory on Government Hill in Tsingtau/Qingdao (1897–1914)  
(archive IIM, Kiel)

made to the murder of three German missionaries in Shantung on 1 November of that year. There were orders from the Kaiser in Berlin to take the area as bail against future compensation. This was, however, only a pretext, if one considers the historical events leading up to the occupation.

It was indeed quite easy to establish an outpost in that era of gunboat diplomacy, provided other colonial powers did not interfere. But there was almost nothing of value there except the excellent geographical location. Everything that developed there over the next 17 years, including the Naval Observatory, was of German origin (Fig. 2).

Today Qingdao seems to be aware of this historical heritage and wishes to preserve it. One can observe much more than old colonial buildings, 'Tsingtao' Beer and the equally famous Laoshan mineral water. Noteworthy examples of the heritage are: the railway system, public utilities, port facilities and Qingdao's fame as the best summer seaside resort to be found in that part of Asia. [See Figs. 3 and 4.] The Germans were at the root of the latter aspect through the transfer of their holiday habits from the Baltic and North Seas to the Pacific Rim. Tsingtau's beach hotels attracted a large number of Europeans who happened to be in China, as well as foreign embassy diplomats who were stationed in Peking. The local climate was one reason, German tidiness another, it was said.

One century after the German occupation and only two months after the Tsingtau colonial exhibition in Berlin, Qingdao – with its short but proud record in maritime activities and marine research – was chosen as the venue for the Sixth International Congress on the History of Oceanography (ICHO VI). This outstanding event gave rise to the present publication.

Finally, a logical contribution from Germany would be to seek to establish links to oceanographic history, not as an excuse for depriving China of sovereign rights three generations ago, but in the spirit of modern cooperation and in the awareness that the sea lanes and the peaceful use of the ocean should be open to all nations. [See article by Pohlmann and Lenz, p. 269 in this volume.]



**Fig. 3.&4.** Scenes on old postcards, contemporary to the occupation period.

(Source: [www.collect.at/Postcards\\_from\\_Qingdao.htm](http://www.collect.at/Postcards_from_Qingdao.htm))

### **Richthofen: promoter of the Tsingtau settlement and Berlin's oceanographic museum**

German contributions to Pacific scientific research date back to more than 200 years ago (Kortum, 2002) and the country's commercial interests in China also can be traced back into the distant past. Around 1830 the *Princess Louise* and other vessels of the Prussian Sea Trade Company (established by charter in 1772) made several profitable voyages around the world, calling at Canton. In 1860 the Prussian government decided to send a

diplomatic mission on board the three navy vessels *Frauenlob*, *Arcona* and *Thetis* to Siam, China and Japan in order to negotiate trade contracts.

A young German geologist, Ferdinand Freiherr (baron) von Richthofen (Fig. 5), was attached to this mission as an expert. Even today his name is very well known in China because, after leaving the mission and spending some years in California, he returned in 1868 in order to travel extensively in almost all parts of this vast country during the following four years (Kortum, 1983; Stäblein, 1983). Upon his return to Germany he was highly respected as an expert on China. It took him several years to organize and evaluate his notes, which he later published (Richthofen, 1882) [sic]. He had travelled in Shantung as well, but never saw Kiautschou Bay or Tsingtau. However, he predicted in his publications that this location would be an excellent place to develop trade. His advice proved to be very valuable, of course, when the government began looking for a foothold on the Chinese coast. In 1898, Richthofen published two detailed contributions concerning Kiautschou and its hinterland, which descriptions were of great importance in justifying the occupation of Tsingtau (Richthofen, 1898a, 1898b).

After 1875 Richthofen held a chair in geography at Bonn University and became a professor in Berlin in 1886. In 1899, he organized the Seventh International Congress of Geographers in the German capital, which is noteworthy in our context, given that a number of sessions addressed marine and polar questions. Richthofen certainly



**Fig. 5.** Ferdinand Freiherr (baron) von Richthofen, 1833–1905  
(Source: [www.deutsche-schutzgebiete.de/kiautschou.htm](http://www.deutsche-schutzgebiete.de/kiautschou.htm))

was one of the most influential geoscientists in both Germany and the world at that time; his programmatic lectures were fundamental in establishing a new general theory of earth sciences. In Richthofen's view (1904) oceanography ('Meereskunde') was included, as he explained in his publication about the ocean and ocean sciences. Endowed with a background in geology, he became an outstanding geomorphologist. He was never an oceanographer in the modern sense of the word, yet he managed to establish the first German Institute and Museum for Oceanography (or ocean sciences) at Berlin University in 1900 with the help of his navy contacts and his excellent connections with high-ranking officials and even with the Kaiser himself.

