Mint Metal Procurement for Jiangsu and Zhejiang in the Eighteenth and Nineteenth Centuries:

An Inquiry into the Organisational Capability of the Qing State

Dissertation

zur Erlangung des akademischen Grades

Doktor der Philosophie der

Philosophischen Fakultät

der Eberhard Karls Universität Tübingen

vorgelegt von
Thomas Hirzel
aus Sechselberg

Tübingen 2011

To my mother and father,

Elisabeth (*née* Gaiser) and Heinz Hirzel,

for always being there.

Acknowlegments

I wish to thank the German Research Foundation for financing this research that was undertaken within the DFG – project "Monies, Markets and Finance in China and East Asia, 1600-1900" of the University of Tübingen.
I am most indebted to Hans Ulrich Vogel and Achim Mittag for their encouraging support and guidance throughout the process of writing this dissertation.
For their critical remarks I want to thank Jane Kate Leonard, George Bryan Souza, Nanny Kim, the members of the research group and many others.

Contents

Tables and Graphs

Abbreviations

For complete bibliographic information, see the works cited in the section *References* at the end.

BH	Brunnert and Hagelstrom, *Present Day Political Organization of China*
DNKCGQTL	*Diannan kuangchang tulüe* 滇南礦廠圖略 (Illustrated Account of the Mines and Smelters in Yunnan)
GX-HDSL	*Qinding Da Qing huidian shili* 欽定大清會典事例 (Imperially Endorsed Precedents of the Collected Statutes of the Great Qing Dynasty), Guangxu edition.
GZDQL	Gongzhong dang Qianlong chao zouzhe 宮中檔乾隆朝奏摺 (Palace Memorials of the Qianlong Reign).
HBGZZL	*Qinding Hubu guzhu zeli* (Imperially Endorsed Regulations and Precedents for Minting of the Ministry of Revenue)
JQ-HDSL	*Qinding Da Qing huidian shili* 欽定大清會典事例 (Imperially Endorsed Precedents of the Collected Statutes of the Great Qing Dynasty), Jiaqing edition.
MQDA	Ming Qing dang'an 明清檔案 (Ming and Qing Archives)
QCWXTK	*Qingchao wenxian tongkao* 清朝文獻通考 (Encyclopedia of the Historical Records of the Qing Dynasty)
NGHKTB	*Neige Huke tiben, Huobi lei* 內閣戶科題本.貨幣類. (Routine Memorials of the Grand Secretariat; Material on Monetary Matters)
TZBL	*Tongzheng bianlan* 銅政便覽 (A Manual on Copper Administration)
YNTZ	*Yunnan tongzhi* 雲南銅治 (On the Copper of Yunnan)

ZPZZ	*Gongzhong dang zhupi zouzhe, Caizheng lei* 宮中檔硃批奏摺財政類 (Palace Memorials with Imperial Vermilion Rescripts, Category Financial Administration)

Note on transcription, dating conventions and measures

Chinese words and names are transcribed according to the pinyin system of romanization.

Dates indicated according to the Chinese lunar calendar appear in the following format: reign period and regnal year, lunar month and lunar day. Abbreviations for reign periods are KX = Kangxi (reign: 1662-1722), YZ = Yongzheng (reign: 1723-1735), QL = Qianlong (reign: 1736-1795), JQ = Jiaqing (reign: 1796-1820) and DG = Daoguang (reign: 1821-1850). The character *run*閏 before the lunar month indicates an intercalary month. Thus QL 16/閏 5/2 refers to the second day of the fifth intercalary month in the sixteenth year of the Qianlong reign.

Note: the equivalents stated below refer to the official standards. Local variation was considerable.

Weight

1 *liang* = approximately 37.3 grams

1 *jin* = 16 *liang* = approximately 0.597 kilogram

1 *dan* = 100 *jin* = 59,7 kilograms

Distance

1 *li* = approximately 0.576 kilometer

Currency

The principal means of exchange in wholesale and other large transactions was silver, which circulated by weight. The *liang* (see above) of silver was the main unit of value. It was notionally supposed to exchange for a full "string" of 1,000 "copper" (actually brass) coins. In monetary contexts, *liang* is conventionally rendered "*tael*", while brass coins are called "cash". I follow these conventions here.

Chapter 1 :Introduction

This study aims at assessing the organisational capability of the eighteenth and nineteenth century Qing state by investigating its capacity and flexibility in steering the macro-economic process of procuring mint metals for the provincial mints of Jiangsu and Zhejiang. For this purpose, we will inquire into the political, economical, social, and institutional dimensions of transporting monetary metals to the Jiangsu and Zhejiang mints on overland routes and domestic waterways as well as by imports of the monetary metal copper from Japan. This inquiry is primarily based on two different kinds of sources, namely a large corpus of archival documents and a wide range of historical sources of the traditional type. While carefully analysing the former, we will also pay close attention to the regulations and stipulations of standards and set quotas contained in the latter. By examining side by side the wealth of information and data obtained from these two different kinds of sources, the study offers an innovative approach to the study of economic and social history of late imperial China which combines solid historical scholarship with quantitative analysis.

Traditional statecraft in Imperial China held that the welfare and prosperity of the common people depended directly on the stability of the monetary system. The monetary system of Qing China between 1650 and 1850 may be described as a bimetallic system with fluctuating exchange rates.[1] In general, silver bullion was used for wholesale transactions while cash served the retail market. The Qing state admitted private merchants to handle the supply of silver and the casting and assessment of silver bullion, it, however, monopolized the coinage and issue of cash. Consequently, the Qing felt in duty bound to produce and circulate a sufficient amount of brass coins. Therefore the Qing bureaucracy expended considerable energies on assuring a reliable supply of metals for minting. This study focuses on the interface between mining activities, on one hand, and the production and distribution of cash, on the other: the procurement of mint metals.

The central government, primarily the Ministry of Revenue (Hubu 戶部), subjected mint metal procurement for the metropolitan and provincial mints to detailed regulations. On the basis of these official guidelines, provincial officials were assigned to procure copper, zinc, lead and tin. These officials proceeded to organize complex collaborative arrangements with transporters for the shipping of mint metals from the mines, mostly located in southwestern Yunnan and Guizhou, or from governmental or private stores at Hankou to the metropolitan and provincial mints. Here, brass cash was cast, providing the medium of exchange for mainly small-scale transactions in the expanding market economy of Qing China. The officials charged with the procurement of mint metals had to submit reports on the progress of their convoys to each district and department seat, and received documentation from all military and civil authorities enroute. On the basis of this documentation, which was passed on by local governments to the provincial level, provincial governments submitted memorials to the throne reporting on all mint metal convoys passing through their jurisdiction. Thousands of

[1] See also: Vogel 1989, 11.

such memorials survive in the imperial archives, constituting one of the central source materials for this study.

By studying the relevant archival documents, palace memorials, as well as routine memorials, we are able to provide a great deal of statistical information on eighteenth and nineteenth centuries mint metals transported from within China and from abroad to the provincial mints of Jiangsu and Zhejiang. However, we are not only interested in the amounts of transported mint metals. Rather, our research is motivated by the prospects to gain new insights into the imperial administration's efficiency in securing coin production and into the newly emerging forms of co-optation and cooperation with agents of the "private sector". Thus, the mint metal transport system must be seen as an important playground where state interests and local resources and merchant interests met.

An adequate supply of mint metals was of particular importance for the two provinces Jiangsu and Zhejiang, as they constituted the leading economic core of the Qing empire. The mint metals for the provincial mints of Jiangsu and Zhejiang were procured from Yunnan and Hankou, but also from Japan. Copper was transported from mines located in Yunnan in southwestern China and zinc, tin and lead were in large part procured at Hankou. In addition, the provincial mints of Jiangsu and Zhejiang also relied on copper imports from Japan. Officials and merchants in charge of transports faced manifold difficulties of land and waterborne transport to Suzhou and Hangzhou, the cities in which the provincial mints were located, as well as being burdened by much paperwork and/or bureaucratic procedures.

1.1 Sources

As outlined above, the investigation draws on two types of main sources. The first consists of officially endorsed and semi-official compilations of regulations on mint metal transports that provided the administrative framework to these tasks. Such compilations include the precedents and the official codes of the Ministry of Revenue[2] and semi-official compilations, composed to guide the officials in charge of the procurement, such as the Tongzheng bianlan 銅政便覽 (A Manual on Copper Administration) and the Yunnan tongzhi (雲南銅志) (On the Copper of Yunnan).[3] In these texts the established procedures for the procurement of mint

[2] *Qinding Da Qing huidian shili* 欽定大清會典事例(Imperially Endorsed Precedents of the Collected Statutes of the Great Qing Dynasty). Guangxu edition; *Qinding Hubu guzhu zeli* 欽定戶部鼓鑄則例 (Imperially Endorsed Regulations and Precedents for Minting of the Ministry of Revenue); *Qinding Hubu zeli* 欽定戶部則例(Imperially Endorsed Regulations and Precedents of the Board of Revenue)

[3] Both the *Yunnan tongzhi* and the *Tongzheng bianlan* provide detailed information on copper mining, transportation, minting, and their administrative regulations. The *Tongzheng bianlan* is more concise and represents the regulations in force at the date of compilation. The *Yunnan tongzhi*, in addition, also informs on former regulations and conditions and indicates the names of

metals are recorded, covering in considerable detail all steps of the transports from Yunnan to Jiangsu and Zhejiang as well as the overall Hubu regulations and precedents concerning provincial mint metal transports. These regulations can be regarded as an ideal norm on how the transports should be carried out.

The second type of main sources is palace and routine memorials. The routine memorials provide rich quantitative but also qualitative data whereas the palace memorials in addition describe the actual and sometimes troublesome transport experiences. The archival record on transports is rich from 1762 (QL 27) onwards, when the Qianlong Emperor decreed that governors-general and provincial governors were to submit regular palace memorials on all mint metal transports that passed through their areas of jurisdiction.[4] In the event of unusual occurrences, such as shipwrecks, theft or the illness or death of the official directing the transport, the governors were required to immediately report on them. Each memorial recorded the total amount of metal and the dates of entry into and exit from the respective areas under jurisdiction, with further information added as required. Even the basic information is, however, not always complete. In some documents governors reported the passage through their province, giving the names of the transport officials, but omitted the amounts transported and the entry and exit dates.[5] In others, much more detail is provided, especially when reporting accidents and incidents that were suspected to have involved fraud.

As mentioned above, this study examines Qing organization and management of mint metal procurement for the provincial mints of Jiangsu and Zhejiang from 1736 to 1850, by inquiring into the central government's expectations and the provinces' strategies of implementation. For this purpose, the archival documents are subjected to the following investigations:

To assess the reliability and specificity of information contained in the selected archival documents, the data extracted from these are contrasted with the information on mint metal procurement for Jiangsu and Zhejiang province found in the regulations. More specifically, several steps are involved. First, data on individual convoys is put together from memorials submitted by the various provinces through which the shipments passed. These reassembled data sets are then compared to regulations on aspects such as transport routes, time limits, and amounts of mint metal transported. In the assessment of the two types of sources, points of divergence are naturally of special interest.

---

officials responsible for the introduction of new administrative regulations. These sources are based on the official compilations of regulations.

[4] *Qinding Da Qing huidian shili* 欽定大清會典事例 (Imperially Endorsed Precedents of the Collected Statutes of the Great Qing Dynasty). Guangxu edition. 1899. (GX-HDSL) 218:10a; *Qianlong chao shangyu dang* 乾隆朝上諭檔 (Archives of the Imperial Edicts of the Qianlong Reign) (QCSYD) vol. 3, p. 812 [Edict number 2270].

[5] For example: *Gongzhongdang Qianlongchao zouzhe* 宮中檔乾隆朝奏摺 (Palace Memorials of the Qianlong Reign) (GZDQL) 30:34. See also: GZDQL 36: 446.

The examination concentrates on copper transports. The reason for this restriction is the fact that regulatory texts and archival documents for this metal are particularly rich and detailed.

An analysis of the two types of sources provides insights into how Qing officials approached the tasks associated with the procurement of mint metals and how they coped with problems arising during their implementation. In this respect, it provides insights into the organizational capability of the Qing state in this critically important area of fiscal management.

1.2 State of the field

It is Thomas A. Metzger who pioneered the inquiry into the organisational capability of the Qing state with two seminal studies. One off these is his article "The Organizational Capabilities of the Ch'ing State in the Field of Commerce: The Liang-huai Salt Monopoly, 1740-1840" (1972) which sheds new light not only on the salt monopoly *per se*, but also on a broad range of issues pertaining to the rationality and organisational capability of the state in managing a large-scale distributive network. As Metzger shows, the Qing state, operating through its various agencies and constantly adjusting its relationships with private enterprises as the exigencies of the situation demanded, was able to ensure the steady flow of vast quantities of salt from the coastal pans throughout Jiangsu and the wider Yangtze valley, even in times of crisis. A lack of statistical information, however, hindered Metzger from weighting the functional and dysfunctional factors that were at work in the Qing management of the Liang Huai Salt Monopoly.

In his other study, Metzger (1973) challenged the conventional view of the allegedly unchanging character of China's institutions before the mid-nineteenth century. Observing the Qing government's flexible approach towards many of its administrative practices, he argued that Chinese officials were imbued with a strong feeling that "frequent criticisms and changes of the state's procedures were right and meaningful."[6]

As a matter of fact, the research literature still abounds with the stereotype of the Qing bureaucracy's decreasing efficiency and administrative ability, coupled with a growing corruption, as being the essential factors behind the dynasty's downfall. However, this stereotype has come under criticism in a number of recent studies. Thus, Leonard (1996), exploring the Daoguang emperors' management of the Grand Canal Crisis from 1824-1826, comes to the conclusion that the administrative measures taken to overcome this crisis were fully consistent with the pattern of imperial management of canal-transports in earlier reign periods. As she convincingly argues, the Daoguang emperor handled government affairs in

[6] Metzger 1973, 23.

much the same way as his imperial forebears, he equally energetically responded to strategic imperatives and looming ecological disasters, and directed the decision-making process with similar discipline and flexibility. Emphasising the continuity with early Qing patterns of monarchical conduct, Leonard underlines the effectiveness of early nineteenth-century administrative actions in selected areas of government, contra the seemingly irresistible tendency among Qing scholars to take 1800 as a great divide and to treat the period thereafter as a period of decline and deterioration of governance.

More recently, a number of works measured the Qing dynasty's institutional performance against its own political and institutional goals, thereby highlighting the organisational capability and creativity of leadership provided for by the court and the official class, not only in the early and high Qing periods, but in the early nineteenth century as well. Major contributions, which argue in this direction, include Antony and Leonard (2002), Vogel (1989a), Will (1990), and Will et al. (1991).

Concerning the mint metal transport system for transporting Yunnan copper and other monetary metals produced in China, the relevant studies include, for the mint metal transports from southwest China to Peking, Sun (1971), Shulman (1989), Vogel (1989a), and Reiser (1996). Mention must also be made of the master theses by Schön (1996), Leonhardi (2002), and Kabagema (2004), which also deal with various aspects of the Yunnan copper transports. In addition, there are two articles on the shipments of copper on the Yangtze river in Sichuan province by Zhang Yonghai (1986), and Zhang Yonghai and Liu Jun (1988) who based their work on documents found in the Baxian Archive, Chongqing.

As to the various forms of co-operation with, and co-optation of, agents of the "private sector", which evolved in the operation of domestic transports as well as imports of mint metals, two articles by Metzger (1970 and 1972) are highly relevant. Therein Metzger developed a model of co-optation of merchants for complex economic undertakings such as the management of the Liang Huai Salt Monopoly. The theme was enlarged on by Mann in her work on local merchants and the Chinese bureaucracy from 1750 to 1950 (1987). Therein Mann uses Max Weber's concept of the merchants' "liturgical" duties to explore the Chinese merchants' involvement in the local government, as, for instance, by their seeing to the collection of taxes. Three other studies are also important in this context: Firstly, Chan (1977) explores the relation between merchants and the Chinese state during the last forty years of the Qing dynasty. Secondly, Dunstan (1992) discusses Qing government policies in the copper trade between China and Japan, showing how these policies alternated between direct and indirect control over the commissioned merchants. However, an in-depth analysis of the Japanese copper trade after 1744, Dunstan claims, remains to date a desideratum. Thirdly, Kwan (2001) shows how the Changlu salt merchants headquartered at Tianjin used the government monopoly franchises as their chief capital asset to establish themselves as the local commercial elite which was best positioned to move into the new industries. Moreover,

to fully comprehend the evolving state-merchant connection in late imperial China, one should also take into account the commercial class's pursuit of Confucian values propagated by the state. Lufrano (1997) has opened up this field with an examination of merchant manuals, a genre that is a distinctly eighteenth-century literary product.

1.3 Research questions

As the foregoing survey of the state of the field reveals, there are several important issues, which have been left untackled. To begin with, one issue concerns the question of organisational capability, which is crucial for the development of a modern economy. Twentieth-century China has experienced a great expansion of the state's role in economic organisation. Thus the question arises whether the substantially improved capability to organise large-scale, complex commercial operations did originate in Qing management know-how? Can we really observe a decline of the Qing administration's organisational capability in the course of the eighteenth and nineteenth centuries, or did its efficiency and flexibility continue to be in effect into the nineteenth century? How flexible were government responses to challenges in concrete situations such as the delays of mint metal transports during the Burma War (1763 -1769), the growing bureaucratic mismanagement in the course of the nineteenth century, or the gradual exhaustion of the Yunnan copper deposits? If we surmise that any administrative measures related to, and adjustments of, the mint metal transport system, has two major components—tradition and innovation—then how is the ratio of one component to the other? Can we assume that, in respect to organisational capabilities, the Qing legacy shaped the formation of the modern state in twentieth-century China? Or was this legacy being discarded and abandoned in favour of a totally new approach?

Secondly, another cluster of questions revolves around the procurement of sufficient supplies of mint metals, especially copper, for minting the cash, which was one of the major concerns of the Qing government's economic policy. By providing a constant supply of copper cash, the Qing government sought to maintain stable economic conditions in order to ascertain the legitimacy of its rule. Mint metal transports from remote mining regions to the economic centres where the provincial mints were located had to overcome natural adversities, organisational and logistic problems, and the problem of mismanagement. Sale and transport of vast quantities of mint metals were administratively regulated, with officials from the local, regional, and provincial levels taking responsibility for the transports and high-ranking officials keeping the court informed about the progress of mint metal transports. Thus the following questions arise: To which proportions, if at all, did losses of mint metals en route run? How did the Qing government react when losses did occur? To which extent were the difficulties in connection with the mint metal procurement caused by strenuous transport

routes, natural hazards, calamities, and/or abuses by officials involved in the transport system? What were the motifs behind the choice of a different than the usual transport route? How did mint metal transports affect the resources and the infrastructure of the districts and departments, which they passed through? Are there any differences between the information about mint metal transports, which we obtain from archival documents, and the information obtained from historical sources of the traditional type? If so, then we shall further ask, with which sort of differences are we dealing and how do we account for them?