Up until his death he served as director of both the Department of Geography and the Institut für Meereskunde (Röhr, 1981; Kortum, 1983, 1987). It should be mentioned that the publications and collections of the institute included maritime, naval, commercial, historical and colonial subjects, in addition to the physics and biology of the ocean. The Institute was very good in public relations; the lecture series was published for a popular audience in a small inexpensive booklet series entitled *Meereskunde*. It was Richthofen's successor Albrecht Penck, likewise a well-known geographer whose work

focused on the ice ages, who would lecture about 'Tsingtau' (Penck, 1911). One of the research vessels of the Institute for Baltic Sea Research in Rostock-Warnemünde, Germany, bears his name.

A large-scale model of the modern Tsingtau port facilities was an attraction in one showroom of the Berlin Museum für Meereskunde. Thus there are certain links, of which probably not many historians will be aware, between the occupation of Tsingtau and the rise of oceanography as an academic discipline in Berlin. This institution, which was located near the Friedrichstrasse Station in central Berlin, was completely destroyed during a bombing raid in 1944.

### **The observatory and German influence**

It is quite clear that oceanography and naval interests have influenced each other from early times; numerous examples can be given for maritime nations of standing. Many important early expeditions – from Captain James Cook to the *Challenger* and the German *Gazelle* or *Meteor* cruises – were carried out on navy vessels. Matthew Fontaine Maury was a US naval officer. All maritime nations established hydrographic offices for their own operations and for the benefit of their merchant fleets.

These offices were responsible for charting the oceans, developing navigational instruments, and providing tidal information and meteorological data. In Germany there were two institutions involved, one military



**Fig. 6.** Head Office of German Naval Observatory in Wilhelmshaven (1874)  
(photo: Schott, 1897)

(the 'Marine-observatorium' in Wilhelmshaven, established in 1874), and the other called 'Deutsche Seewarte' in Hamburg (established in 1875, later renamed 'Deutsches Hydrographisches Institut' and then 'Bundesamt für Seeschifffahrt und Hydrographie').

Observatories existed all over the world in all major naval bases and commercial ports to serve the fleets and help ensure safe navigation. The head office of the Imperial Naval Observatory was established at the principle North Sea base of the fleet in Wilhelmshaven in 1874 (Fig. 6). Administratively it belonged first to the Admiralty and later to the Navy Department (Reichs-Marine-Amt) in Berlin (Schott, 1987). Carl Börgen was director of this institution until 1909. His merits were undisputed, and later a large naval survey vessel was named after him. The last director of the 'Marineobservatorium' was Günther Böhnecke (1896–1981), who continued as director of the German Hydrographic Institute (DHI) in Hamburg after the Second World War, which was ini-

tially under the supervision of a British naval officer and oceanographer, J.N. Carruthers. Like many others, Günther Dietrich (1911-1972), another well known German oceanographer of a more recent generation, came from the Berlin 'Institut für Meereskunde.' [See photo of Dietrich on p. 238, in the article by Lutjeharms and Kortum.] He participated in the pre-war Atlantic cruises of R/V *Meteor*, served at the Naval Observatory during the war and worked at the DHI in Hamburg before becoming Director of the Kiel 'Institut für Meereskunde' – succeeding Georg Wüst (1890-1977). Thus one can see that, in Germany at least, there was a close cooperation between naval services and scientific institutions. Today there is a special navy institute for underwater acoustics and geosciences in Kiel ('Forschungsanstalt für Wasserschall und Geophysik der Bundeswehr', or FWG) underlining the continuing (mutual) interests of the navy and academia in the physics of the ocean.

The original mission of the Wilhelmshaven observatory was to supply the Navy with meteorological, geomagnetic and tidal information. The tidal department was later transferred to the 'Deutsche Seewarte'. The tide tables were published annually for all German ports, later for other parts of the world as well. H. Rauschelbach was in charge of this unit. He developed several moored current meters. The observatory was involved in the International Polar Year activities (1883/84) and supplied the instruments for the German polar stations. In addition, both instruments and staff were provided for the *Gauss* expedition to Antarc-

tica (1901/03) and the *Meteor* cruises in the North Atlantic Ocean. The Naval Observatory had its own series of publications. In the Second World War detailed charts of temperature and salinity for different parts of the North Atlantic were printed as support for submarines. In 1941 parts of the buildings in Wilhelmshaven were destroyed in a British air raid, and most activities were transferred to Greifswald on the Baltic coast. At that time the Observatory was affiliated with the Supreme Naval Command (Oberkommando der Kriegsmarine). Some of the observatory buildings still exist today. Now they are used by the Wilhelmshaven Academy of Fine Arts – for much more peaceful purposes.

When the above-mentioned Berlin Centenary Tsingtau Exhibition was featured in the Coastal Museum in Wilhelmshaven (6 November 1998 to 7 February 1999), the local museum organized some lectures commemorating the 17-year 'Tsingtau' period. Many navy and business people from this naval town had served in China for some years and contributed to the security and development of this outpost. Most of the public buildings and residences of high officials along the Albertstrasse in Tsingtau were more beautiful than those at home, according to the local newspaper in an article entitled 'Tsingtau – ein chinesisches Wilhelmshaven' (Tsingtau – a Chinese Wilhelmshaven). Ernst Troschel, for example, was a senior naval architect (Marineoberbau- rat) who, after serving in Tsingtau from 1903 to 1906 as principle port director, came back to Wilhelmshaven and added a pagoda-like service building to the Kaiser-Wilhelm-Bridge in the home port. Tsingtau's port was

constructed following his plans and guidance. More important was another very efficient naval official, Julius Rollmann, who came to the North Sea naval base as a young navy administrator and was transferred to Tsingtau in 1902. There he was responsible for city planning and the development of urban infrastructure in the area of the 'Gouvernement Kiautschou', as the outpost was called in navy jargon. There has been electricity since 1900 and a central water supply system since 1909 in the town. In 1905, the observatory was built as a branch of the Wilhelmshaven Institute and in 1906 a central slaughterhouse was constructed, just to mention a few highlights of Rollmann's accomplishments.

Germany's main reason for occupying Tsingtau was to have its own naval base with coal supply and docking facilities. This was required for a squadron to help develop and protect German trade in East Asia, in competition with other powers.

The Kiautschou Treaty was negotiated by Freiherr (baron) von Heyking, the German Ambassador in Peking (now Beijing), and signed on 6 March 1898, thus leasing that area for a period of 99 years. It was not a colony, but a 'Pachtgebiet' (protectorate) comprising an area of 452 square kilometres around Tsingtau, 47 square kilometres on the Haithsi Peninsula on the opposite side of the inlet, and some islands in the Bay as well as on the seaside of the entrance to the Bay. [See map in background, Plate 1, colour section.] All positions were fortified over the years; however, at the beginning of the war, Tsingtau was not able to defend itself for more than 6 weeks and the Japan-

ese took control after some fighting on 7 November 1914. Kiautschou Bay (560 square kilometres) itself was part of the treaty area up to the high tide line of the coast. Kiautschou town was not included.

The local population of the treaty area at the time of the occupation was 84 000. In 1902, there were about 15 000 Chinese and 688 non-Chinese residents in Tsingtau city. In 1907, the inhabitants numbered: 31 500 Chinese, 200 Japanese and 1184 Europeans, including 412 German residents (navy personnel not included). These statistical figures amply demonstrate the rapid development of the German naval base.

Kiautschou was not a colony such as were other German possessions (e.g. those in Africa). From the beginning it was a purely naval enterprise, administered by experienced naval officers and officials reporting to the Office of the Navy in Berlin (Reichs-Marine-Amt), not to the Colonial Office. A military governor was in charge and this worked very well over the years. Economically speaking, the German engagement on the Chinese coast did not make much sense. According to one expert estimate, Germany invested about 160 million Reichsmarks, yet revenues only amounted to 36 million Reichsmarks. However, it is unclear what was included in these figures. Perhaps the 17 years of occupation and commerce was not enough time to obtain profits from a promising hinterland trade, but it can also be argued that naval expenditures sometimes do not make sense – witness the German high sea fleet, which was never in action again after the battle of Jutland and was handed over to the British at Scapa Flow after the Treaty of Versailles in 1919.