Thirdly, yet another set of questions concerns the forms of cooperation between the government and overseas merchants. Early eighteenth-century China witnessed a significant involvement of both private and government-authorised merchants in the copper trade, which evolved between the two coastal provinces of Jiangsu and Zhejiang and the Japanese port at Nagasaki. Instead of incorporating these merchants into its bureaucracy, the Qing government allowed them to retain a "non-official" status. However, from 1733 onward, the government began to enforce stricter controls upon this group of overseas merchants because they tended to invest funds that the government had advanced to them in other business. There is a spate of questions that relate to this peculiar symbiosis; the following are especially relevant in the context of our project: Why did the legally all-powerful state, by co-opting powerful merchants, tolerate divergent interests? How did the Qing government treat these merchants? How can we describe the nature of the relation between the Qing state and the merchants and how did this relation develop over the period under discussion? What was the general perception of the private enterprise and how did the class of officials and the educated nucleus that dictated the current beliefs of the age deal with merchants and private entrepreneurs in practice?

1.4 Research Goals

The primary goal is to identify and analyse those archival documents, which are relevant to mint metal procurement for Jiangsu and Zhejiang in the eighteenth and nineteenth centuries. Our study of this large corpus of documents taps a large and hitherto greatly neglected corpus of source materials which bear most valuable information that will allow us to reassess the organisational capability of the Qing state

More specifically, this study aims at establishing the scope and the value of the archival documents on mint metal transports as historical sources. For this purpose, the archival documents are subjected to two separate, yet closely interrelated investigations:

To test the validity and reliability of information provided in the documents under discussion, the set of memorials from the various provinces, which were passed through by

one and the same mint metal transport, will be examined side by side, with paying special attention to any divergencies.

To assess the specifity of the selected archival documents, the information obtained from therein will be contrasted with the information on mint metal procurement for Jiangsu and Zhejiang which is found in historical sources of the traditional type such as, for example, the prescribed transport quotas in the regulations.

On the basis of the two foregoing investigations, a set of criteria will be developed to systematize the evaluation of the data obtained from the archival documents and to assess the level of factuality prevalent in the reports and memorials concerning mint metal transports.

The data obtained by sifting the archival documents specified above will be assembled in tables to provide a solid basis for quantifying analysis. Furthermore, we will venture to use the data to weight the functional and dysfunctional factors at work in the mint metal procurement for Jiangsu and Zhejiang.

A further goal of this study lies in using the information obtained from archival documents as well as historical sources of the traditional type to reconstruct the Jiangsu and Zhejiang mint metal transport system. This involves the identification and mapping of the transport routes as well as the calculation of the quantities of mint metals transported on them. In this respect, our project is intended to contribute to the history of transport in late imperial China.

Furthermore, the present study aims at exploring the special nature of business relationship between the Qing state and private merchants, traders, and the gentry, focussing on the different forms of co-operation and co-optation characteristic for mint metal transports within the empire as well as for the imports of Japanese copper. In addition, this study will shed light on the interaction between governmental agencies of different levels— from the central government to the provinces down to the districts or even sub-districts.

Rounding up the various inquiries carried out within the framework of this project, we intend to readdress the scholarly debate on the performance of the eighteenth and nineteenth centuries Qing state. The general deductions to be drawn from this discussion will then be embedded into the larger historical and social context of nineteenth-century China to get a better understanding of the state of Chinese society on the eve of the modern age.

1.5 Methodical approach

1.5.1. The antagonism between rigid and flexible approaches

According to Metzger, Qing officials were acutely aware of the antagonism between the political need for a stable system to administer the mint metal transports and the practical need for adjustments in response to changing circumstances. As an official from the first half of the

Qing dynasty noted in a palace memorial, "we ought to seek uniformity of practice in order to fix the institutions of a dynasty, and we ought to make some suitable changes in order to obtain success…."[7]. We may assume that elements of rigidity and flexibility can be found in any organisation, however “tradition-bound” or modern it is, and that they are in actuality mixed in infinitely varied proportion and at perpetual war with each other. This is definitely the case with the Qing mint metals transport system. We thus shall ask for the proper balance from which the finest results came and whether or not a direct link between flexibility and efficiency existed. For this purpose we will give special attention to the increase of as well as to the major and minor revisions of regulations concerning the transport of mint metals over the eighteenth and nineteenth centuries.

1.5.2. The shifting balance of power and influence among governmental agencies

An important hypothesis for the study of the Qing state's organisational capability is that the scope of the central government's power changed, not to say decreased, over the eighteenth and nineteenth centuries. Research on Qing society, institutions, and economy has revealed a long-term withdrawal of the Qing state in many fields of administrative activities and a decrease of economic interventions (cf. Skinner (1977, p. 19), Rowe (1984, 1989), Metzger (1972), Vogel (1990)). Studies, which focus on shorter periods, however, make it clear that there were short-term phases of re-intensification of administrative regulations and economic intervention initiated by the Qing state (cf. the case studies on the copper trade by Dunstan (1992, 1996b)). Thus, we will start with the modified hypothesis that, in spite of short-term re-intensifications, the Qing state's preponderance and interventionism decreased in the course of the nineteenth centuries.

To discuss this hypothesis more concretely, one must take a look at the Ministry of Revenue. Being a key branch of the central bureaucracy, it oversaw a multitude of economic activities pertinent to the welfare and prosperity throughout the empire; one of which being the administration of the government-controlled mint metal transports within the empire as well as from overseas. According to Sun (1992), the Ministry of Revenue exemplifies the central government's preponderant supervisory role. Yet, Sun's study also reveals its limitation in seeing to its narrowly defined normative goals being carried through. Does this analysis also hold true for the implementation of the Ministry of Revenue's regulations concerning mint metal transports? And how authoritative were its guidelines in practice? Another important point for discussion is the Provincial Treasurer (*buzhengshi* 布政使), the provincial official in charge of the mint metal supply for the provincial mints and subordinate only to the Governor who was privileged to communicate directly with the emperor. Now, the Provincial Treasurer, the Governor, the Censorate, the Ministry of Revenue, and last but not least the

[7] Metzger 1973, 81.

emperor, formed a precarious constellation of divergent loyalties and political interests. To which extent do the archival documents endorse or disapprove of the picture drawn of this constellation (cf. King 1965)? And what can we learn from them in respect of the interrelation between central, provincial and local authorities for the period before the Taiping Rebellion (1851-1864)? Yet another focus concerns the role of the emperor. Although the Ministry of Revenue was in charge of all mint metal transports, extraordinary or emergency measures were often brought directly to the attention of the emperor in palace memorials, either by high provincial officials or officials of the central government. How did emperors respond to such memorials? Did any of the memorialised suggestions result in the modification of regulations? And to which extent was the Qing imperial state willing and able to adapt rules and regulations to local conditions and temporal circumstances?

1.5.3. The interaction between the Qing bureaucracy and the "private sector"

The study widens our prospects for understanding the Qing state's relationship with the "private sector", which in turn is of crucial importance to get a deeper insight into the state's presence and involvement in the everyday lives of the people. The said relationship was characterised by a growing tendency to shuffle administrative obligations to the local gentry and the ever-growing class of those successful candidates in the district and provincial examinations who had no chances of a career as officials as well as to non-governmental agencies such as guilds and merchant associations. The outcome was twofold: On one hand, the state's involvement in the expanding economy increased markedly, while on the other the articulation of commercial interests was being encouraged and facilitated. The mint metal procurement for Jiangsu and Zhejiang provides for a unique opportunity to study in detail the interaction between governmental authorities and individual merchants and merchant associations, the various models of cooperation and co-optation sponsored by the government, its successes and its failures, the negotiation of often divergent interests, the fault-lines of conflict as well as coercive measures applied by the government and merchant resistance.

1.6 Chaper overview

The following three chapters, chapter 2 to chapter 4, deal with the procurement and transport of copper from Yunnan and zinc, lead and tin from Hankou to the provincial mints of Jiangsu and Zhejiang. The next three chapters, chapter 5 to chapter 7, which investigate into the procurement and import of copper from Japan are followed by a conclusion of the study.

1.6.1 Procurement and transport of indigenous mint metals

In chapter two the normative and administrative framework for the procurement and transport of Chinese monetary metals will be dealt with in detail. We will attempt to follow the path of the monetary metals from the mines or the collecting stores to the mints of Jiangsu and Zhejiang and pay close attention to all regulations that had to be adhered to by the transport officials in charge.

Chapter three delves into the manifold problems and abusive practices connected with those transports. By comparing actual transport reports we hope to get a clearer picture of the dimension of dysfunctional factors in the procurement system and the organisational capability of the officials to deal with them.

Chapter four is concerned with the quantitative reconstruction of the transports of Yunnan copper, zinc, lead and tin from 1740 to 1850 to the mints of Jiangsu and Zhejiang. It is the first of altogether three quantitative inquieries.

1.6.2 Procurement and transport of Japanese copper

In chapter five the richly documented reform of the Sino-Japanese trade between 1736 and 1740 is studied in detail. This investigation sheds light on the problems and challenges the different agents involved in the procurement and transport of Japanese copper had to overcome. It further shows how the different provincial and central governmental interests and intentions were negotiated and consolidated. In other words it allows us to glimpse into imperial decision-making influenced by provincial and central governmental interventionist but also non-interventionist and pro-market tendencies.

The different forms of co-optation of and cooperation with merchants are described and analysed in the sixth chapter that also gives an account of the regulations for the Sino-Japanese trade.

The second quantitative analysis is carried out in chapter seven with the main objective to reconstruct the transport of Japanese copper to the provincial mints of Jiangsu and Zhejiang and to determine the role of the imported monetary metal for these mints.

Chapter eight finally concludes this study by summing up the results of our investigations and evaluating the organisational capability of the Qing bureaucracy in the procurement and transport of monetary metals to the mints of Jiangsu and Zhejiang in the eighteenth and nineteenth centuries.

Chapter 2: The normative and administrative framework of mint metal transports to the Jiangsu and Zhejiang mints

In this chapter I will describe in detail the organisation and the process of procuring copper from the mines in Yunnan and the mint metals zinc, tin, and lead from Hankou for the mints of the provinces of Jiangsu (*baosuju* 寶蘇局) and Zhejiang (*baozheju* 寶浙局). As it was the determined goal of the Ministry of Revenue to achieve uniformity in the transport regulations and the copper administration (*tongzheng* 銅政) I will pay close attention to deviations for Jiangsu and Zhejiang, not only concerning transport routes, but also transports funds and time limits, which are the topic of the next two sections. As copper procurement from Yunnan was a major challenge, the provinces had to appoint able and reliable officials. This will be dealt with in the last section of this chapter. In my investigation of the regulations for mint metal transports to Jiangsu and Zhejiang I will pay special attention to stage points (*zhan* 站). As a key element of the normative and administrative framework a *zhan* is the basis for a) the travel route b) the distance travelled within one day c) the time limits and finally d) the transport funds. Another characteristic of the copper procurement system that has to be dealt with is the addition of two different types of copper to the regular amount of copper (*zhengtong* 正銅): so-called *haotong* (耗銅) was added to compensate for quality deficiencies and in order to compensate for transport losses *yutong* (餘銅) was added.

2.1 The transport routes of mint metals for Jiangsu and Zhejiang

From the mid-eighteenth century to the latter part of the nineteenth the provinces of Jiangsu and Zhejiang and also Fujian, Guangdong, Guangxi, Hubei, Hunan, Jiangxi and Shaanxi altogether nine provinces procured copper from Yunnan and zinc, tin and lead at Hankou in Hubei for the minting of cash coins.[1] The Ministry of Revenue (*Hubu* 戶部) closely supervised and controlled these mint metal transports that traversed distances of more than 3000 km on land and water to the provincial mints. As mint metal supply was essential for a stable production of copper cash, it subjected the mint metal procurement system to careful and detailed normative guidelines, in order to guarantee the arrival of the needed amounts in time. These regulations and precedents (*zeli* 則例) were set up in the early Qianlong years and continued, with minor changes, until the disruption of copper production in the third quarter of the nineteenth century.[2]

As data on copper transports within Yunnan is relatively thin, this reconstruction of transport routes is mainly based on regulatory rather than archival sources. However, routine memorials provide us not only with some insights into the actual implementation of copper transports in Yunnan but also with additional regulations and revisions of regulations over time, not mentioned in the regulatory code.

[1] TZBL 7: 3a, p. 443; YNTZ 7: 3a, p. 272.
[2] Sun 1981: 131ff.

2.1.1 The travel route to Yunnan from Jiangsu and Zhejiang

All the officials from the different provinces, appointed to procure copper in Yunnan, received silver money for the purchase and the transport of copper and standard weights for rechecking in order to prevent weighing deficts and thereupon set out to the provincial capital of Yunnan at Yunnanfu.

The total distance of the journey from Hangzhou to Yunnanfu amounted to 6,070 *li*. The transport official proceeded via water and land along the following route[3]:

Table 1: The travel route from Hangzhou to Yunnanfu

Name of province	**Name of stage point**	**Name of stage point (Chinese)**	**Distance in *li***	**Type of transport**
Zhejiang	Provincial capital Hangzhou	杭州省城		
	District capital Changshan	常山縣	650	逆水
Jiangxi	District capital Yushan	玉山縣	80	陸路 (1 站)
	Shangrao	上饒	770	順水
	Geyang	戈陽		
	Guixi	貴溪		
	Anren	安仁		
	Yugan	餘干		
	Prefecture Nanchang	南昌府		
	Market town Luxi	蘆溪鎮	660	逆水
	District capital Pingxiang	萍鄉縣	60	陸路 (1 站)
Hunan	Prefecture capital Changde	常德府	900	順水
Guizhou	Prefecture capital Zhenyuan	鎮遠府	1,350	逆水
Yunnan	Provincial capital of Yunnan	雲南省成	1,600	陸路 (26 站)

The total distance of the journey from Suzhou to Yunnanfu amounted to 6,400 *li*. The transport official proceeded via water and land along the following route[4]:

[3] ZPZZ 1266-004, reel 61/7, QL 31/3/7, Xiong Xuepeng 熊學鵬; ZPZZ 1267-029, reel 61/7, QL 31/9/24, Xiong Xuepeng 熊學鵬; ZPZZ 1269-004, reel 61/8, QL 32/3/29, Wu Shaoshi 吳紹詩.

[4] ZPZZ 1267-018, reel 61/7, QL 31/8/28, Ming De 明德; ZPZZ 1269-004, reel 61/8, QL 32/3/29, Wu Shaoshi 吳紹詩.

Table 2: The travel route from Suzhou to Yunnanfu

Name of province	**Name of stage point**	**Name of stage point (Chinese)**	**Distance in *li***	**Type of transport**
Jiangsu	Suzhou	蘇州	400	平水 (順水)
	Wuxi	無錫		
	Yanghu	陽湖		
	Danyang	丹陽		
	Prefecture capital Zhenjiang (Dandou)	鎮江府 (丹徒)		
	Yizheng	儀徵	4,400	逆水
	Shangyuan	上元		
Anhui	Dangtu	當塗		
	Wuhu	蕪湖		
	Fanchang	繁昌		
	Tongling	銅陵		
	Guichi	貴池		
	Huaining	懷寧		
	Dongliu	東流		
Jiangxi	Pengze	彭澤		
Hubei	Hankou	漢口		
Hunan	Prefecture capital Changde at Lake Dongting	洞庭湖常德府		
Guizhou	Prefecture capital Zhenyuan	鎮遠府		
Yunnan	Provincial capital of Yunnan	雲南省成	1,600	陸路 (26 站)

Map 1: The travel route from Jiangsu and Zhejiang to Yunnan

2.1.2 The transport of copper from Yunnan to the mints of Jiangsu and Zhejiang

> Yunnan is not in itself a poor country, but it suffers from want of communications. The mountainous nature of the province makes the large rivers so full of rapids and boulders that they cannot be navigated, and the roads so difficult that quick land travelling is also impossible. There is no river in the interior of Yunnan that is of any practical use for boats, [….], while the roads are merely mountain paths fit for no transport but pack mules and ponies.[1]

At the beginning of the Qianlong reign (1736-1795) copper from Yunnan for the provincial mints, at least copper for Jiangsu and Zhejiang[2], was received at Yongning 永寧 and transported back to the mints from there. The transport routes of copper for the metropolitan and the provincial mints were separated afterwards, mainly to prevent delays of copper transports to the metropolitan mints due to pack animal shortage.[3] In 1739 Zhejiang had requested to be allowed to procure 600,000 *jin* of copper from Yunnan to meet its urgent minting needs. This request was granted but only hesitantly as it was feared that transports by the provinces would delay transports to the metropolitan mints due to the scarcity of pack animals.[4] When soon afterwards Fujian and Jiangsu also requested the amount of altogether 700,000 *jin* of Yunnanese copper the provincial government of Yunnan suggested to change the transport route for Fujian. Fujian was ordered to transport the 200,000 *jin* of copper via Bo'ai 剝隘 in Yunnan and Baise 百色 in Guangxi to its provincial mint. The copper transport of Jiangsu, however, still had to proceed via the same route as that of Zhejiang from Yongning onwards[5]

Shortly afterwards copper shipments for the metropolitan and provincial mints out of Yunnan were separated and followed two main routes. While copper for the metropolitan mints was still transported through northeastern Yunnan to Luzhou 瀘州 or Yongning and onwards to Beijing, all the copper for the provincial mints took a different route. These shipments followed an overland route from the mines to Bo'ai in southeastern Yunnan near the Guangxi border. From Bo'ai onwards, the convoys used waterways to the various provincial mints. There were, however, exceptions to this main route of provincial copper transports. Copper for the provincial mint of Shaanxi was apparently in some instances still transported via the Luzhou route.[6]

Copper transports for Jiangsu and Zhejiang proceeded on a fluvial route via the Xiyangjiang 西洋江, the Youjiang 右江 and the Xijiang 西江 to the Guijiang 桂江 and the Lijiang 灕江. The watershed between the Lijiang and the Xiangjiang 湘江 was crossed via the Lingqu 靈渠, the Magic Canal. From here, the boats followed the Xiangjiang

[1] Davies 1909: 2.
[2] NGHKTB 1.7/1, QL 5/12/21, Xu Shilin 徐士林.
[3] NGHKTB 1.7/4, QL 6/3/9, Xu Shilin 徐士林.
[4] ZPZZ 1230-007, reel 60/5, QL 4/12/13, Lu Chao 盧焯; ZPZZ 1230-009, reel 60/5, QL 5/1/12, Neqin and others 訥親等; ZPZZ 1230-019, reel 60/5, QL 5/3/25, Qing Fu and others 慶復等; NGHKTB 1.6/1 QL 5/閏6/9, Lu Chao 盧焯: 運別省銅斤, 駄脚勢必不敷, 恐致有誤京局鼓鑄.
[5] ZPZZ 1231-005, reel 60/6, QL 5/6/11, Qing Fu and others 慶復等.
[6] GX-HDSL vol. 10, 219: 2a, p. 8002; JQ-HDSL 175: 22b.

downriver to Lake Dongting 洞庭湖 and the Middle Yangzi. They then travelled down the great river to the Grand Canal at Zhenjiang, where they turned south into the canal to Suzhou or further on to Hangzhou.

2.1.2.1 The transport route from the mines to Bo'ai

The modus operandi for provincial copper procurement (*caimai* 採買) from mines to the north of Yunnanfu (*shangyou* 上游) was different from that of mines to the south of the capital (*xiayou*下游). Whereas copper from the mines southwards of Yunnanfu had to be picked up at directly at the mine and transport funds had to be provided by the home province, copper from mines northwards to Yunnanfu was directly picked up there or at the governmental copper stores at Xiaguan 下關 and Xundian 尋甸 and transport funds had to be provided by Yunnan province.