In addition to navy administrators, technicians and businessmen, a large number of simple rank members of the navy's Third Marine Detachment ('Seebataillon') came from Wilhelmshaven (and Kiel) and served in China for some time. It is evident that the Wilhelmshaven Naval Observatory was important for the development of oceanography in Germany in war and in peacetime. As well, it supported the merchant fleet by issuing storm warnings and being responsible for the navy's chronometers and barometers. Both instruments, as all mariners know, are essential for safe navigation all over the world.

### **Mission and facilities of the observatory**

As far as Qingdao is concerned, a branch – later a fully equipped station of the central naval observatory – was established on top of Government Hill at Tsingtau overlooking the harbour. This observatory is mentioned in a number of books as the 'Meteorologische Station' or 'Astronomisch-meteorologisches Observatorium', but details on this topic were difficult to find. In any event, the Tsingtau observatory became a landmark, visible at the time on all city panoramas, from the settlement in the vicinity of the high water tower. The observatory, which may be regarded as a small practical scientific maritime institution, is still in use today, operated by the Chinese Navy and equipped with modern instruments (Fig. 7). Thus, over the century of its existence, there has been no major

change in the mission of this establishment, which is indeed remarkable.

This observatory is viewed by the author as the local root or origin of the present marine scientific tradition in Qingdao. Germany may be proud of this, and as stated above, the German administration in general was very efficient in all respects. It established a sound base for the future development of the city in commerce, city planning, hospitals and other infrastructure sectors.

Graudenz and Schindler (1982, p. 307) summarized German scientific activities in Tsingtau after the occupation and, quite correctly, related them to the existence of the local naval observatory. As a first task, the area taken under control had to be surveyed in detail and in accordance with modern standards. Large-scale reliable charts of the bay and the port area were produced, and topographic plans and maps were prepared for the urban and surrounding areas. This cartographic inventory was essential for developing Tsingtau into a 'Musterkolonie' (model or example colony). The meteorological

**Fig. 7.** Meteorological Observations at the Qingdao observatory by China's Navy  
*(photo: E. Deye, Kiel)*



logical data observed and collected in Tsingtau were very important for the area between Shanghai and Japan because there were not many stations at that time. By radiotelegraph Tsingtau was in communication with navy vessels at sea as well. The Tsingtau meteorological data were published and accessible for everybody. It was reported that regular observations began shortly after the occupation near the Signal Station installed on top of the hill, close to the site of the observatory, overlooking the harbour.

The first person to list climatological data and current observations for a period of months was the commanding officer of *Kaiser*, one of the cruisers of the expeditionary squadron sent to Kiautschou (Stubenrauch, 1898). His report on the meteorological and hydrographic conditions of Tsingtau in the winter of 1897/98 was published, as were several other accounts of more general nautical interest later, in the *Annalen der Hydrographie und Maritimen Meteorologie*, the well-established German journal for marine and nautical affairs issued by the 'Deutsche Seewarte' on behalf of the Imperial Navy.

In 1901 the German Navy Department (Reichs-Marine-Amt, 1901) published the results of the topographic surveys conducted around Tsingtau by Captain Deimling. This was a major scientific achievement because all other information before that time was based on the British Admiralty charts of that area, which were not accurate enough, as Franzius found in his secret mission to that region shortly before the invasion. The Deimling survey needed a fixed point with exact coordinates for latitude and longitude.

The Deimling pillar was set up on the 'Wasserberg' hilltop close to the signal station at the present observatory compound.

The coordinates were fixed, by astronomical observations and using a precision chronometer, as:

- longitude: 120° 18' 31,8692" east of Greenwich,
- latitude: 36° 03' 58,530" north, and
- altitude: 78,64 m above mean sea level.