Table 3: Yunnan mints supplying provincial mints

Name of mine	**Purity of copper in percent**	**Opening Date**	**Mints of destination**	**Location**
Baiyang[7]	73	1770 (QL 35)	Yunnan, Provinces	Department Yunlong 雲龍
Dagong[8]	90	1773 (QL 38)	Metropolitan, Provinces	Department Yunlong 雲龍
Debaoping[9]	86	1793 (QL 58)	Metropolitan, Yunnan, Provinces	Subprefecture Yongbei 永北廳/永北同知
Huilong[10]	82	1777 (QL 42)	Yunnan, Provinces	Prefecture Lijiang 麗江府
Ningtai[11]	crabshell-copper (*xieke* 蟹殼) 85	1744 (QL 9)	Metropolitan	Prefecture Shunning 順寧府
	decocted copper [12] (*jingjian* 淨煎) 83		Yunnan, Provinces	
Dashuigou[13]	93	unknown	Yunnan, Provinces	District Huize 會澤縣

[7] TZBL 2: 19a-20a, pp. 121-123 and YNTZ2: 18a-19b, pp. 69-71.
[8] TZBL 1: 16a-17a, pp. 31-33; YNTZ 1: 10a-11b, pp. 19-21.
[9] TZBL 1: 14a-15a, p. 27-29; YNTZ 1: 8a-9a, p. 17f.
[10] TZBL 2: 17a-18a, pp. 117-119; YNTZ 2: 16a-17a, pp. 67f.
[11] TZBL 1:9b-12a, pp. 18-23; YNTZ 1: 3a-6b, pp. 12-16.
[12] Apparently a different designation for purple slab-copper (*zibantong* 紫板銅), as the smelters of the mine Ningtai produced only two types of copper: purple slab-copper and crabshell-copper (*xieketong* 蟹殼銅). TZBL 1: 9b-11b, p. 18-22 and YNTZ 1: 3a-6b, p. 12-16.
[13] TZBL 1: 27a-28a, pp. 53-55; YNTZ 1: 25a-26b, pp. 34-36.

Luoluo[14]	93	unknown	Yunnan, Provinces	District Huize 會澤縣
Tangdan[15]	93	unknown	Metropolitan, Yunnan, Provinces[16]	District Huize 會澤縣
Xiangshupo[17]	90	1744 (QL 9)	Metropolitan	Department Nan'an 南安州
	Purple slab-copper 81-85[18]		Yunnan, Provinces	
Duona[19]	高低銅	---	Provinces	Department Xundian 尋甸州
Damei[20]	83	1763 (QL 28)	Yunnan, Provinces	District Luoci 羅次縣
Malong[21]	81-85	1729 (YZ 7)	Yunnan, Provinces	Department Nan'an 南安州
Shiziwei[22]	82	1773 (QL 38)	Yunnan, Provinces[23]	District Luquan 祿勸縣
Zhaiziqing[24]	81-85	1771 (QL 36)	Yunnan, Provinces	Department Nan'an 南安州
Yidu[25]	[Purple] slab-copper 83[26]	1758 (QL 23)	Yunnan, Provinces	Boundary of Districts Yimen 易門縣 and Xi'e 嵇峨縣
Wanbao[27]	80	1771 (QL 36)	Yunnan,	District Yimen 易

[14] TZBL 1: 24a-25b, pp. 47-50; YNTZ 1: 21a-23a, pp. 30-32.
[15] TZBL 1: 20b-22b, pp. 40-44; YNTZ 1: 17a-19a, pp. 26-28.
[16] The YNTZ states that only Jiangsu or Jiangxi and Hubei or Hunan (*Jiang Chu dengsheng* 江楚等省) procured copper from that mine. It is, however, evident from archival materials, that also Guangdong, and most probably other provinces as well, received copper from Tangdan. NGHKTB 2.11/7, QL 14/7/18, Yue Jun 岳濬.
[17] TZBL 1: 18a-19b, pp. 35-38; YNTZ 1: 13a-15a, pp. 22-24.
[18] The purple slab-copper (*zibantong* 紫板銅) of this mine was received by the mints of Yunnan and those of the other provinces. TZBL 1. 18a, p. 35.
[19] NGHKTB 2.3/1, QL 10/4/28, Chang An 常安. This mine does not occur in the TZBL and the YNTZ. The mine was already closed in 1740 (QL 10).
[20] TZBL 2: 32a-33a, pp. 147-149; YNTZ 2: 31a-32b, pp. 82-84.
[21] TZBL 2: 21a-22a, pp. 125-127; YNTZ 2: 20a-21a, pp. 71f.
[22] TZBL 2: 34a-35a, pp. 151-153; YNTZ 2: 33a-34a, pp.84f.
[23] Provincial purchase of copper from this mine is only confirmed by the YNTZ.
[24] TZBL 2:23a-24a, pp. 129-131; YNTZ 2: 22a-23a, pp. 73f.
[25] TZBL 2: 26a-27a, pp. 135-137; YNTZ 2: 25a-26b, pp. 76-78.
[26] [Zi]bantong ([紫]板銅). HBGZZL 3: 32a, p. 75.
[27] TZBL 2: 30a-31a, pp. 143-145; YNTZ 2: 27a-28a, pp. 78f.

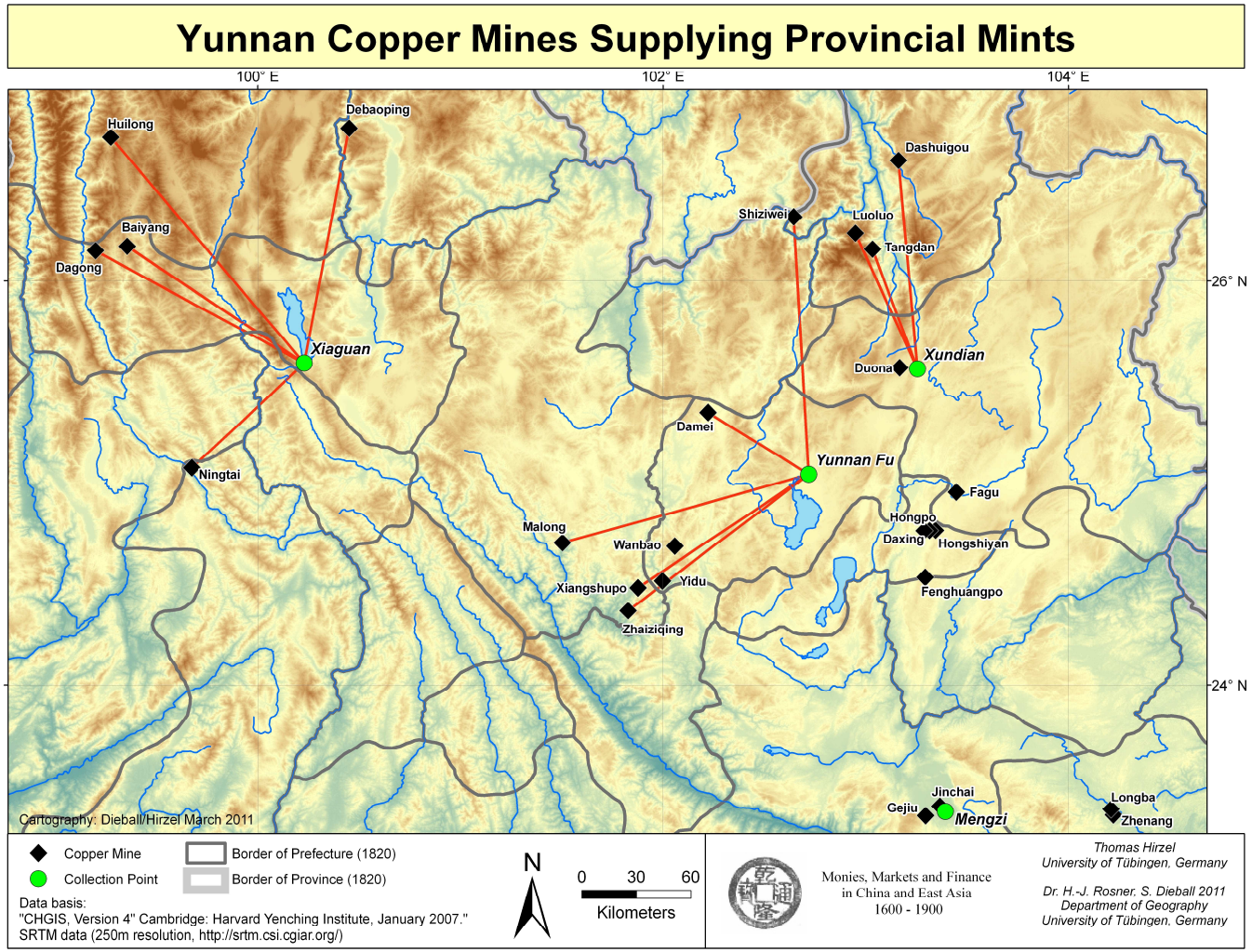
			Provinces	門縣
Fenghuangpo[28]	80	1741 (QL 6)	Metropolitan, Yunnan, Provinces	Department Lu'nan 路南州
Hongshiyan[29]	80	1741 (QL 6)	Metropolitan, Yunnan, Provinces	Department Lu'nan 路南州
Daxing[30]	83	1758 (QL 23)	Metropolitan, Yunnan, Provinces	Department Lu'nan 路南州
Fagu[31]	83	1771 (QL 36)	Metropolitan, Yunnan, Provinces	Department Xundian 尋甸州
Hongpo[32]	83	1770 (QL 35)	Metropolitan, Yunnan, Provinces	Department Lu'nan 路南州
Jinchai[33]	70	unknown	1740 (QL 5): Yunnan, Provinces 1783 (QL 48): Provinces	District Mengzi蒙自縣

[28] TZBL 2: 1a-2b, pp. 85-88; YNTZ 2: 1a-2b, pp. 52-54.
[29] TZBL 2: 3a-4b, pp. 89-92; YNTZ 2:3a-4b, pp. 54-56.
[30] TZBL 2: 5a-6b, pp. 93-96; YNTZ 2: 5a-6b, pp. 56-57.
[31] TZBL 2:9a-10b, pp. 101-104; YNTZ 2: 9a-10b, pp. 60-62.
[32] TZBL 2: 7a-8a, 97-99; YNTZ 2: 7a-8a, pp. 58f.
[33] TZBL 2: 42a-43b, pp. 167-170.

Longba[34]	80	1768 (QL 33)	Provinces	District Wenshan 文山縣
Zhe'nang[35]	80	1730 (YZ 8)	Provinces	District Wenshan 文山縣

[34] TZBL 2: 38a-39a, pp. 159-161; YNTZ 2: 37a- 38a, pp. 88f.
[35] TZBL 2: 40a-41a, pp. 163-165; YNTZ 2: 39a- 40a, pp. 90f.

Map 2: Yunnan copper mines supplying provincial mints



Copper from the distant mines Baiyang, Dagong, Debaoping, Huilong and Ningtai to the northwest of Yunnanfu was received at the governmental copper store at Xiaguan.[1] Copper from the mines Tangdan, Xiangshupo, Luoluo and Dashuigou to the northeast of Yunnanfu was received at the governmental copper store at Xundian. Mining officials of small mines, like Damei, Shiziwei, Zhaizijing, in the vicinity of the capital with a low output transported the copper to Yunnanfu where it was purchased by the provinces.[2] Copper from the mines to the south of Yunnanfu was transported directly to Bo'ai with the exception of copper from the mines Gejiu, Wanbao and Yidu. Copper from the mines Gejiu and Yidu, and probably also from Wanbao, was received as purple-slab copper which had to be re-melted into crab-shell copper at Yunnanfu in order to facilitate transport and prevent major transport losses. From Yunnanfu and Xundian the copper was transported to Zhuyuancun 竹園村. The distance from Yunnanfu to Zhuyuancun along 8 stage points amounted to a total of 430 *li* and 60 to 70 *li* for each day stage.[3] The distance from Xundian to Zhuyuancun was only 7 stage points. Thereupon the copper was forwarded along 16 stage points from Zhuyuancun to Bo'ai over a distance of 1,005 *li*.[4]

a) From the mines Baiyang, Dagong, Debaoping, Huilong and Ningtai to Bo'ai

Copper from the mines Baiyang 白羊[5], Dagong 大功[6], Debaoping 得寶坪[7], Huilong 廻龍[8] and Ningtai 寧台[9] for provincial minting purposes was received from the governmental copper store at Xiaguan 下關店. The route from Xiaguan in the prefecture of Dali to the provincial capital Yunnanfu was walked and described by H. R. Davies in 1899.[10] The 12.5[11] stages (*zhan* 站) of this transport route are as follows[12]:

[1] The two mines Deshengpo 得勝坡 and Rijianxun 日見汛 are not mentioned in the TZBL, YNTZ and the DNKCGQTL. GX-HDSL vol. 10, 218: 12b, p. 7995; JQ-HDSL 175: 12a+b.
[2] GX-HDSL vol. 10, 218: 12a, p. 7995; JQ-HDSL 175: 12a.
[3] ZPZZ 1267-014, reel 61/7, QL 31/8/10; Yang Yingju and others 楊應琚等.
[4] HBGZZL 3: 32b, p. 75 and 3: 25b, p. 72; ZPZZ 1267-014, reel 61/7, QL 31/8/10; Yang Yingju and others 楊應琚等.
[5] TZBL 2: 19b, p. 122; YNTZ 2: 19a, p. 70.
[6] The regulations for provincial procurement of copper from the mine Dagong as depicted in the TZBL (TZBL 1: 17a, p. 33) are misleading. They suggest that copper from that mine had to be transported from the mine to Xiaguan. For a clearer picture see: YNTZ 1: 11b, p. 21.
[7] TZBL 1: 15a, p. 29; YNTZ 1: 9a, p. 18.
[8] TZBL 2: 17b, p. 118; YNTZ 2: 17a, p. 68.
[9] TZBL 1: 11b, p. 22; YNTZ 1: 6b, p. 16.
[10] Davies 1909, 149–156.
[11] From Xiaguan to Zhaozhou city it was only half a [day]stage.
[12] TZBL 1: 12a, p. 23, YNTZ 1: 6a+b, p. 15f.

Table 4: Transport route Xiaguan to Yunnanfu

Name of stage point	Name of stage (Chinese)	Variant name of stage	Distance in miles (Davies)[13]	Elevation in feet (Davies)[14]
Xiaguan	下關			6700
Department capital Zhao	趙州城		23,5[15]	6750
Hongya	紅崖	Baiya 白崖[16]	16.5	5950
Post station Yunnan	雲南驛		39	
Pupeng	普淜			7125
Shaqiao	沙橋		52	
Lühe	呂河	Lühe 呂合[17]		
Prefect capital Chuxiong	楚雄府城			6150
District capital Guangtong	廣通縣城		19	6300
Shezi	捨資		13	6100
District capital Lufeng	祿豐縣城		44	
Laoyaguan	老鴉關			
Department capital Anning	安寧州城			6300
Provincial capital	雲南省城		19,25	6400

b) From the mines Dashuigou, Luoluo, Tangdan and Xiangshupo to Bo'ai

Copper from the mines Dashuigou 大水溝[18], Luoluo 碌碌[19], Tangdan 湯丹[20] and Xiangshupo 香樹坡[21] for provincial minting was received from the governmental copper

[13] Davies 1909. 406.
[14] Davies 1909. 406.
[15] This distance is somehow unclear as Davies talks about leaving Dali and, passing through Xiaguan, reaching Zhaozhou. The distances, however, are given from Xiaguan to Dali and from Dali to Zhaozhou. Davies 1909, 406.
[16] According to the YNTZ this stage point was called Baiya 白崖, not Hongya. YNTZ 1: 6a, p. 15. According to Davies, Hongya, or Hung-ai as he calls it, was formerly called Baiya (Pai-ai) and is celebrated in the ancient history of Yunnan as the capital of one of the old kingdoms destroyed by Pi-lo-ko in 749 A.D. When he visited it in March 1899 it was a large market village populated by a purely Chinese population. Davies 1909, 149.
[17] YNTZ 1, 6a, p. 15.
[18] TZBL 1: 27a-28a, pp. 53-55; YNTZ 1: 25a-26b, pp. 34-36.
[19] TZBL 1: 24a-25b, pp. 47-50; YNTZ 1: 21a-23a, pp. 30-32.
[20] NGHKTB 2.11/7, QL 14/7/18, Yue Jun 岳濬 . (TZBL 1: 20b-22b, pp. 40-44; YNTZ 1: 17a-19a, pp. 26-28.)
[21] The provinces received copper from this mine in the form of purple-slab copper. Although not specified in the regulatory code, they had probably transport it to Yunnanfu first and re-melt there into crab-shell copper, like the copper from Yidu, and only then they forwarded it to Bo'ai. TZBL 1: 18a-19b, pp. 35-38; YNTZ 1: 13a-15a, pp. 22-24.

store at Xundian (*Xundiandian* 尋甸店).[22] With the exception of copper from Xiangshupo, from Xundian the copper was transported 7 stages to Zhuyuancun and the further on to Bo'ai.[23]

c) From the mine Duona to Bo'ai

This mine does only occur in archival sources. According to a routine memorial in 1745 (QL 10) copper was received directly at the mine and transported along 12 stages via the departmental capital of Xundian to Zhuyuancun.[24]

d) From the mines Damei, Malong, Shiziwei and Zhaiziqing to Bo'ai

Copper from the mines Damei 大美[25], Malong 馬龍[26], Shiziwei 獅子尾[27] and Zhaiziqing 寨子箐[28], for provincial minting purposes, was to be received at the storehouses of Yunnanfu (*Yunnanfucang* 雲南府倉). From there the provincial transport officials forwarded it to Bo'ai via Zhuyuancun.

e) From the Yidu mine to Bo'ai

Copper from the Yidu 義都 mine for provincial minting purposes, was to be received directly at the mine.[29] Like the copper from the mine Gejiu below, copper from this mine was received in the form of purple-slabs, which had to be transported to Yunnanfu and re-melted into crab-shell copper.[30] From the mine to Yunnanfu the transport proceeded along the following 6 stages[31] :

[22] Although there are no regulations that copper from those mines were received at the Xundian store there is documentary evidence in case of Tangdan. It is also most likely in case of the other mines as copper from these mines was transported to Xundian. It is nowhere indicated that provincial transport officials went directly to these mines.

[23] GX-HDSL vol. 10, 218: 5b, p. 7992.; JQ-HDSL 175: 5b; NGHKTB 2.11/7, QL 14/7/18, Yue Jun 岳濬.

[24] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.

[25] TZBL 2: 32b, p. 148; YNTZ 2: 32a+b, pp. 83f.

[26] TZBL 2: 21b, p. 126; YNTZ 2: 21a, p. 72.

[27] YNTZ 2: 33b, p.85. In contrast to the YNTZ the TZBL does not indicate provincial purchases of copper from this mine.

[28] TZBL 2:23b, p. 130; YNTZ 2: 23a, p. 73.

[29] TZBL 2: 26b, p. 136; YNTZ 2: 26b, p. 78.

[30] HBGZZL 3: 32a, p. 75.

[31] TZBL 2: 27a, p. 137 and 7: 2b, p. 442; YNTZ 2: 26a, p. 77; HBGZZL 3: 32a, p. 75.

Table 5: Transport route from Yidu mine to Yunnanfu

Name of stage point	Name of stage point (Chinese)	Distance total to
Yidu mine	義都廠	
Xindianfang	新店方	
Dashanjiao	大山腳	
Erjie	二街	
Jiudu village	九渡村	
Hunshuitang	混水塘	
Provincial capital [Yunnanfu]	省城	

f) From the Wanbao mine to Bo'ai

Copper from the Wanbao mine (萬寶廠) for provincial minting purposes, was to be received directly at the mine.[32] From there the provincial transport officials had to transport it the following 6 stages (*zhan* 站) to Yunnanfu[33] :

Table 6: Transport route from Wanbao mine to Yunnanfu

Name of stage point	Name of stage point (Chinese)
Wanbao mine	萬寶廠
Yongjingshao	永靖哨
Dashao	大哨
Sanjiadian	三家店
Caopu	草舖
Dushupu	讀書舖
Provincial capital [Yunnanfu]	省城

g) From the mines Fenghuangpo und Hongshiyan to Bo'ai

Provincial transport officials received copper from the mines Fenghuangpo (鳳凰坡廠)[34] und Hongshiyan (紅石岩廠)[35] directly at the mine.[36] Copper from these two mines for the local mint in Yunnanfu was transported on a route with only three day stages between Yunnanfu

[32] TZBL 2: 30b, p. 144; YNTZ 2: 28a, p. 79.
[33] TZBL 2: 31a, 145 and 7: 2b, p. 442; YNTZ 2: 27b, p. 79.
[34] TZBL 2: 2a, p. 87; YNTZ 2: 2b, p. 54.
[35] TZBL 2: 3b+4a, pp. 90f.; YNTZ 2:3a-4b, pp. 54-56.
[36] TZBL 2: 2a, p. 87; 2: 3b, p. 90; YNTZ 2:2b, p. 54; 2: 6b, p. 58.

and the mines.[37] Although this route apparently was the fastest way to get from Yunnanfu to the mines, the transport officials of the outward provinces reached these two mines from Yunnanfu via Zhuyuancun (竹園村). Although the stretch between Zhuyuancun was only two day stages, which are not detailed in the regulations, the total route from Yunnanfu to these mines encompassed as much as 10 day stages.[38] Accordingly, transport officials from the nine provinces needed seven days more to reach the mines Fenghuangpo und Hongshiyan than Yunnan's transport officials. A possible explanation for this long way round could be the availability of pack animals. As Zhuyuancun was a main stage point on the way to Bo'ai, mules should have been more readily available than in Yunnanfu, in particular because the onward transport from Zhuyuancun to Bo'ai was carried out not with mules but with oxen.[39]

h) From the mines Daxing, Fagu and Hongpo to Bo'ai

Copper from mines Daxing (大興廠)[40], Fagu (發古廠)[41]and Hongpo (紅坡廠)[42] for provincial minting purposes, was to be received directly at the mine. From there the transport officials transported it to Zhuyuancun. The distance from the mines Daxing and Hongpo to Zhuyuancun amounted to 3 stages and from the mine Fagu to Zhuyuancun 15 stages. The stage points, however, are not detailed in the regulatory sources.[43]

i) From the Gejiu mine (個舊廠) to Bo'ai (剝隘)

Whether copper from the mine Gejiu was received directly at the mine or at the governmental copper store at Mengzi was not laid down in the regulatory code. As this mine produced mainly tin, which was used by Yunnan province for provincial minting, it does not occur in the TZBL and the YNTZ but only in the YNKCGGTL.[44] Like the copper from the mine Yidu, copper from this mine was received in the form of purple-slabs, which had to be transported to Yunnanfu and re-melted into crab-shell copper.[45]

j) From the mines Jinchai, Longba and Zhe'nang to Bo'ai

Copper from the Jinchai mine was transported by the mining official to the governmental copper store (*xiandian* 縣店) in the district capital Mengzi 蒙自. From there it was transported over 17 stages to Bo'ai, a distance of 1070 *li*.[46] Copper from the mines Zhe'nang

[37] TZBL 2: 2a+b, p. 87f; 2: 3b+4b, 90+92.
[38] TZBL 7: 3a, p. 443.
[39] TZBL 7: 3a, p. 443.
[40] TZBL 2: 5b, p. 94; YNTZ 2: 6b, p. 58.
[41] TZBL 2: 9b, pp. 102; YNTZ 2: 10a+b, pp. 61f.
[42] TZBL 2: 8a, p. 99; YNTZ 2: 8a, p. 59.
[43] TZBL 7: 3a+b, pp. 443f; YNTZ 7:3a-4a, pp. 272f.
[44] DNKCGGTL 2: 22a, p. 83; GX-HDSL vol. 10, 218: 2a, p. 7990; JQ-HDSL 175: 2a.
[45] HBGZZL 3: 32a, p. 75.
[46] ZPZZ 1267-014, reel 61/7, QL 31/8/10; Yang Yingju and others 楊應琚等.

(者囊廠) and Longba (龍岜廠) in the district Wenshan 文山 in the prefecture of Kaihua 開化 was received directly at the mines. From the mines it had to be transported to the prefectural capital Kaihua and then further on to Bo'ai. The 17 day stages from the mines Zhe'nang and Jinchai and the 15 day stages from Longba mine to Bo'ai are as follows: [47]

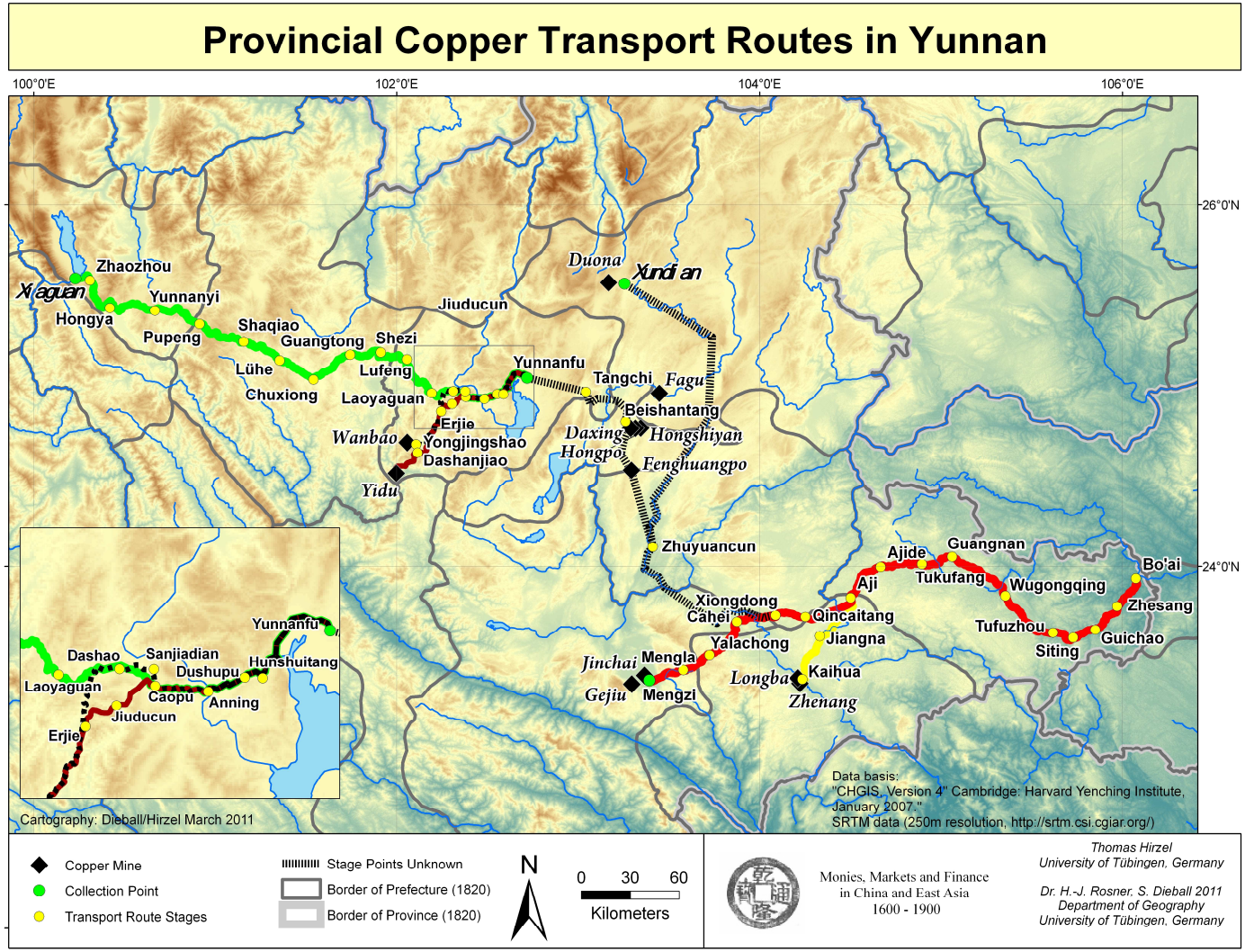
Table 7: Transport route from the Zhe'nang mine, Longba mine and Gejiu to Bo'ai

Zhenang mine (者囊廠)		Governmental copper store in the district capital Mengzi (蒙自縣店)[48]
Dongyou (東由)		Mengla (猛拉)
Anle (安樂)	Longba mine (龍岜廠)	Yalachong (呀拉冲)
Xiban (錫板)	Xinpu (薪舖)	Cahei (擦黑)
Prefectural capital Kaihua (開化府城)		Xiongdong in the department Ami (阿迷州屬熊洞)
Jiangna (江那)		Qincaitang in the district Wenshan (文山縣屬芹菜塘)
Aji (阿雞/鷄)		
Ajide (阿記得)		
Tukufang (土庫房)		
Prefecture capital Guangnan (廣南府城)		
Gaojiancao (高梘槽)		
Wugongqing (蜈蚣箐)		
Xiangshui (响水)		
Departement capital Tufu (土富州)		
Siting (泗亭)		
Guichao (皈朝)		
Zhesang (者桑)		
Bo'ai (剝隘)		

[47] Zhe'nang: TZBL 2: 40a-41a, pp. 163-165; YNTZ 2: 39a- 40a, pp. 90f. Jinchai: TZBL 2: 42a-b, p. 167-168; YNTZ 2: 42b- 43a, p. 94; HBGZZL 3: 32b, p. 75 and 3: 25b, p. 72; GX-HDSL vol. 10, 218: 5b, p. 7992.; JQ-HDSL 175: 5b. Longba: TZBL 2: 38a-39a, pp. 159-161; YNTZ 2: 37a- 38a, pp. 88f.

[48] The author of the TZBL here mistakenly gives the mine Jinchai (Jinchai*chang* 金釵廠) as place of departure. TZBL 2: 43a, p. 169.

Map 3: Provincial copper transport routes in Yunnan



2.1.2.2 The transport route from Bo'ai to the mints

As there were no navigable rivers, through Yunnan province, the copper was transported overland on carts and by pack animals, but from Bo'ai at the Guangxi border by boat. Morse indicates that the Xijiang and his tributaries constituted the most important east-west connection in southern China:

> The West River [Xijiang] route from Canton commands the whole of the trade of Kwangsi, and penetrates into Yunnan and Kweichow. At Wuchow the Cassia River [Guijiang] provides a water-way, interrupted by rapids but navigable by small boats, to the provincial capital, Kweilin. Farther up [the West River], at Tamchow, the route again divides […]. The southern of the two branches at Tamchow continues the name of the West River until, some 30 miles above Nanning, it divides into the Left Branch […], and the Right Branch [Youjiang] leading north-west to Poseh [Baise]: to this point boats of 25 tons deadweight capacity can safely pass the rapids. From Poseh runs the main trade route for traffic by pack-animal into western and central Yunnan.[1]

Contrary to the description by Morse, copper transports between Baise and Bo'ai during the Qianlong, Jiaging and Daoguang reign periods (1736-1850) were still carried out on waterway and not by pack-animals. There is abundant documentary evidence that between 1736 and 1850 this waterway was still navigable and copper for provincial minting was loaded on board of ships at the freight dock of Bo'ai (Bo'ai *shuici* 剝隘水次).[2] Yet the waterway between Bo'ai and Baise was only navigable by very small boats. In 1771 (QL 36) Guangdong transported an amount of 118,000 *jin* of copper on 20 small ships (*muxiaochuan* 木小船), which on an average amounts to a cargo of only 5,900 *jin* of copper per ship.[3]

For this part of the journey the administrative regulations provide no specific information on how boats were hired, on work conditions of the crews, on navigation technologies or on anchoring places. As can be seen from the map below, the regulatory sources only tell us that from Bo'ai onwards the shipments proceeded via Guilin and Hankou to Suzhou or Hangzhou. However, we can obtain more specific detail from memorials that report the stages of the transport route and describe problems, crises or difficulties. The problems, crises and difficulties will be dealt with in the next chapter.

On the basis of archival materials we have identified and mapped the following stages of the transport route in addition to the four mentioned in the regulatory code.

[1] Morse 1975: 304.
[2] GX-HDSL 219:1b, p. 8001; JQ-HDSL 175: 22a.
[3] ZPZZ 1282-023, reel 61/15, QL 37/1/19, Li Shiyao and others 李侍堯等.

Table 8: Transport route from Guangxi to Jiangsu and Zhejiang[4]

Name of province	**Name of stage point**	**Name of stage point (Chinese)**	**Distance in *li***
Guangxi	Baise	百色	750
	Tianzhou	田州	
	Shanglin	上林	
	Department capital Guohua	果化州	
	Long'an	隆安	
	District capital Xuanhua (also capital of prefecture Nanning)	宣化縣 (南寧府)	2,050
	Yongchun	永淳	
	Huangzhou	黃州	
	Guixian	貴縣	
	Guiping	桂平	
	Pingnan	平南	
	Tengxian	藤縣	
	District capital Cangwu	蒼梧縣	
	Zhaoping	昭平	
	Pingle	平樂	
	Yangshuo	陽朔	
	District capital Lingui (also capital of prefecture Guilin)	臨桂縣 (桂林府)	1,700
	Lingchuan	靈川	
	Xing'an	興安	
	Quanzhou	全州	
Hunan	District Dong'an	東安縣境	
	District capital Lingling	零陵縣	
	Baoluo rapid	報鑼灘	
	District capital Qiyang	祁陽縣	
	District capital Qingquan	清泉縣	
	District capital Hengyang	衡陽縣	
	District capital Hengshan	衡山縣	
	District capital Xiangtan	湘潭縣	1,000+
	Guansheng temple	關聖殿	

[4] GZDQL, vol. 52, pp. 507f; GZDQL, vol. 33, pp. 354f; GZDQL, vol. 53, pp. 132f and vol. 33, pp. 354f.; GZDQL, vol. 53, pp. 132f; GZDQL, vol. 53, p. 496; ZPZZ 1266-004, reel 61/7, QL 31/3/7, Xiong Xuepeng 熊學鵬; ZPZZ 1266-012, reel 61/7, QL 31/3/22, Ming Shan 明山; ZPZZ 1266-008, reel 61/7, QL 31/3/13, Ming De 明德; ZPZZ 1269-004, reel 61/8, QL 32/3/29, Wu Shaoshi 吳紹詩; ZPZZ 1309-007, reel 62/9, QL 45/2/13, Li Hu 李湖; GZD 39-567, QL 42/8/1, Yan Xishen 顏希深.

	Xingmazhou	興馬洲	
	Bajiao (Banana) rapid	芭蕉灘	
	Guanyin port	觀音港	
	District capital Shanhua	善化縣	
	District capital Changsha (Provincial capital Changsha)	長沙縣 (長沙省城)	
	Jinzi river bend in the district Changsha	長沙縣境金紫灣	
	Tuxin port in Wulong mouth in the district Xiangyin	湘陰縣境烏龍嘴土心港	
	Lulin pond	蘆林潭	
	Qinqiwang	琴棋望	
	Hulong (fiery dragon) rapid	火龍灘	
	District Baling	巴陵縣境	
	Chengling jetty in the district Baling	巴陵縣城陵磯	
	Xindi (New dike)	新堤	
	Longkou	龍口	
	Shitou jetty	石頭磯	
	Guhuazhou	谷花洲	
Hubei	District capital Jiayu	嘉魚縣	
	Market town Hankou (Hanyang)	漢口鎮 (漢陽)	2,160
	Huanggang	黃岡	
	Qishui	蘄水	
	Dazhi	大治	
	Qizhou	蘄州	
	Guangji	廣濟	
Jiangxi	District Dehua in Jiujiang prefecture	九江府德化縣境	
	Longkaihe	龍開河	
	Xingang	新港	
	Yangjiazhou	楊家洲	
	District capital Pengze	彭澤縣	
	Market town Huayang	華陽鎮	
Anhui	District Dongliu	東流縣境	
	District Dangtu	當塗縣境	
Jiangsu	District capital Jiangning	江寧縣	
	Provincial capital Suzhou	蘇州省城	400
Zhejiang	Provincial capital Hangzhou	杭州省城	

Map 4: Transport route from Yunnan to the mints of Jiangsu and Zhejiang

According to archival material boats had to be changed at Baise 百色, at the district capital Xuanhua 宣化縣 in the prefecture Nanning 南寧府, at the district capital Lingui 臨桂縣 in the prefecture Guilin 桂林府, at the district capital Xiangtan 湘潭縣, and at Hankou 漢口. For the stretch between Wuzhou 梧州 (in the map Cangwu xian 蒼梧縣) and Guilin boat trackers (*qianfu* 縴夫) had to be hired. For the transport of some 392,000 *jin* of copper along this stretch in 1758 (QL 23) Hubei province spent 330+ *tael* to pay these boat trackers.[1]
Thus, while the scanty information on the riverine route of the copper transports from Bo'ai in Yunnan to the provincial mints of Jiangsu and Zhejiang in the regulatory texts would not allow a meaningful reconstruction, additional information from the memorials allows the route to be defined with some security. The map below shows the reconstructed route to Suzhou and Hangzhou.