This reference point was related to the Shanghai Observatory at Zikawei, close to the compound of the British Consulate General there. This was – in time – exactly 8 hours, 5 minutes and 55.65 seconds east of Greenwich. The time difference between Shanghai and Tsingtau was found to be 4 minutes and 38.94 seconds in a telegraphic experiment by transmitting a signal between the two observatories. It showed that the Deimling survey reference point was 0.24 seconds or 278 metres too far to the west (Reichs-Marine-Amt, 1909). The investigator at Tsingtau was Heyne, who served as director of the observatory for some years. This minimal correction meant more than 1 centimetre of difference on a topographic map with the scale of 1/25 000.

The 'Meteorologisch-Astronomische Station' (this was the first official name of the observatory) was enlarged in 1909 by a substantial gift from the Union of German Fleet committees (Hauptverband der Deutschen Flottenvereine), an organization with a network of offices all over the nation to promote navy interests and develop marine awareness in Germany. Thus new instruments could be bought for Tsingtau. After

this upgrading the station became a full-scale official naval observatory. The instruments included a C. Bamberg meridian passage refractor unit for determining the local time, with a Fuess electric chronograph.

The observatory compound (240 metres by 270 metres) was quite extensive and had several buildings for meteorological, astronomical and other observations, offices and living quarters for staff and local Chinese workers – in addition to a stable for horses. Details of the buildings and installations were published in the annex of the 1909 volume of *Annalen der Hydrographie und Maritimen Meteorologie*.

The meteorological instrumentation was provided according to the rules of the Royal Prussian Meteorological Institute. The 'weather hut' (of standard dimensions) included a psychrometer, a maximum-minimum thermometer, a thermograph, hygrometer, anemograph and the station's barometer. Several Helmann pluviometers were available on this small science campus as well, one functioning automatically.

Of course, weather observations and forecasting were important for mariners in port as well. The same applies to geomagnetic information, which was also provided by the observatory. A modern Bamberg 'declinatorium' was installed. Additional data were sometimes collected at the city of Fuchanso, in the hinterland, because the geomagnetic field was rather complex. Shortly after the occupation, Meyermann (1911) worked on the annual variation of the magnetic inclination after a first series of measurements was taken from January to April 1898. In 1905, continuous registrations were resumed with

a Bamberg standard inclinometer on a stone platform on the observatory compound. In 1910, the geomagnetic variation laboratory was moved to another building. Results were compared with the Shanghai Observatory data. For Tsingtau it was found that the mean declination was  $D = -3^{\circ} 44,6'$ , with the annual variation for the four-year period 1906-1910 being  $-2.2'$ . This information is important for mariners using charts and compasses in that region.

Seismic observations were obtained as well by a Wiechert seismograph (made by Spindler & Hoyer in Göttingen). The instrument was installed in a 2-metre-deep cave in the rock outcrops of the Observatory Hill and covered with earth to avoid temperature influence on the registration.

Tidal observation was a main mission of the Wilhelmshaven Observatory at home. In Tsingtau an automatic tide-meter (Seibt-Feuss Flutmesser) was installed at the head of Pier 1 in the new port. The tidal range in the bay was about 4 metres, as in Jade Bay at home on the North Sea coast. Franzius made interesting comparisons of the tidal and sediment regimes of the Jade and Kiautschou Bays in his report (1898).

The storm-signal mast and time-ball installation were of more practical importance for all vessels calling at Tsingtau. Maritime trade increased rapidly. In 1900, 182 steamers and 10 sailing vessels, not counting smaller local Chinese craft, made port calls here. Nine years later the port authority listed 509 steamers (266 German, 113 British, 68 Japanese, 36 Chinese and 22 Norwegian). The Hamburg-America Line, as well as the North German Lloyd navigation companies,

served Tsingtau on a regular schedule. It took almost a month for passengers to get there from Germany. Later, after connecting the 412 kilometre-long Shantung railway to the main Chinese trunk line at Tsinanfu, it was possible to return home by train via Siberia in 12 days – probably not a very comfortable trip!

The meteorological station tried to improve the optical standard international warning signals by adding additional information about the barometric pressure and potential route of a depression. After all, the German gunboat *Iltis* sank in a typhoon off the Shantung coast near Kiautschou in July 1896.

The time ball could be seen from all parts of the inner and outer harbour and fell each day sharply at noon East China Coastal Time (8 hours ahead of Greenwich mean time). All masters of vessels in port could check their chronometers. Exact timekeepers were essential to fix the longitude at sea in those days. The mechanism for the Tsingtau time ball was again supplied by Bamberg, a well-known instrument firm in Friedenau, Germany. It included a high precision pendulum clock, a chronometer and a chronograph. The Broecking pendulum clock with a one-quarter-second contact gear was installed in the entrance building ('Pfortnerhaus') of the observatory. A naval officer, mainly an experienced chief mate of the fleet, was in charge of the chronometers. He lived in the same building and served as assistant to the observatory's director.

In summary, the Tsingtau Naval Observatory was a multi-purpose, interdisciplinary scientific and service unit that may be

regarded as the nucleus or basis for subsequent marine scientific activities in modern Qingdao. In fact, it was a small science park, in a way comparable to the famous 'Telegraphenberg' institutions in Potsdam and Berlin, but much smaller and with a military (navy) touch, in a distant land far from home.

### **Kiel and Tsingtau – past and present**

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Other than the University's 'Sternwarte' [(star-watching) observatory] there was no special navy observatory in Kiel. A central signal tower stood overlooking the harbour, very close to the present Institut für Meereskunde (Institute for Marine Research), one of Germany's major centres for ocean sciences with an international reputation. Telegraphic time signals were transmitted from there to the fleet.

The Kiel Institute itself, however, was not founded until 1937, on the eastern shore of the fjord. Nevertheless Kiel University had been very active in marine research in different departments before that time. In 1871, Kiel became the Imperial Navy Port (Reichskriegshafen) and old photographs show a long line of battle cruisers at anchor in the harbour and the new shipyards and naval installations and facilities thereabouts. The present Kiel Institute on the west bank of the fjord occupies the site of the (former) official residence of the Commander of the Baltic Sea Division of the Imperial Navy.

This building (demolished in 1972) resembled many of the colonial villas in

Tsingtau. In fact, many buildings of the extensive main navy compound in Kiel-Wik, close to the Kiel Canal entrance into the harbour, are similar to those in the German outpost in China, simply because the same people planned and built them. Since 1883, Otto Krümmel (1854-1912, photo p.167), professor in the Department of Geography at the University of Kiel and author of the well known first German textbook on oceanography (Krümmel, 1907-1911), taught future deck officers the basics of ocean sciences in the Imperial Naval Academy (today the site of the 'Landeshaus' or Parliament of the State of Schleswig-Holstein). The rapid urban development of Kiel in the years up to 1914 was a result of the new national naval programme. Thus Wilhelmshaven, Kiel and Tsingtau have many things in common – amongst others, they were all three German Navy boomtowns.

There are numerous other early links between Kiel and Tsingtau that are worth mentioning in this context. In 1999, the Kiel City Museum succeeded in getting the major parts of the Tsingtau Centenary Exhibition moved to the Warleberger Hof and added quite a few local topics. The Sinological Division (Department of Oriental Studies) of Kiel University contributed a series of lectures concerning Sino-German cultural relations.

As in Wilhelmshaven, many people from Kiel spent periods of service in China, either aboard ships in the fleet squadron or with the Navy administration ashore. Actually, the first such person was Georg Franzius, a well known hydraulic engineer and Chief Naval Port Construc-

tion Supervisor from Kiel, who was sent to the Kiautschou area by Admiral Tirpitz himself in 1897 to investigate local conditions there in comparison with those at other possible sites, such as Amoy, Quemoy and some islands in the Straits of Taiwan. At that time Germany was only entitled to stay in the so-called 'Treaty Ports' of Tientsin and Hankon. In principle, Franzius (c. 1898) confirmed Richthofen's proposal that Tsingtau be considered the best location because of the bay, its high commercial hinterland potential and the Shantung coal mines at Weih sien and Poschan. His report was decisive for the Imperial order to occupy this area in 1897.

Some time later, Prince Heinrich, brother of Kaiser Wilhelm II and Commander in Chief of the Imperial Navy with his official residence in Kiel Castle ('Schloss'), went to East Asia with a cruiser squadron and parts of the Kiel-based First 'Seebataillon' in connection with the Boxer unrest in China. The force stayed in Tsingtau for quite a while before engaging in battle near Peking as part of an international expeditionary corps ('Germans to the front'). Prince Heinrich collected many pieces of art in China and Japan and donated them to Kiel University's Ethnographic Museum. Recently this unique collection was transferred to the Schleswig Museum. Many officers, sailors and marines, who served in China, picked up less precious souvenirs there. As recently as about 20 years ago it was still possible to spot some of these items in Kiel antique shops.