2.1.3 The transport routes of lead, zinc and tin from Hankou to the mints of Jiangsu and Zhejiang

Whereas after 1727 (YZ 5) zinc for provincial minting was received from Guizhou province at Yongning (永寧)[2], from 1746 (QL 11) onwards, after Guizhou had established a zinc office at Hankou, the transport officials had to proceed to Hankou and collect the zinc there.[3]

The transport officials of Jiangsu procured zinc (*baiqian* 白鉛) in the governmental store (*guanju* 官局) at Hankou. Porters were hired to carry the zinc on a carrying-pole from the office to the boats. According to a transport report on shipwrecked zinc it was transported in lumps each weighing 27.5 *jin*.[4]

Lead (*heiqian* 黑鉛) and tin (*dianxi* 點錫) were also procured at Hankou, but these metals were purchased from merchants.[5] On hired boats the officials shipped the procured lead, zinc and tin to Yizheng 儀徵 in Jiangsu, reportedly a distance of about 900 km (1550 li).[6] In Yizheng the mint metals were transhipped into newly hired ships bound for the provincial capital Suzhou, according to the regulations a distance of about 290 km (500 li). Upon arrival, the load was lightered from outside the city gate Changmen 閶門 into the city of Suzhou and finally carried to the mint on carrying-poles.[7]

The province of Zhejiang also procured zinc and lead at Hankou[8], tin, however, was purchased in its capital at Hangzhou. In contrast to the quite detailed regulations for Jiangsu described above, those for Zhejiang only mention the overall funds for the transport of zinc and lead from Hankou to the mint of Zhejiang and the point of departure, namely the governmental store (*guanju* 官局). The tin, purchased at Hangzhou, was transported on waterways to the mint.[9]

[1] NGHKTB 4.9/8, QL 24/10/26, Fu Heng 傅恒.
[2] GX-HDSL vol. 10, 218: 1a, p. 7990.; JQ-HDSL 175: 1a.
[3] GX-HDSL vol. 10, 218: 2b, p. 7990.; JQ-HDSL 175: 2b.
[4] ZPZZ 1306-020, reel 62/8, QL 44/10/17, Tai Xiongfei 泰雄飛.
[5] GX-HDSL vol. 10, 218: 5b, p. 7992.; JQ-HDSL 175: 5b.
[6] One li (里) is equivalent to 576 meters.
[7] HBGZZL 3: 33b-34b, p. 76.
[8] GX-HDSL vol. 10, 218: 5b, p. 7992.; JQ-HDSL 175: 5b.
[9] In this section in the Hubu guzhu zeli the designation for tin is *diantong* (點銅). HBGZZL 3: 26b+27b, p. 72f; GX-HDSL vol. 10, 218: 2a, p. 7990; JQ-HDSL 175: 2a.

2.2 Funds for transport of mint metals

2.2.1 The allocation of funds for the transport of copper from Yunnan to the mints

Each time, a copper transport was performed, Yunnan and the respective province, had determined the mines, from which copper was to be procured, beforehand.[10] This was indispensible as the transport official had to be provided with a sufficient amount of silver money, not only for the purchase but also for the transport of the copper by his home province. It was all the more important to take along enough funds, as the Ministry of Revenue urged Yunnan province not to lend any transport funds to the provinces.[11] In 1781 (QL 46) this regulation was revised and from then on the transport official could receive funds in case his funds did not suffice, e.g. in case of shipwrecks.[12] Yet, the loan, given to the provinces to cover transport funds, was not to exceed the amount of 2000 *tael* silver.[13] Apparently the transport fund-matter was a constant cause for trouble because it was revised over and over again. The new regulation set up in 1798 (JQ 3) was as follows: In the communication, sent to Yunnan by the home province at the departure of the transport official[14], the full amount of funds for the transport given to the transport official has to be stated in detail. Thereupon there were three different procedural manners[15]:

1. If Yunnan handed over the copper to the transport official within the time limit no transport funds should be lent.

2. If the handover of the copper by Yunnan province had taken place within the time limit and the transport funds did not suffice because the home province had not provided sufficient silver money, funds were lent in accordance with the regulations. The transport official had to enter the borrowed sum into his expense amount. If the money was not paid back, a time limit of three months was set to settle the liability. If the province failed to comply with the time limit an impeachment memorial was submitted and the superiors of the transport official were committed to pay back the debt in shares.

3. If the transport funds did not suffice because the handover of the copper by Yunnan province had not taken place within the time limit and because the home province had not

[10] GX-HDSL vol. 10, 218: 12a, p. 7995; JQ-HDSL 175: 12a.
[11] GX-HDSL vol. 10, 218: 13a+b, p. 7996; JQ-HDSL 175: 13a.
[12] The necessary amount was calculated according to the stage regulation of the transport route. If the official in charge allocated more silver money than regulated and deficits were accumulated, this official had to compensate for the loss. GX-HDSL vol. 10, 218: 14a, p. 7996; JQ-HDSL 175: 13b+14a.
[13] Regulated in 1790 (QL 55) TZBL 7: 10a, p. 457; YNTZ 7: 9a+b; pp. 278f.; GX-HDSL vol. 10, 218: 17a, p. 7998; JQ-HDSL 175: 17a.
[14] GX-HDSL vol. 10, 218: 10a, p. 7994; JQ-HDSL 175: 10a.
[15] TZBL 7: 10a+b, pp. 457f; YNTZ 7: 9b+10a, p. 279; GX-HDSL vol. 10, 218: 19a+b, p. 7999; JQ-HDSL 175: 19a+b.

provided sufficient silver money, funds were also lent in accordance with the regulations. If this situation led to unsettled accounts, Yunnan province and the province of the transport official had to compensate for the deficit in equal shares.

2.2.2 Funds for the hiring of pack animals

A routine memorial by Lai Bao in 1749 (QL 14) sheds light on the costs of hiring pack animals in Yunnan. On his way to Yunnanfu a transport official from Shaanxi province hired pack animals (*maluo* 馬騾) in Guizhou for the price of 0.2 *tael* for each pack animal and for each 100 *li*. He paid the same price when he hired pack animals for the route from Yunnanfu to the governmental copper store in Xundian. In the last case the 7 pack animals were hired to ride on them and carry the load of 8,000 *tael* silver of transport funds (*yunjiao feiyin* 運腳費銀). For the route from Zhenyuan (鎮遠) in Guizhou to Yunnanfu 15 pack animals were hired to ride on them and carry the silver money for the purchase of copper (*tongben* 銅本). In case silver money was carried on pack animals, it was regulated that each animal should carry 2,000 *tael* silver.[16]

In order to transport copper with pack animals bamboo baskets (*kuanglou* 筐簍) and a supporting frame (*mupai* 木牌) had to be purchased. The price of a pair of bamboo baskets and supporting frame, having a transport capacity for 160 *jin* of copper, amounted to 0.02 *tael* in the case of Guangdong province and 0.026 *tael* in case of Shaanxi province.[17] Those carrying baskets were not only made of bamboo (*zhukuang* 竹筐) but in some cases also with twigs of the Yunnan redbud.[18] The supporting frame was attached to the pack animals with hemp cordage (*masheng* 麻繩). For 1,347 pack animals 356.5 *jin* of cordage was needed, about 0.265 *jin*/pack animal. The purchase price of 1 *jin* of hemp cordage amounted to 0.052 *tael*. Yet, before attaching the supporting frame to the pack animal with the hemp cordage a straw mat (*caoxi* 草蓆) was applied to the back of each animal, costing about 0.015 *tael* a piece.

2.2.3 Funds for the transport from the mines to Bo'ai

As a general rule, funds for the transport of copper from mines to the north of Yunnanfu had to be provided by Yunnanfu, and the home province was responsible for the allocation of funds for the transport from the mines south to Yunnanfu.[19] Under certain circumstances, however, there were exceptions from that rule, like in the case of the Yidu mine. In general funds for the transport of copper by mules amounted to 0,1292 *tael* silver for each stage and

[16] NGHKTB 2.11/11, QL 14/7/19, Lai Bao 來保.
[17] NGHKTB 2.11/7, QL 14/7/18, Yue Jun 岳濬; 2.11/11, QL 14/7/19, Lai Bao 來保.
[18] Cercis yunnanensis, [*zi*]*jing*[*shu*]*kuang* [紫]荊[樹]筐. NGHKTB 2.11/11, QL 14/7/19, Lai Bao 來保.
[19] GX-HDSL vol. 10, 218: 12b, p. 7995; JQ-HDSL 175: 12b.

each 100 *jin* of copper and funds for copper transports on carts amounted to 0,1 *tael* silver for each stage and each 100 *jin*. In the early Qianlong period, however, when the provincial copper procurement system was established, the funds for one stage of mule transport were received in accordance with the regulations for metropolitan copper transports from Dongchuan to Yongning and amounted to 0.144 *tael* silver.[20]

a) Transport funds for the transport from Xiaguan to Yunnanfu

If the transport official received copper at the governmental copper store at Xiaguan from the mines Baiyang, Dagong, Debaoping, Huilong or Ningtai, the necessary transport funds for the transport to the provincial capital were supplied by the treasury of Yunnan province.[21] The reason for the indication of a higher amount of transport funds for copper from Debaoping below is unknown, but such high funds seem to be unrealistic. The different amount of transport funds for the mine Ningtai, however, are certainly due to the circumstance that copper from Ningtai was received as purple-slab copper and supplemented with additional 2 *jin* and 10 *liang* of quality compensating copper (*haotong* 耗銅). [22]

Table 9: Funds for transport from Xiaguan to Yunnanfu

Origin of copper	**Transport funds in *tael*/100 *jin***	
	TZBL	**YNTZ**
Dagong mine[23]	1,25	
Debaoping mine[24]	1,25	1,85[25]
Ningtai mine[26]	1,30125	
Baiyang mine[27]	1,25	
Huilong[28]	1,25	

b) Transport funds for the transport from Xundian to Bo'ai

Copper from the mines Dashuigou, Luoluo and Tangdan received at the governmental copper store at Xundian was transported on carts along 7 stages to Zhuyuancun. The transport allowance for each stage was 0.1 *tael*/100 *jin* amounting to a total of 0.7 *tael*/100 *jin* for the whole stretch.[29]

[20] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安; NGHKTB 1.7/1, QL 5/12/21, Xu Shilin 徐士林.
[21] TZBL 1: 11b, p. 22; 1: 15a, p. 29; 1: 17a, p. 33; YNTZ 1: 6b, p. 16; 1: 9a, p. 18; 1: 11b, p. 21.
[22] Stipulated in 1762 (QL 27). GX-HDSL 218:10b, p. 7994.
[23] YNTZ 1: 11b, p. 21.
[24] TZBL 1: 14b-15a, p. 28f.
[25] YNTZ 1: 9a, p. 18.
[26] YNTZ 1: 6b, p. 16; TZBL 1: 11b, p. 22; NGHKTB 2.3/1, QL 10/4/28, Zhang Yinghan 張映漢.
[27] TZBL 2: 19b, p. 122; YNTZ 2: 19b, p. 71.
[28] TZBL 2: 17b, p. 118; YNTZ 2: 17a, p. 68; NGHKTB 2.3/1, QL 10/4/28, Zhang Yinghan 張映漢.
[29] NGHKTB 2.11/7, QL 14/7/18, Yue Jun 岳濬 .

c) Funds for the transport from the mine Duona to Bo'ai

Copper from the mine Duona was transported along 12 stages via the departmental capital of Xundian to Zhuyuancun on carts. For each stage and 100 *jin* funds of 0.1 *tael* were received.[30]

d) Funds for the transport from the mine Yidu to Bo'ai

Copper from this mine was received directly at the mine and had to be transported over 6 stages from there to Yunnanfu[31] A total amount of 0.6 *tael* was supplied for the transport of 100 *jin* copper. Although this mine was located southwards of Yunnanfu, according to the TZBL and the YNTZ, funds for the transport to the capital had to provided by Yunnan province. [32] This exemption was probably due to the circumstance that the slab-copper (*bantong* 板銅) from Yidu was not transported directly to Bo'ai but instead to the capital at first, where the transport official had it re-smelted into crab-shell copper (*xieketong* 蟹殼銅).[33] Due to the HDSL, however, transport funds had still be provided by the home province.[34]

e) Funds for the transport from the mines Jinchai, Longba and Zhe'nang Bo'ai

Copper from the mine Jinchai was received at the governmental copper store in the district capital Mengzi (Mengzi *xiandian* 蒙自縣店) and transported over 17 stages to Bo'ai. [35] Providing 0.1292 *tael* per 100 *jin* copper and stage, a total amount of 2.1964 *tael* was supplied for the transport of 100 *jin* copper.[36]

Copper received from the mines Zhe'nang and Longba had to be transported 17 and 15 day stages respectively from the mines to Bo'ai. The transport stages from the mines to the prefectural capital Kaihua were accomplished by pack animals. For the whole stretch, from the mines to Bo'ai, the following transport funds were allocated:[37]

[30] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.
[31] TZBL 2: 26b-27a, p. 136f; YNTZ 2: 26b, p. 78; HBGZZL 3: 32a, p. 75.
[32] TZBL 2: 26b, p. 136; YNTZ 2: 26b, p. 78.
[33] HBGZZL 3: 32a, p. 75.
[34] GX-HDSL vol. 10, 218: 12b, p. 7995; JQ-HDSL 175: 12b.
[35] GX-HDSL 218:5b, vol. 10: 7992; TZBL 2: 42b-43b, p. 168-170; YNTZ 2: 42b- 43a, p. 93; HBGZZL 3: 32b, p. 75; 3: 25b, p. 72.
[36] GX-HDSL vol. 10, 218: 5b, p. 7992.; JQ-HDSL 175: 5b; TZBL 2: 42b-43a, p. 168-169; YNTZ 2: 43a, p. 94; HBGZZL 3: 32b, p. 75; 3: 25b, p. 72.
[37] Zhe'nang: TZBL 2: 40a-41a, pp. 163-165; YNTZ 2: 39a- 40a, pp. 90f. Longba: TZBL 2: 38a-39a, pp. 159-161; YNTZ 2: 37a- 38a, pp. 88f.

Table 10: Funds for the transport from the Jinchai, Longba and Zhe'nang mines to Bo'ai

Route	Number of stages	Funds per stage (*tael*/100 *jin*)	Total funds (*tael*/100 *jin*)
Mengzi – Bo'ai	17	0.1292	2.1964
Zhe'nang mine – Bo'ai	17	[0.1292]	2.1964
Longba mine- Bo'ai	15	[0.1292]	1.938

f) Funds for the transport from Yunnanfu to Bo'ai

Each time copper was received from mines northwards from Yunnanfu, it had to be transported the 24 stages from Yunnanfu to Bo'ai. According to the regulations the copper transports along the 8 stages from Yunnanfu to Zhuyuancun (竹園村) were accomplished by horses or mules, whereas along the 16 stages from Zhuyuancun to Bo'ai (剝隘) the copper had to be transported by oxen.[38] For the strech of 8 stages from Yunnanfu to Zhuayuancun funds amounting to 0.1 *tael*/100 *jin* for each stage were allocated according to archival materials. [39]

For the 16 stages from Zhuyuancun to Bo'ai funds to the amount of 0.1292 *tael* silver for each stage and 100 *jin* of copper were provided.[40] Accordingly, total funds provided for the transport of 100 *jin* copper from Zhuyuancun to Bo'ai amounted to 2.0672 *tael* silver.[41]

In deviation from that regulation routine memorials of the provinces Guangdong and Shaanxi in 1749 (QL 14) depict that copper along this stretch was transported with pack animals (*maxing* 馬行) and not with oxen. At that time transport funds were still higher than in the later Qianlong period (1736-1795) and amounted to 0.144 *tael*/100 *jin* for each stage.[42] The same amount was received by Zhejiang province in 1745 (QL 10).[43]

g) Transport funds for fluvial transport from Bo'ai to the mints

The funds for the copper transports for Jiangsu by water from Bo'ai to Hankou amounted to some 0.456 *tael* silver and from Hankou to Suzhou to about 0.226 *tael* silver for each 100 *jin* copper.[44] Thus some 0.681 *tael* silver were allocated for the water transport of 100 *jin* copper from Bo'ai to Suzhou.[45]

[38] TZBL 7: 3a, p. 443; YNTZ 7: 3a, p. 272; HBGZZL 3: 32b, p. 75; 3:25b; p. 72.
[39] GX-HDSL vol. 10, 218: 11a, p. 7995; JQ-HDSL 175: 10b.
[40] HBGZZL 3: 32b, p. 75; 3:25b; p. 72.
[41] Ibid.
[42] NGHKTB 2.11/7, QL 14/7/18, Yue Jun 岳濬; 2.11/11, QL 14/7/19, Lai Bao 來保.
[43] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.
[44] HBGZZL 3: 33b, p. 75.
[45] GX-HDSL 218:7b-8a, vol. 10: 7993; JQ-HDSL 175: 7b.

Furthermore, for miscellaneous, not specified expenses, an additional 0.34 *tael* per 100 *jin* copper were given out.[46]All in all transport funds for the transport of 100 *jin* copper on the fluvial route from Bo'ai to Suzhou due to the above regulations amounted to 1.021 *tael* silver.

The funds for the copper transports for Zhejiang by water the from Bo'ai the 2 stages to Baise (百色) amounted to 0,08 *tael* silver, 0,04 fen for each stage and each 100 *jin* copper[47], and from Baise to Hankou 0,4391 *tael* silver for each 100 *jin* copper. The allocation for transport expenses from Hankou to Hangzhou was 0,305 *tael* silver for each 100 *jin* copper.[48] In 1740 and 1741 (QL 5 and 6), however, Zhejiang had received funds of 0.38 *tael* for the fluvial transport from Hankou to the mint in Hangzhou.[49] In addition, for miscellaneous, not specified expenses, an additional 0,287 *tael* per 100 *jin* copper were given out.[50] All in all transport funds for the transport of 100 *jin* copper on the fluvial route from Bo'ai to Hangzhou due to the above regulations amounted to 1,111 *tael* silver.

There is a detailed report on the allocation of miscellaneous funds for a copper transport for Zhejiang conducted between 1740 and 1741 (QL 5 and 6) [51]:

For the purchase of bamboo baskets (*miekuang* 篾簏), for the packaging and tying up of the copper (*dabao kunza* 打包綑紮), porterage (*renfu* 人夫), transhipping at Bo'ai, banners, lamps, offerings to the gods, especially the river gods (*ji jiangshenfu* 祭江神福),[52] rewards for the shoal pilots (*tanfu* 灘夫) and boat crews,[53] escorts, station personnel and other expenses another 500 *tael* were allocated. Offerings to the gods and rewards to personnel involved were seen as absolutely imperative for the successful performance of copper transports.[54] It seems that as a general rule each transport officials received an allocation of 500 *tael* for miscellaneous expenses, as a transport official of Jiangsu province also received the same amount in 1740 (QL 5).[55]

These funds were also used to pay the tax for the boats *(chuanliao* 船料) at the inland customs stations (*guankou* 關口) at Hankou 漢口 in Hubei, Jiujiang 九江 in Jiangxi ,Wuhu 蕪湖 in Anhui, Hushu 滸墅 in Jiangsu and others. Although, in order to prevent delays by customs inspection, all official mint metal transports were exempted from

[46] GX-HDSL 218:7b-8a, vol. 10: 7993; JQ-HDSL 175: 7b; HBGZZL 3: 33b, p. 75.
[47] For the two stages from Bo'ai to Baise the same funds as for Zhejiang were also given to the provinces Guangxi, Fujian, Jiangxi, Shaanxi and Shanxi however allocation for Jiangsu were calculated differently. The reason for that unequal treatment are not mentioned. HBGZZL 3: 25b-26a, p. 72; GX-HDSL vol. 10, 218: 7a+11a, pp. 7993 and 7995.; JQ-HDSL 175: 7a+11a.
[48] HBGZZL 3: 25b-26a, p. 72; GX-HDSL 218:7b, 10: 7993; JQ-HDSL 175: 7b.
[49] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.
[50] HBGZZL 3: 25b-26a, p. 72; GX-HDSL 218:7b, 10: 7993; JQ-HDSL 175: 7b.
[51] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.
[52] NGHKTB 1.12/5, QL 9/2/3, Nuosutu 那蘇圖.
[53] Ibid.
[54] Ibid.
[55] NGHKTB 1.7/6, QL 6/4/13, Neqin 訥親.

taxation from 1741 onwards (QL 6), additional copper and other goods were subjected to taxation. Therefore the transport official had to restrain his underlings and the boat crews to engage in private business.[56] According to a memorial by Jiangxi province in 1774 (QL 39), however, a transport official was delayed by two days because he had to pay tax at the customs station of Jiujiang in Jiangxi[57] and according to another memorial by Jiangxi province in QL 15 (1750) 117+ *tael* customs fee had to be paid for Japanese copper procured at Suzhou.[58] Yet in the latter case it seems, that the customs fee was levied without permission so that the officials involved had to compensate for the levied amount.[59]

Table 11: Transport funds for fluvial transport from Bo'ai to the mints

Route from Bo'ai to Baise	**Funds for Jiangsu (*tael*/100 *jin*)**	**Funds for Zhejiang (*tael*/100 *jin*)**
Bo'ai - Baise	not specified	0.08
Baise - Hankou	not specified	0.4391
Bo'ai - Hankou	0.4556728	0.5191
Hankou - Suzhou	0.2255	---
Hankou - Hangzhou	---	0.305
Overall transport funds	0.681	0.824
Additional funds for miscellaneous expenses	0.34	0.287
Total funds	1.021	1.111

According to a routine memorial in 1745 (QL 10) Jiangsu and Zhejiang, as well as Hunan, Hubei and Fujian had formerly not only received higher funds for the overland transport of copper (0.144 *tael* instead of 0.1292 *tael* after 1745) but also for the fluvial transport from Bo'ai to Hankou and further on to Hangzhou[60]:

Table 12: Funds for transport from Bo'ai to Hangzhou

Stretches	**Funds *tael*/100 *jin***
Bo'ai - Baise	0.08
Baise - Nanning	0.058
Nanning - Guilin	0.187
Guilin - Xiangtan	0.132
Xiangtan - Hankou	0.066

[56] NGHKTB 1.7/6, QL 6/4/13, Neqin 訥親.
[57] GZDQL 37/298, QL 39/10/19, Hai Cheng 海成.
[58] NGHKTB 3.2/1, QL 15/9/19, Asiha 阿思哈.
[59] NGHKTB 3.3/4, QL 16/1/26, 王興吳.
[60] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.