Hundreds of navy and business people from Kiel stayed in Tsingtau. One of them

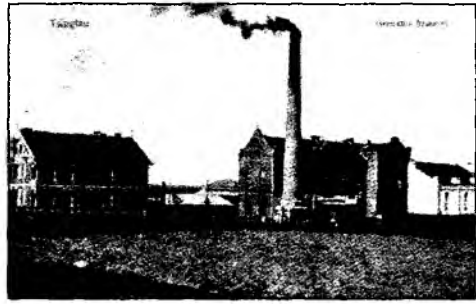
was Alfred Kirchoff, who supervised construction works for the new harbour and was in charge of the planning for the railway line to the Shantung coal mines. Many of the colonial buildings still standing in Qingdao were built under his supervision.

In the final days of the war, Günther Plüschow – a pilot from the Kiel Naval Air Squadron who served in Tsingtau – managed to fly out of Tsingtau in his single-engine aircraft ‘Rumpler Taube’ with secret official documents in 1914 some days before the Germans were obliged to surrender to the Japanese on 14 November 1914. The last German Military Governor of Tsingtau, Captain Meyer-Waldeck, was taken prisoner.

Thus the German period in Tsingtau began and ended with people from Kiel. Today, in retrospect, it seems that the German plan to settle on the Chinese coast was an imperialistic and colonial venture to serve the global aspirations of Germany at that time. As well, a presence in the Pacific region was regarded as necessary since Germany had annexed a vast part of the western Pacific from Guam to the Marshall Islands and the northern part of Papua. On the other hand, the navy officials went to considerable efforts to make Tsingtau a showcase of German efficiency, trade and culture.

*[Editors' note: One popular manifestation of the transfer of German know-how was in the manufacture of beer. See Fig. 8]*

It was a propitious initiative in Germany to revive interest in the Kiautschou episode one century later, given that a new era – of political, scientific, cultural and economic cooperation between China and



**Fig. 8.** Contemporary postcard showing German-built beer factory in Tsingtau

*(Source: [www.deutsche-schutzgebiete.de/kiautschou.htm](http://www.deutsche-schutzgebiete.de/kiautschou.htm))*

Germany – has dawned. It is significant that one hundred years prior to the construction of the innovative ‘Transrapid’ Magnetic Railroad between downtown Shanghai and its airport in 2002, the Germans built the Shantung railway line, which began at Tsingtau.

As far as marine research is concerned, there is an official agreement of cooperation between the two governments, and many projects are underway. In 1999, the Institute of Marine Research [see previously cited article by Pohlmann and Lenz, p. 269 in this volume] and the GEOMAR (Centre for Marine Geosciences at the University of Kiel, which centre is scheduled to be merged with the Institute in 2004) hosted in Kiel a delegation from PR China’s Second National Research Institute of Oceanography and the Institute of Oceanography in Zhejiang Province to sign a memorandum of understanding for future cooperation. An agreement was reached to exchange staff and students and to start projects of interest for both parties in coastal oceanography, aquaculture and other fields. Moreover many marine scientists from Kiel

have been to Qingdao for conferences over the years.

In a way, the Tsingtau observatory and the nautical activities conducted there under German administration can be regarded as a precursor of, or symbol for, future cooperation between Germany and China. The author submits that the 'observatory story' presented in this article addresses the common scientific heritage of both countries.

One note with a local flavour may be added. About 20 kilometres south of Kiel there stands what was once a popular 'biergarten' restaurant in Borgdorf (near Nortorf), a pleasant place for an outing on a scenic lake in a rural environment. Its name was (and still is) 'Kiautschou'. Today possibly none of the local inhabitants can pronounce this word nor do they know what it means. Yet there is a very simple explanation. The restaurant, which is now a small hotel, was established by someone who had obviously spent time in Tsingtau, either with the German navy or in the hotel sector. ■

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#### Editors' note

The spelling of Chinese geographical names in this article generally follows the usage in German documents.

#### Abbreviation

PR China: People's Republic of China

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