[Bo'ai – Hankou	0.523]
Hankou – Hangzhou	0.38

It seems that before 1745 (QL 10) the same funds for the transports from Bo'ai to Hankou were given out to the provinces. There is no indication of the reasons for the allocation of different amounts of funds for transport and miscellaneous expenses to Zhejiang and Jiangsu afterwards.

h) Daily allowance of the transport official and his personnel

For each day from the beginning to the end of the transport, the transport official of Jiangsu received a daily allowance of 0.4 *tael* silver to cover food and lodging expenses. Each on of his official personnel (genyi 跟役) received the daily allowance of 0.05 *tael* silver.[61]

For each day from the beginning to the completion of the transport the transport official of Zhejiang received the daily allowance of 0.1 *tael* silver to cover food and lodging expenses. Each one of his official personnel (genyi 跟役) received the daily allowance of 0.06 *tael* silver.[62]

Table 13: Daily allowance of the transport official and his personnel

Daily allowance (Bo'ai to provincial capital)	**Jiangsu (*tael*/day)**	**Zhejiang (*tael*/day)**
Transport official	0.4	0.1
Daily allowance for personnel	0.05	0.06

As it is the case with funds for transport and miscellaneous expenses, there is no indication of the reasons for the allocation of different amounts of daily allowance for the transport official and his personnel to Zhejiang and Jiangsu.

A detailed report in the archival material gives us insights into the allowance for transport officials and their personnel on a copper transport for Zhejiang conducted between 1740 and 1741 (QL 5 and 6) [63]:

This transport was performed by three transport officials, each granted 8 persons as official personnel. The transport officials received a daily allowance of 0.1 *tael*/day each, but each person of the official personnel only 0.04 *tael*, and not 0.06 *tael*/day, as regulated. One official

[61] HBGZZL 3: 32b, p. 75.
[62] HBGZZL 3: 26a, p. 72.
[63] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.

and his personnel, altogether 9 persons, received a daily allowance of 0.42 *tael* and a monthly allowance of 12.6 *tael*.

From their departure in Hangzhou, their arrival in Yunnanfu and subsequent departure, the time limit of 150 days, 120 days from Zhejiang to Yunnanfu and 30 days for the handling of formalities at Yunnanfu, was followed. Accordingly the allowance for one official amounted to 63 *tael* and 189 *tael* for all three officials. From Yunnanfu to Bo'ai the daily allowance for one official and his personnel amounted to 2 *tael*/day and 42 *tael* for 21 stages. The three officials received an allowance amounting to 126 *tael* for this stretch.

From Bo'ai onwards the official and his personnel again received 0.42 *tael*/ day, amounting to 54.18 *tael* for the 129 days back to Hangzhou. Accordingly, the total funds for the 3 officials and their personnel amounted to 162.54 *tael* silver.

2.2.4 Funds for the transport of zinc, tin and lead to the mints

Whereas Jiangsu province procured all the three metals at Hangkou, Zhejiang procured only zinc and lead from Hankou, tin was purchased on the market at Hangzhou. Whenever the provinces procured mint metals at Hankou the transport official was provided with the required silver money. Upon arrival the silver money was verified by the assistant prefect of the prefecture Hanyang 漢陽 with regard to completeness and transferred to the store of the provincial treasury of Hubei. Yet, in the course of time this procedure had led to abuses, as the money always passed through many hands. As a result the regulation was revised in 1787 (QL 52). Thereafter the silver funds were directly weighed in and received by the treasury of Hubei. The treasury instructed the official of the zinc office to issue the accordant amount. Before the zinc official returned to Guizhou he was handed over the silver money that had been stored up in the treasury and in addition a communication was sent to the governor of Guizhou.[64]

For the procurement of zinc, tin and lead at Hankou Jiangsu received water transport funds of about 0.229 *tael*/100 *jin*.[65]

In 1745 (QL 10) the Minstry of Revenue regulated for the mint of Zhejiang to procure its necessary tin at Hangzhou. For the fluvial transport of 100 *jin* of tin to the mint at Hangzhou 0.01 *tael* were allocated.

Funds for water transport of zinc and lead from Hankou to Hangzhou, including funds for miscellaneous expenses, amounted to about 0.368 *tael*/100 *jin*.[66]

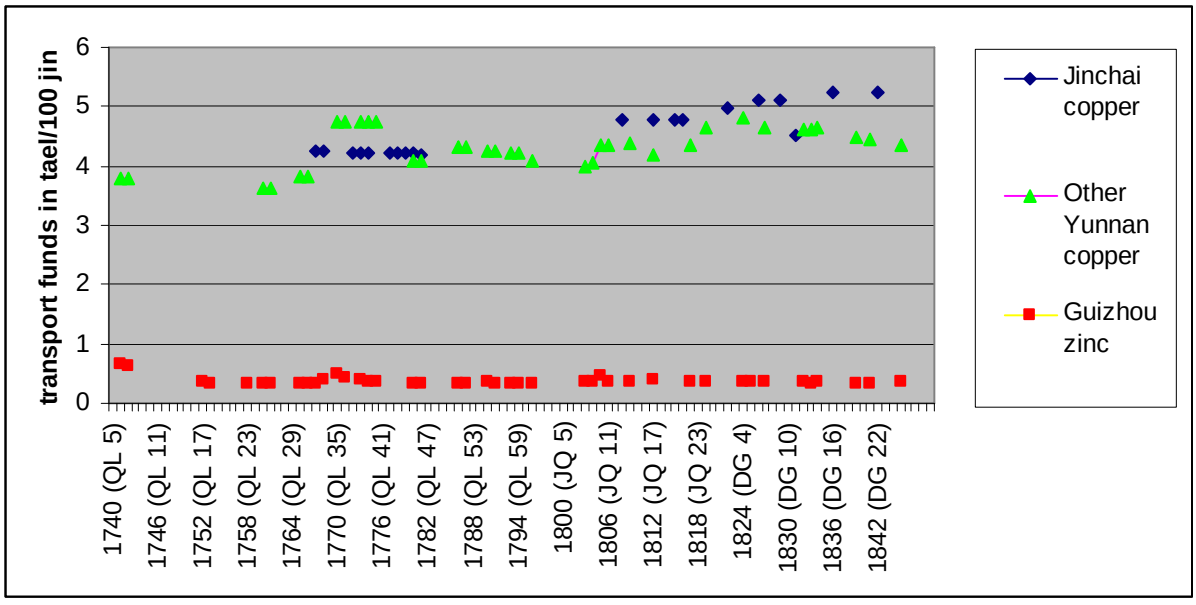
[64] GX-HDSL vol. 10, 218: 16a, p. 7997; JQ-HDSL 175: 15b+16a.
[65] GX-HDSL vol. 10, 218: 4b, p. 7991.; JQ-HDSL 175: 4a+b.
[66] GX-HDSL vol. 10, 218: 4b, p. 7991.; JQ-HDSL 175: 4a+b.

Table 14: Funds for the transport of zinc, tin and lead to the mints

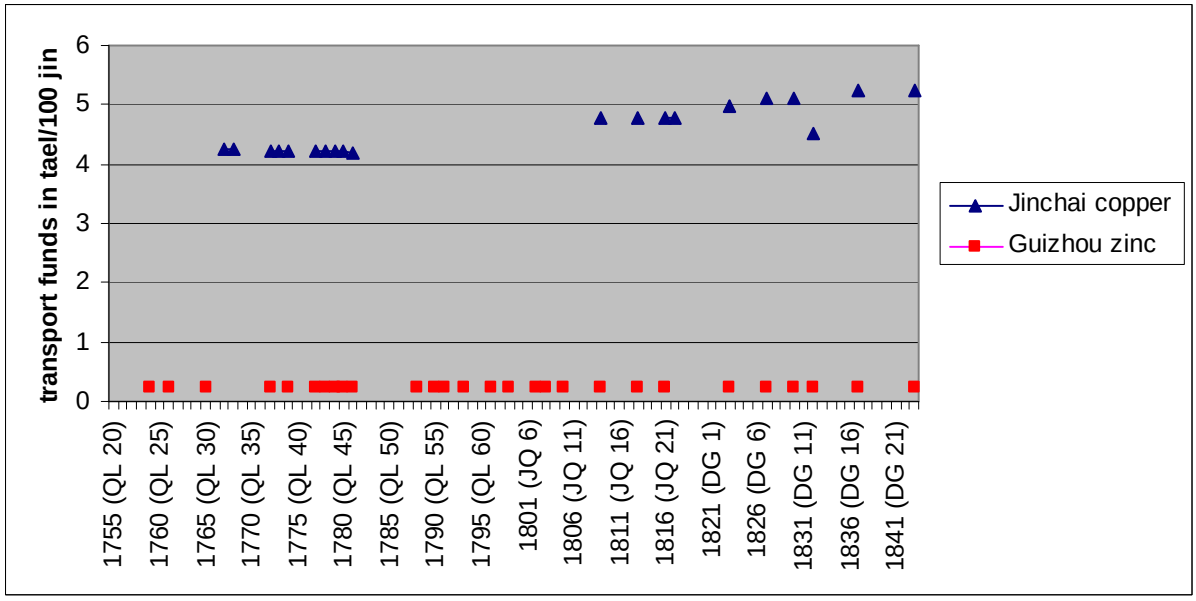
Mint metal	Transport route	Transport funds *tael*/100 *jin*	Type of transport
Tin	Hangzhou to Hangzhou mint	0.01	fluvial
Zinc, lead	Hankou to Hangzhou mint	0.368	fluvial
Zinc, tin, lead	Hankou – Suzhou mint	0.229 *tael*	fluvial

The regulations for the allocation of transport funds suggest no increase in funding between 1740 and 1840. According to the NGHKTB this was certainly true for the funds for the transport of Guizhou zinc to Jiangsu and Zhejiang. Yet the funds for the transport of Jinchai copper to Jiangsu and Zhejiang were raised from around 4.2 *tael* during the Qianlong period (1736-1795) to 5.2+ *tael* in the Daoguang period (1821-1850). Although the transport funds for other copper from Yunnan to Zhejiang also increased from 3.8 *tael* in 1741 to 4.8 *tael* in 1824, they declined afterwards to 4.3+ *tael* in 1845.

Graph 1: Mint metal transport funds for Zhejiang



Graph 2: Mint metal transport funds for Jiangsu province



2.3 Time limits for mint metal transports to the mints of Jiangsu and Zhejiang

The Qing government kept any operations linked to the minting of cash under close supervision. In particular the time limits for copper transports from Yunnan were closely regulated.

2.3.1 Time limits for journey to Yunnanfu

The time limit for the journey from Jiangsu to the capital was set at 182 days and that from Zhejiang to Yunnanfu at 120 days in 1765 (QL 30).[67]

The total distance of the journey from Hangzhou to Yunnanfu amounted to 6,070 *li*. The transport official proceeded via water and land. As usual the land route (*lulu* 陸路**)** was subdivided into stages (*zhan* 站**)** of which each had to be covered within one day. The water route was subdivided into going downstream with the current (*shunshui* 順水) and going upstream against the current (*nishui* 逆水). 50 *li* per day had to be covered when travelling with the current and 30 *li* when travelling against it. Accordingly the required time for the journey from Hangzhou to Yunnanfu was 28 days for the 1,740 *li* of land transport, 33.5 days for 1,670 *li* of water transport with the current, and 88+ days for 2,660 *li* of water transport

[67] GX-HDSL 219:1a, p. 8001; JQ-HDSL 175: 21b; ZPZZ 1286-037, reel 61/17, QL 37/12/4, Xiong Xuepeng 熊學鵬; NGHKTB 11.11/12, DG 7/2/ 13, Tao Shu 陶澍; NGHKTB 10.15/14, JQ 19/閏 2/ 26, Zhu Li 朱理.

against the current. The required time limit from Hangzhou to Yunnanfu thus was between 148 to 149 days. Although the time limit was not extended by this much according to some archival documents ten more days were added to the limit by the Ministry of Revenue to a total of 130 days.[68]

The total distance of the journey from Suzhou to Yunnanfu amounted to 6,400 *li*. The transport official proceeded via water and land. The same regulations were applied for the land and water route as for Zhejiang. Accordingly the required time for the journey from Suzhou to Yunnanfu was 28 days for the 1,740 *li* of land transport, 8 days for 400 *li* of water transport with the current, and 146 days for 4,400 *li* of water transport against the current. The required time limit from Hangzhou to Yunnanfu thus was between 182 days including a change of boats at the prefecture capital Changde at Lake Dongting. This was exactly the time limit that was set by the Ministry of revenue.[69]

2.3.2 Time limits for administrative procedures at Yunnanfu

Upon arrival in Yunnanfu the silver money for the purchase of copper was reweighed and handed over to the provincial treasury. The funds brought along to cover transport expenses also had to be handed over to the treasury temporarily, probably in order to prevent absuses. They were released again after the mine of destination and the amount of copper were allocated and the transport official had petitioned to the treasury for the accordant transport funds. This method was applied not only in order to prevent abuses but also because the mines and amounts sometimes differed from the original allocation sent to the province.[70] If the transport official procured copper at the governmental copper store at Xiaguan, the transport funds for the transport to the provincial capital were supplied by the treasury of Yunnan province.[71] A time limit of 30 days was given to the transport official to handle the application formalities for these transport funds.[72]

In case copper was to be received at Yunnanfu, the transport official applied to the provincial treasury of Yunnan for the allocation of the copper from its storehouses. The provincial treasury had to allocate within the next 30 days in order to prevent delays.[73]

[68] ZPZZ 1266-004, reel 61/7, QL 31/3/7, Xiong Xuepeng 熊學鵬; ZPZZ 1267-029, reel 61/7, QL 31/9/24, Xiong Xuepeng 熊學鵬; ZPZZ 1269-004, reel 61/8, QL 32/3/29, Wu Shaoshi 吳紹詩.

[69] ZPZZ 1267-018, reel 61/7, QL 31/8/28, Ming De 明德; ZPZZ 1269-004, reel 61/8, QL 32/3/29, Wu Shaoshi 吳紹詩.

[70] TZBL 7: 2a, p. 441; NGHKTB 11.11/12, DG 7/2/13, Tao Shu 陶澍.

[71] TZBL 1: 11b, p. 22; 1: 15a, p. 29; 1: 17a, p. 33; YNTZ 1: 6b, p. 16; 1: 9a, p. 18; 1: 11b, p. 21.

[72] TZBL 7: 2a, p. 441.

[73] TZBL 7: 2a, p. 441; GX-HDSL 218: 12a, vol. 10: 7995; JQ-HDSL 175: 12a.

2.3.3 Time limits for the hiring of pack animals

Thereafter he had to hire pack animals. For the hiring of pack animals for a transport encompassing an amount of 100,000 *jin* of copper the time limit was set at 30 days. For each additional 100,000 *jin* the time limit was extended by 10 days. For a transport of 400,000 to 500,000 *jin* of copper the time limit was fixed at 60 days. [74]:

Table 15: Time limits for the hiring of pack animals

Amount of copper in *jin*	**Time limit in days**
100,000	30
200,000	40
300,000	50
400,000 to 500,000	60

In order to be able to stick to the regulated time limits and transport funds the transport officials depended on the cooperation with the local officials in Yunnan for the hiring of porters and pack animals. For this reason the Yamen of the provincial governor of Yunnan issued a document upon request, ordering the local officials to support the transport officials in every way possible. If a transport was delayed due to noncompliance with the regulations, detrimental interference or laxity in assistance of the local officials they were impeached.[75]

From the archival material it is evident that it was difficult to hire means of transport for copper transports from remote mines off the beaten track and that the support by local officials was of decisive importance.[76]

2.3.4 Time limits for the route from Yunnanfu to mines and copper stores and back

The following two tables show the time limits for the journey to mines and copper stores from the provincial capital and for the way back.

[74] TZBL 7: 2a, p. 441
[75] Regulated in reaction to a memorial in QL 37. TZBL 7: 8a, p. 453; YNTZ 7: 8a+b, p. 277f; NGHKTB 11.11/12, DG 7/2/13, Tao Shu 陶澍.
[76] NGHKTB 2.3/1, QL 10/4/28, Chan An 常安.

Table 16: Time limits for the route from Yunnanfu to mines and copper stores

Name of mine or copper store	Amount of stages	Time limit in days
Xiaguan copper store[77]	12,5	13
Yidu mine[78]	6	6
Wanbao mine[79]	6	6

Table 17: Time limits for the transport from the mines and copper stores back to Yunnanfu

Point of departure	Number of stages	Amount of copper in *jin*	Time limit in days	Time limit in case of heavy rain en route in days
Xiaguan copper store[80]	12,5	10,000 and more	12,5	
				18,5
		50,000 to 100,000	25	
				31
Yidu, Wanbao	6	10,000 and more	6	
				10
		50,000 and more	12	
				16

2.3.5 Time limits at the mines and the copper stores

In 1770 (QL 35), for the first time, precise time regulations for the weighing out of copper at the mines and the copper stores after the arrival of a transport official were defined. Small quantities between 1,000 to 9,000 *jin* should be weighed out within one day. If the responsible officials weighed out quantities between 30,000 *jin* and some more than 100,000 *jin* they had to stick to the regulations of the copper store of Luzhou (Lu*dian* 瀘店), according to which 14,700 *jin* of copper had to be weighed out per day. A copper amount of 100,000 *jin* had had consequently to be weighed out within seven days. In case of delays by the mining official or by the transport official, report had to be submitted.[81]

[77] TZBL 7: 2b, p. 442.
[78] Ibid.
[79] Ibid.
[80] TZBL 7: 2b, p. 442.
[81] TZBL 7: 2a, p. 441; YNTZ 7: 2a+b, pp. 271f; GX-HDSL vol. 10, 219: 3a, p. 8002; JQ-HDSL 175: 23b.

2.3.6 Time limits for the transport from the mines:

In order to calculate the time limit for a transport the official had to take the stages to and back from the mine as well as the amount of copper into account.[82] In case there were two transport officials due to the procurement of a large amount of copper or if copper was received at two different mines the time limits had to be calculated separately.[83]

Table 18: Time limit for the way from Yunnanfu to Xiaguan

Route	Number of stages	Time limit in days
Yunnanfu - Xiaguan	12,5	13

Copper from the mine Jinchai was received at the governmental copper store at Mengzi. The time limit for the transport from Jinchai to Bo'ai was fixed at 75 days for 100,000 *jin* of copper. Because oxen were used as means of transportation along this stretch the time limit from one stage to the other was two days, altogether 34 days for the transport from Mengzi district to Bo'ai. This time limit was doubled because due to a limited number of oxen stretches in between had to be covered several times with the same animals. Another 7 days were added to the time limit of 68 days to cover delays by heavy rain and flood and by death of oxen and others.For each additional load of 100,000 *jin* the limit was extended by 25 day.[84]

Table 19: Time limits for the transport from Jinchai to Bo'ai

Stretch	Number of stages	Means of transportation	Amount of copper	Time limit in days
Mengzi copper store – Bo'ai	17	oxen	100,000	75
			200,000	100
			300,000	125
			400,000	150

[82] TZBL 7: 4b, p. 446; YNTZ 7: 5a, p. 274.
[83] GX-HDSL vol. 10, 219: 1b, p. 8001; JQ-HDSL 175: 22a.
[84] GX-HDSL vol. 10, 219: 1b, p. 8001; JQ-HDSL 175: 22a; ZPZZ 1267-014, reel 61/7, QL 31/8/10; Yang Yingju and others 楊應琚等.

2.3.7 Time limits for the transport from Yunnanfu to Bo'ai:

Each time a transport official had received the full amount of apportioned copper at a mine, the mining official had to send in a report. The time limit for the transport back to the home province was calculated according to the date stated in the report of the mining official.[85]

The time limits for the 24 stages between Yunnanfu and Bo'ai were not uniform. The time limit for the 8 stages from Yunnanfu to Zhuyuancun, which were accomplished by horses or mules, was set at eight days. As the transport from Zhuyuancun over the 16 stages to the freight dock Bo'ai (剝隘) was accomplished by oxen, the time limit was two days per stage amounting to a limit of 32 days.

According to a regulation in effect in 1749 (QL 14) each mule should carry a load of 150 *jin*.[86] Apparently this regulation was altered as a memorial in 1766 (QL 31) mentions that mules should carry a load of 120 *jin*.[87] This would mean that a transport official had to hire between 667 and 833 pack mules to transport a load of 100,000 *jin* of copper. As oxen could carry only half the load of the mules, which is between 60 and 80 *jin*, double the number of oxen would have been needed. However, due to the circumstance that only a limited number of pack animals was available, the stretches had to be done with the same animals several times For this reason The regular time limit of 40 days was doubled.[88] Another 10 days were added to the time limit to compensate for delays by heavy rain and flood as well as by death of mules and oxen.[89] All in all, the time limit from Yunnanfu to Bo'ai, carrying 100.000 *jin* of copper was 90 days. For each another 100,000 *jin* 30 more days were added.[90]

Table 20: Time limits for the transport from Yunnanfu to Bo'ai

Stretch	**Number of stages**	**Means of transportation**	**Amount of copper**	**Time limit in days**	
Yunnanfu - Zhuyuancun	8	Mules	100,000	8	90
Zhuyuancun – Bo'ai	16	Oxen		32	
Yunnanfu-Bo'ai	24	Mules and Oxen	200,000	120	
			300,000	150	
			400,000	180	

[85] GX-HDSL vol. 10, 219: 1a+b, p. 8001; JQ-HDSL 175: 21b+22a.
[86] NGHKTB 2.11/11, QL 14/7/19, Lai Bao 來保.
[87] ZPZZ 1267-014, reel 61/7, QL 31/8/10, Yang Yingju and others 楊應琚等.
[88] ZPZZ 1266-008, reel 61/7, QL 31/3/13, Ming De 明德; ZPZZ 1267-014, reel 61/7, QL 31/8/10; Yang Yingju and others 楊應琚等.
[89] Although the TZBL gives the same total time limit of 90 days for 100,000 jin of copper, the detailed time limits are given inaccurately and make no sense. TZBL 7: 3a, p. 443; YNTZ 7: 3a, p. 272.
[90] TZBL 7: 3a, p. 443; YNTZ 7: 3a, p. 272; GX-HDSL vol. 10, 219: 1b, p. 8001; JQ-HDSL 175: 22a.

2.3.8 Time limits from Bo'ai to the mints of Jiangsu and Zhejiang

The time limit from Bo'ai to Jiangsu for a transport of 200,000 *jin* amounted to 225 days, the time limit for Zhejiang was 231 days.[91] According to archival materials the time limit from Baise to Suzhou set by the Ministry of Revenue was 210 days and from Baise to Hangzhou 216, which would leave a limit of 15 days days for the stretch between Bo'ai and Baise. As the stretch between Bo'ai and Baise was only two stages the extended time limit was most certainly due to the necessary repacking of the copper to bundles (*kun* 綑) of 190 *jin* of weight.[92] This time limit changed according to the amount of copper transported. The memorialist relates further that the stretch between Baise and Quanzhou in Guangxi was the most problematic one due to gorges, dangerous rapids and rocks in the water. Each time the transport official came across a rapid all boats one after the other had to been tugged along by experienced boat trackers. For this reason the distance covered within one day only amounted to an average of only 15 *li*, regardless of transport with the current (*shunshui* 順水) or against the current (*nishui* 逆水). Therefore, the required time for the 745 *li* against the current and 2,130 *li* with the current from Baise to Quanzhou 全州 in Guangxi was as much as 192 days. For the rest of the transport downstream to Suzhou, altogether 4,785 *li*, the regular 50 *li* per day had to be covered amounting to 96 days. From Suzhou to Hangzhou 400 *li* against the current had to be travelled for which another 13 days were needed. As can be seen from the report of the memorialist the required time was apparently much longer than the time limit set by the Ministry of Revenue.[93]

2.3.9 Exception from time limits

If a copper transport through Yunnan coincided with the harvest time the transport official had great difficulties to meet the stipulated limit.[94] As oxen and horses presumably were employed in farm work, the official had enormous problems to find enough pack animals, the convoy having to wait until they became available. According to the regulations, the time limit could be extended for 60 days in such a case:

> If a transport is conducted during the fifth or sixth month, when the transport labourers (jiaohu 腳戶) return home in order to cultivate their fields, or during the eighth or ninth month, when it is time for the harvest, the transport must not be pushed forwards. In compliance with the regulations, the local official has to investigate and to confirm the matter and the two officials

[91] GX-HDSL vol. 10, 219: 1b, p. 8001; ZPZZ 1286-037, reel 61/17, QL 37/12/4, Xiong Xuepeng 熊學鵬.
[92] NGHKTB 11.11/12, DG 7/2/ 13, Tao Shu 陶澍.
[93] ZPZZ 1267-029, reel 61/7, QL 31/9/24, Xiong Xuepeng 熊學鵬; ZPZZ 1267-018, reel 61/7, QL 31/8/28, Ming De 明德.
[94] GZDQL 38: 152.

jointly submit a report [to the provincial governor of Yunnan who notifies the Ministry. The transport will then be halted and the time limit will be extended by two months.[95]

In case the transport official fell seriously ill en route the modus operandi was the same. The local officials had to confirm the sickness and report the duration of the disease from the start to the recovery. This time was then deducted from the time limit in the final transport report.[96]

2.3.10 Time limits for the procurement of tin, zinc and lead

In 1766 (QL 31) the Ministry of Revenue regulated that Jiangsu province had to conduct a mint metal transport back from Hankou within 80 days including the journey of the transport official from Suzhou to Hankou. For Zhejiang the time limit was set at 96 days.[97]

The total distance between Hangzhou and Hankou amounted to 2,450 *li*. The required time according to the memorialist should have been 68 days but the acutal time limit was set by the Ministry of Revenue at 50 days. The time limit for the return route via the Changjiang and the Grand Canal was set at 40 days to Suzhou and another 6 days to Hangzhou. The journey to Hankou and back certainly proceeded via this route. As the time limit from Hankou to Suzhou was 40 days the time limit for the upstream journey to Hankou must also have been 40 days.[98]

Table 21: Travel route from Hangzhou to Hankou

Name of province	**Name of stage point**	**Name of stage point (Chinese)**	**Distance in *li***	**Type of transport**
Zhejiang	Provincial capital Hangzhou	杭州省城		
	District capital Changshan	常山縣	650	逆水
Jiangxi	District capital Yushan	玉山縣	80	陸路 (1 站)
	Wucheng	吳城	800	順水
Hubei	Hankou	漢口	820	逆水

The total distance between Suzhou and Hankou amounted to 2,160 *li*. The required time according to the memorialist should have been 66 days but the acutal time limit was set by the Ministry of Revenue at 40 days. The time limit from Hankou back to Suzhou was another 40 days.[99]

[95] TZBL 7: 4b+5a, pp. 446f. YNTZ 7: 5a, p. 274; GX-HDSL vol. 10, 219: 1b, p. 8001; JQ-HDSL 175: 22a. Translation by the author.
[96] TZBL 7: 5a, 446; YNTZ 7: 5a, p. 274; GX-HDSL vol. 10, 219: 1b, p. 8001; JQ-HDSL 175: 22a.
[97] GX-HDSL vol. 10, 219: 2b, p. 8002; JQ-HDSL 175: 23a.
[98] ZPZZ 1267-029, reel 61/7, QL 31/9/24, Xiong Xuepeng 熊學鵬.
[99] ZPZZ 1267-018, reel 61/7, QL 31/8/28, Ming De 明德.

Table 22: Travel route from Suzhou to Hankou

Name of province	Name of stage point	Name of stage point (Chinese)	Distance in *li*	Type of transport
Jiangsu	Suzhou	蘇州		
	Prefecture capital Zhenjiang	鎮江府	400	平水 (順水)
Hubei	Hankou	漢口	1,760	逆水

2.3.11 Regulations for the Punishments of the exceeding of time limits and their actual implementation

From 1776 (QL 41) the regulations of the Ministry of Personnel for the punishment of mint metal transport delays without cause were as follows[100]:

Table 23: Regulations for the Punishments of the exceeding of time limits by transport officials

Period of time in exceedance of the time limits	Punitive Measure
Less than 30 days	Exemption from punishment
30 days and more	Forfeit of salary for one year
60 days and more	Demotion by one rank but retention in office
90 days and more	Demotion by one rank and transfer
120 days and more	Demotion by two ranks and transfer
150 days and more	Demotion by three ranks and transfer
180 days and more	Dismissal

In order to meet the time limits each district and department along the transport route were urged to do their utmost to speed up the transports within their jurisdiction. If a district or department failed to do so and evidentially caused a delay, the official, who was assigned to speed up the transport (*Zhuancuiguan* 專催官) and the official, who was responsible for supervising the actual implementation (*Ducuiguan* 督催官) received punishment. The penalty was determined on the basis of the regulations for transports to the metropolitan mints[101]:

[100] TZBL 7: 6a; YNTZ 7: 6a, p. 275; GX-HDSL vol. 10, 219: 3b, p. 8002; JQ-HDSL 175: 24a.
[101] GX-HDSL vol. 10, 219: 3b-4a, p. 8002f; JQ-HDSL 175: 24a+b.

Table 24: Regulations for the Punishments of the exceeding of time limits by local officials

Period of time in exceedance of the time limits	Punitive Measure	
	Assigned official	**Supervising official**
1 day	Forfeit of salary for 6 months	Forfeit of salary for 3 months
2 days	Forfeit of salary for 9 months	Forfeit of salary for 6 months
4 days and more	Forfeit of salary for 12 months	Forfeit of salary for 9 months
5 days and more	Demotion by one rank but retention in office	Forfeit of salary for 12 months

2.4 Funds for the purchase of mint metals

2.4.1 Funds for the purchase of copper from Yunnan

The purchase price of copper from Yunnan that was sold to the provinces from 1740 onwards[102] depended upon its quality. There were two grades of quality classifying the copper: high-grade copper (高銅), also designated as "pure copper" (*jingtong* 淨銅), which was generally sold for 11 *tael* each 100 *jin* and low-grade copper (抵銅), which was sold at 9 *tael* for each 100 *jin*. Although high-grade copper was first and foremost used for metropolitan minting purposes, in case of abundance, it was also sold the provinces. Copper of this quality was, as an example, received from the mine Daxing (大興).[103]

When in 1741 (QL 6) the Ministry of Revenue fixed the official price for provincial procurement of copper from Yunnan, low grade copper apparently came only from the Jinchai mine and it therefore solely served provincial minting purposes. [104] Because its coppers' quality was low and the colour blackish (*zhise dihei* 質色抵黑) Jinchai 金釵 was excluded of the general price regulation of 11 *tael* per 100 *jin* and sold at 9 *tael*/100 *jin*. Yet, in order to compensate for the qualitative deficiencies, copper purchases from this mine, in response to a memorial by Qing Fu 慶復, Governor-General of Yunnan, were supplemented with an additional 23 *jin* for each procured 100 *jin* of copper from 1740 (QL 5) onwards.[105] From 1740 (QL 5) the Jinchai mine provided copper for the provincial mints and the local mints of Yunnan, yet from 1783 (QL 48) shipments to the mints of Yunnan were suspended.[106] There

[102] TZBL 2: 42a, p. 167.
[103] HBGZZL 3: 25a, p. 72.
[104] HBZL vol. 1, 44: 25a, p. 369; GX-HDSL vol. 10, 218: 1b, p. 7990; JQ-HDSL 175: 1b; HBGZZL 3: 32a, p. 75.
[105] GX-HDSL 218: 1b, vol. 10: 7990; JQ-HDSL 175: 1b; YNTZ 2: 41a.
[106] TZBL 2: 42b, p. 168.

were, however, exceptions from the general dualistic price structure. In 1745 copper from Yunnan was sold at the price of 9,2 *tael* silver/100 *jin* to Zhejiang province.[107] This copper derived from the mine Duona in the department Xundian and was sold at this price because its copper was of mixed quality (*Duonachang tong chengse jian you gaodi* 多那成色間有高低).[108]

From the beginning of provincial minting in the Qianlong period (1736-1795) Jinchai had always been an important supplier of provincial minting. In the Jiaqing period (1796-1820) it became obviously even more important. Because the provincial mints, except those of Zhili and Shanxi, procured more copper from Jinchai than before, from 1800 (JQ 5) onwards they did not need to procure additional lead at Hankou anymore as the Jinchai copper had a high content of lead.[109]

Each time a transport official procured copper in Yunnan the quality of the copper that he had to procure was determined and communicated to his home province beforehand. Upon his arrival at his home province the quality of the procured copper was verified. If the quality of the copper was insufficient and not in accordance with the communication sent by Yunnan province, the transport official had to make up for the loss.[110]

Apparently the transport official, or at least someone in his entourage, had the ability to ascertain the quality of the copper, given out by the mine, as, in case of an insufficient quality, he had to reject the copper. Otherwise he had to confirm the receipt of the full amount in proper quality with his seal.[111]

In general, Yunnan copper was transported in lumps that were shaped like crab-shells (*xieke piantong* 蟹殼片銅). During the overland transports of these lumps losses due to abrasion were inevitable (*kepeng buwu zhehao* 磕碰/碰不無折耗).[112] For this reason, whenever copper was sold to the provinces, no matter what quality, one *jin* "surplus copper" (*yutong* 餘銅)[113] had to be added to each 100 *jin* regularly procured copper (*zhengtong* 正銅).[114] It was handed out by the mines in Yunnan in order to make up for these transport losses due to abrasion and other reasons. Although the first regulation on copper transports from Yunnan do not stipulate the apportion of *yutong*[115], according to the TZBL and the

[107] TZBL 7: 16a; YNTZ 7: 15a.
[108] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.
[109] GX-HDSL vol. 10, 218: 19b+20a, p. 7999; JQ-HDSL 175: 19b.
[110] GX-HDSL vol. 10, 218: 16b, p. 7997; JQ-HDSL 175: 16b.
[111] GX-HDSL vol. 10, 218: 16b, p. 7997; JQ-HDSL 175: 16b.
[112] NGHKTB 1.7/1, QL 5/12/21, Xu Shilin 徐士林.
[113] This term has a different meaning in the context of mining. In the mining business it indicates the remaining amount of copper after tax deduction, which is free to be sold by the miners.
[114] In comparison to the allowance for the provinces, the allowance of *yutong* for the metropolitan mints was 3 jin for 100 jin of regular copper.
[115] GX-HDSL 218:1b, vol. 10: 7990.

YNTZ, however, *yutong* was received from the beginning of provincial purchasing.[116] In the relevant literature *yutong* 餘銅 is usually translated verbatim as "surplus copper". Because of its usage we however suggest and prefer the more meaningful designation "transport loss compensating copper".

Although not mentioned in the regulatory sources, there were detailed guidelines about how much "transport loss compensating copper" may be used up over certain stretches. For the transport of copper along the 7 stages from Xundian to Zhuyuancun, as an example, which was accomplished with carts, 3 *liang* of *yutong* for each 100 *jin* of transported copper were deducted.[117]

When Zhejiang and Jiangsu started to procure copper in Yunnan in 1740 there were no stipulations to issue additional quality compensating copper in case of the purchases of high grade copper. These regulations were however out of some unknown reason revised afterwards. The Hubu zeli stipulated that whenever the province Jiangsu procured high grade copper in Yunnan, 4 *jin* quality compensating copper had to be added each 100 *jin* regular copper; Zhejiang received an additional 4 *jin* and 6.373 *liang* for each 100 *jin* procured high grade copper.[118] The HBGZZL is even more precise for Zhejiang and stipulates that 6.3734 *liang* additional copper had to be provided.[119] However, in accordance with the TZBL and the YNTZ, the above regulation for an apportion of quality compensating copper in case of high grade copper purchases was never implemented for Jiangsu[120] and Zhejiang received not the meticulous stipulated amount, but only 4 *jin* and 6 *liang* for each 100 *jin* regular copper.[121]

Whenever Zhejiang and Jiangsu received purple-slab copper from the mines Gejiu, Ningtai, Yidu, and probably also in case they received copper from Xiangshupo, the transport official had to transport it to Yunnanfu and have it decocted (*jian* 煎) there once again into more refined copper, which had the form of crab-shells (*xieke* 蠏殼) and was therefore called "crab-shell copper (蟹殼銅)". For this purpose the mine Ningtai had to hand out a supplementary 2 *jin* and 10 *liang* quality compensating copper (耗銅) and as usual 1 *jin* transport loss compensating copper (餘銅) for each 100 *jin*.[122] In deviation from that regulation Hubei province, however, received 20 *jin* and 10 *liang* additional quality compensating copper for a transport at the end of the Jiaqing reign.[123]

[116] TZBL 7: 12a et seq.
[117] NGHKTB 2.11/7, QL 14/7/18, Yue Jun 岳濬.
[118] HBZL 44: 25a, vol. 1: 369.
[119] HBGZZL 3: 25a, p. 72.
[120]. TZBL 7: 12a-b; YNTZ 7: 12a-b.
[121] TZBL 7: 16a-17b; YNTZ 7: 15a-16a.
[122] GX-HDSL vol. 10, 218: 10b, p. 7994; JQ-HDSL 175: 10b.
[123] NGHKTB 2.3/1, QL 10/4/28, Zhang Yinghan 張映漢.

According to Sun "this category [i.e. crab-shell copper] was considered as among the highest grades of metallic copper produced with the techniques then available".[124] However in the case purple-slab copper was received from Gejiu and Yidu, apparently no additional quality compensating copper was allocated.[125]

It seems that in case of provincial copper procurement from the mine Daxing the regulation for the allowance of *haotong* (耗銅) was not carried out uniformly. Whereas Zhejiang and Jiangsu received 4 *jin* and some *liang* of haotong, Guandong province was given 10 *jin*[126] per 100 *jin* of regular copper (*zhengtong* 正銅).[127]

Table 25: Regulations for the addition of *haotong* and *yutong*

Name of mine	**Copper price (*tael*/100 *jin*)**	**Additional copper**	
		haotong	**yutong**
Jinchai	9	23 *jin*	1 *jin*
Ningtai[128]	11	2 *jin* 10 *liang*	
Duona (多那)[129]	9.2	10 *jin* 4 *liang*	
Tangdan[130]	11	4 *jin* 6.37+ *liang*[131]	
Jianshan 尖山[132]	11	4 *jin* 6 *liang*	
Yidu[133]	11		
Daxing[134]	11		

[124] Sun 1981: 65.
[125] HBGZZL 3: 32a, p. 75.
[126] 11 jin *haoyutong* (耗餘銅) less one jin of stipulated included *yutong*.
[127] GX-HDSL 218: 10a, vol. 10: 7994; JQ-HDSL 175: 9b; NGHKTB 10.17/7, JQ 20/5/2, Chang An 常安.
[128] Stipulated in 1762 (QL 27). GX-HDSL 218:10b, p. 7994.
[129] In QL 10 and 12 Zhejiang used copper that it had procured from this mine for its minting. In QL 10, however, no *haotong* was received. This mine does not occur in the TZBL and the YNTZ. NGHKTB 2.10/6, QL 13/11/12, Fang Qincheng 方親承; NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安
[130] NGHKTB 2.11/7, QL 14/7/18, Yue Jun 岳濬.
[131] NGHKTB 2.3/1, QL 10/4/28, Chan An 常安.
[132] NGHKTB 6.15/1, QL 38/2/23, Yong Gui 永貴. This mine does neither appear in the TZBL nor in the YNTZ.
[133] NGHKTB 6.15/1, QL 38/2/23, Yong Gui 永貴.
[134] NGHKTB 5.16/13, QL 32/12/15, Fu Heng 傅恒.

2.4.2 Funds for the purchase of tin, zinc and lead

a) Funds for the purchase of zinc

In 1727 (YZ 5) the funds for the procurement of zinc (*baiqian* 白鉛) from Guizhou, at that time received at Yongning 永寧, were set at 3.9 *tael*.[135] Due to increased transport expenses in 1803 (JQ 8) the price of zinc, sold to the provinces at the zinc office at Hankou, was raised to some 4.23 *tael*/100 *jin*.

b) Funds for the purchase of lead

In 1752 (QL 17) the funds, allotted to the provinces of Jiangsu and Zhejiang for the purchase of lead (*heiqian* 黑鉛) at Hankou, amounted to 15.5 *tael*/100 *jin*.[136] Yet, from 1755 (QL 20) onwards the purchase funds for lead were much lower and hovered around 6 *tael*/100 *jin*.

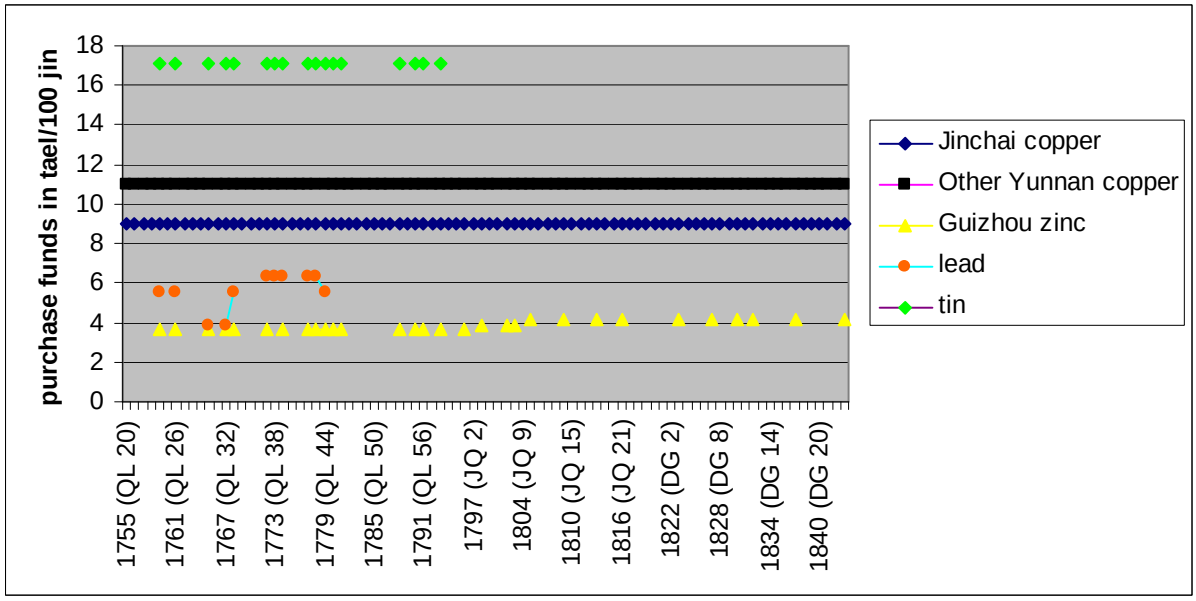
c) Funds for the purchase of tin

In 1745 (QL 10) the funds for Zhejiang for the procurement of tin (*dianxi* 點錫) at its capital amounted to 15 *tael*/100 *jin*.[137] Jiangsu province received funds amounting to 17.1 *tael* for the purchase of 100 *jin* of tin at Hankou according to a regulation in 1753 (QL 18).

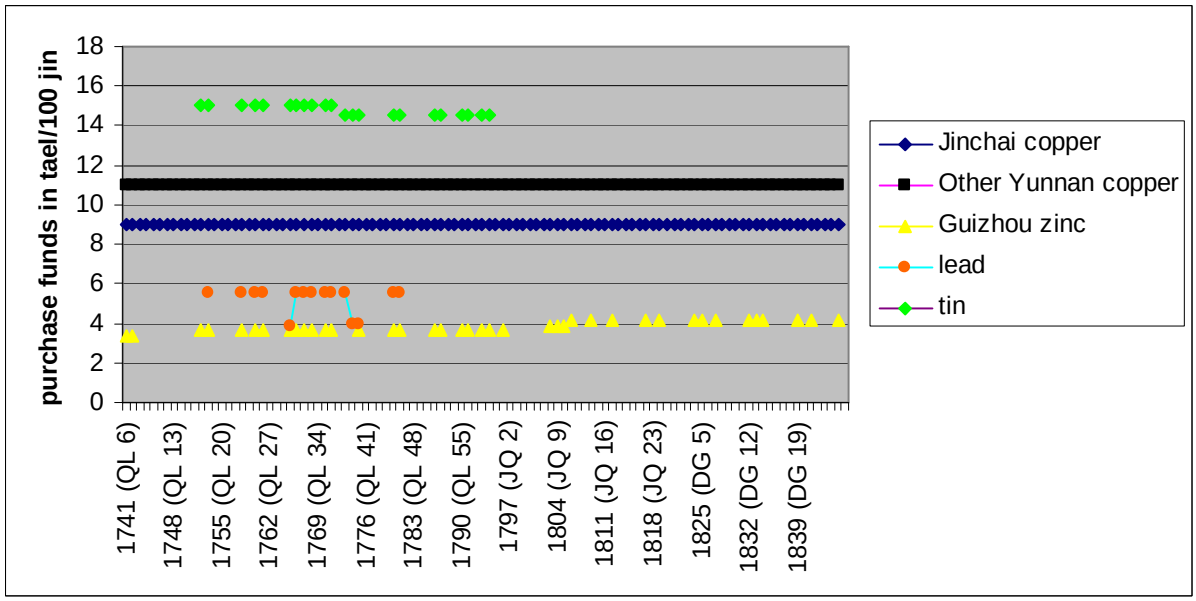
As can be seen from the two graphs below the mint metal purchase funds for Jiangsu and Zhejiang remained stable between 1740 and 1840 for copper from Yunnan. Only the funds for zinc were raised slightly from 3.8 *tael*/100 *jin* to around 4.2 *tael*/100 *jin* during this period.

[135] GX-HDSL vol. 10, 218: 1a, p. 7990; JQ-HDSL 175: 1a.
[136] GX-HDSL vol. 10, 218: 5b, p. 7992.; JQ-HDSL 175: 5b.
[137] GX-HDSL vol. 10, 218: 2a, p. 7990; JQ-HDSL 175: 2a.

Graph 3: Mint metal purchase funds for Jiangsu province



Graph 4: Mint metal purchase funds for Zhejiang province



Although some of the funds for the purchase or the transport of mint metals, as seen from the graphs above, were raised between 1740 and 1840, they still did not suffice to cover the

actual expenses. A rare example of a final account on a mint metal transport in 1808 gives evidence to this circumstance:

The transport official Zhou Dai 周岱 started his transport in JQ 13/閏5/13 from Suzhou to procure 650,000 *jin* regular copper, 149,500 *jin* wastage copper and 6,500 *jin* surplus copper, altogether 806,000 *jin* of copper from the mine Jinchai in Yunnan. He returned after four years in JQ 17/7/26 and handed over the full amount to the Jiangsu mint. In his first report he he brought to account transport costs amounting to 40,818+ *tael*. Only when he reduced the amount by 8,778+ *tael* like Hu Guanglin 胡光林, the transport official of the former transport in 1807 (JQ 12) had done, the account was accepted by the Ministry of Revenue. This meant that Zhou Dai had to provide more than 20 percent of the transport expenses by himself which he most certainly had to pay out of his own pocket.

From the treasury of Suzhou he had received transport funds amounting to 26,506+ *tael* and an additional 3,000 *tael* from the treasury at Yunnanfu. On his way his had borrowed 500 *tael* from Hunan province. In his final report he was granted the amount of 90,539+ *tael* by the Ministry of Revenue, 58,500 for the purchase of the copper and 32,039+ transport funds, all in all 2,033+ *tael* more than the advanced funds.

According to the account the mint produced 657,288+ *jin* pure copper from the procured 650,000 *jin* of regular copper and the additional wastage copper which meant an official price of 13.77+ *tael* for 100 *jin* of copper.[138] If we, however, include the 8,778+ *tael* paid by the transport official the actual price would have been considerably higher, namely 15.11+ *tael*/100 *jin* of copper.

2.5 Personnel

2.5.1 Officials for mint metal transports and their underlings

The provincial authorities responsible for the designation of transport officials were the governor-general, the governor and the treasurer of the respective province. The selection of appropriate and qualified officials for mint metal transports was a delicate matter. If the responsible provincial officials failed in appointing a capable transport official or appointed sub-bureaucratic personnel and irregularities such as deficits on account of misappropriation or any others occurred en route, these provincial authorities were held responsible.[139]

In 1775 (QL 40) the Qianlong emperor decreed that capable local officials, district magistrates or prefectural assistants, like *tongzhi* (同知) or *tongpan* (通判), should be appointed to perform and supervise copper transports from Yunnan to the provincial mints.

[138] NGHKTB 10.15/14, JQ 19/閏2/ 26, Zhu Li 朱理.
[139] GX-HDSL vol. 10, 218: 12b-13a, pp. 7995f.; JQ-HDSL 175: 12b+13a.

Even if there were minor sub-bureaucratic Yamen personnel or low rank military officials who would be capable and trustworthy of performing such a task, they should under no circumstances be allowed to do so, because this would cause transport delays. They should only be allowed as auxiliary transport personnel. Of prime importance to the emperor was, however, the precondition of appointing wealthy local officials, to make sure that in case of deficits due to embezzlement or other reasons they could compensate for the loss.[140]

According to archival material, as a general rule, the official personnel of a transport official encompassed only 8 persons.[141] In addition to the official personnel the entourage of the transport official consisted of his personal adviser and secretary (*muyou* 幕友), his indentured servants (*jiaren* 家人) and his personal servants (*changsui* 長隨) with him. The *jiaren* were commonly indigent folk who indentured themselves through a contract for a period of years. In case of shipwrecks, as an example, they were left behind to supervise the salvaging of the sunken copper together with the local officials.[142] The personal servants attached themselves temporarily to Chinese officials in office in order to connive with the yamen runners, to demand and steal money until they were discovered or their master left office, whereupon they sought another official to pledge themselves to.[143]

2.5.2 Other personnel

In order to navigate safely through the shoals so-called shoal pilots (*tanshi* 灘師) and boat trackers (*qianfu* 縴夫) had to be hired. Apparently it was an established custom to reward them with money after a successful mission.[144]

In case of shipwreck the local officials hired divers (*shuimo* 水摸) that were entrusted with the salvaging of the copper.[145]

2.6 Concluding remarks

Due to the absence of navigable rivers within Yunnan and its mountainous terrain, the overland transport of copper constituted a major challenge. The transports of copper from Yunnan to the mints of Jiangsu and Zhejiang demonstrate clearly the time- and capital-consuming nature of overland transports of goods and commodities and its detrimental influence on inland trade. If we compare the transport of copper from the mine Jinchai on the

[140] GX-HDSL vol. 10, 218: 12b-13a, pp. 7995f.; JQ-HDSL 175: 12b+13a; ZPZZ 1296-026, QL 40/10/8, San Bao 三寶.
[141] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.
[142] ZPZZ 1309-007, reel 62/9, QL 45/2/13, Li Hu 李湖.
[143] Torbert 1977: 57.
[144] NGHKTB 4.9/8, QL 24/10/26, Fu Heng 傅恒.
[145] See for example: ZPZZ 1309-007, reel 62/9, QL 45/2/13, Li Hu 李湖.

overland stretch from the Mengzi to Bo'ai, which was about 400 km, with the fluvial stretch from Bo'ai to Hangzhou, which was about 3,360 km, we discern major differences in the funds allocated. For the overland stretch funds amounting to some 2.19+ *tael* were allocated, amounting to 0.54+ *tael* for each 100 km whereas for the fluvial stretch funds amounting to 1.11+ *tael*, only 0.033+ for each 100 km, were received. This means that overland transport funds were more than 16 times higher than those for the transport on water.

The regulations for the purchase and the transport of mint metals to Jiangsu and Zhejiang are almost consistent. We only detected minor digergencies in transport funding. Although the regulations for transport funding suggest no increase in funds, the Ministry of Revenue, as an example, actually raised the allocated funds for the transport of copper from the mine Jinchai during the period from 1740 to 1840. Yet, instead of raised transport funds the amounts were still to low to cover the acutal transport expenses. Archival evidence shows that transport officials had to provide up to 20 percent of the transport expenses in order to complete their mission successfully.

But the transport officials were not only expected to make up for funding shortfalls. They were also supposed to master the challenging and time-cosuming assignment with official personnel that encompassed only 8 persons for the transport of copper from Yunnan, guaranteeing the arrival of the full amount within the stipulated tight time-limits.This meant that with a minimum of official assistance a transport official, not officially trained for such kind of undertaking, had not only to see about matters like hiring enough pack animals and boats, observing the weighing out of the copper at the mines, verifying the quality of the copper and keeping transport losses within legal limits, but he had also to defy adverse weather and climate conditions, snobbish boat crews and shoal pilots and keep the gods of the rivers pleased. The problems and difficulties of the mint metal transportation system will be dealt with in more detail in the next chapter.

As a result of this chaper we may conclude that the organisational capacity of the Qing state, by which I understand the key elements of financial resources, staffing and also knowledge employed by the central government, was rather low. The transport officials were underfunded, understaffed and beyond that not officially trained to perform such organisational tasks. It is the aim of the next chapter to investigate into the organisational performance of these officials in transporting mint metals in view of the low organisational capacity.

Chapter 3: Mint metal transports to the provincial mints of Jiangsu and Zhejiang between 1760 and 1795: Transport problems and abusive practices

In this chapter we investigate into transport problems and abusive practices within the mint metal procurement of Jiangsu and Zhejiang between from 1760 to 1795. The period under investigation is characterized by an extensive documentation of the mint metal transports to the mints and therefore especially apt to carry out such a case study. The general transport problems and abusive practices, described in the first two sections of this chapter, will then be juxtaposed with the actual mint metal transports to Jiangsu and Zhejiang as documented in the transport memorials to the throne. By doing so, we intend to arrive at reliable evidence on the organizational performance of these two provinces concerning the procurement of mint metals in view of the low organisational capacity determined in the previous chapter.

From 1749 (QL 14) onwards all provinces, crossed by a mint metal transport for the metropolitan mints had to sent detailed reports about each transport in a memorial to the throne. In 1762 (QL 27) the obgligation to submit memorials on mint metal transports was extended to all provincial transports.[1] This regulation was apparently initiated by Guangxi province which already reported about mint metal transports through its territory in 1761 (QL 26).[2] In case of special incidents like theft, shipwreck and others the local governments were obliged to submit a single memorial immediately (*zhuanzou* 專奏). In any other cases they had just to send in a collective report at the end of the year (*huizou* 彙奏). This memorial would contain the transport mint metal amounts and the transport dates of each individual transport.[3]

Each time a transport official set out for Yunnanfu or Hankou to procure mint metals, his province informed Yunnan or Hubei in a communication. When the transport official left Yunnan or Hubei, these provinces sent communications to all the provinces to be crossed, to instruct all the departments and districts along the way to inspect and escort the transport.[4] In case of Guangxi province[5] even prefects in person had to escort and hand over the transports that crossed their jurisdictions. In case there was calm wind (*shoufeng* 守風) or the water level was to low to proceed (*shoushui* 守水) and the transport was forced to halt, the prefects had to inquire into the matter personally in order to prevent faked reports on delays. If it turned out that there were delays they had to impeach the malefactors in a report.[6] The provincial government collected all the transport reports received from the different districts and departments and memorialized accordingly to the throne. As copper transports of Jiangsu and Zhejiang started in Yunnan and proceeded through Guangxi, Guangdong, Hunan, Hubei, Jiangxi, and Anhui to end in Suzhou or in Hangzhou respectively, in the ideal case, each

1 GZD 16-525; GX-HDSL vol. 10, 218: 10a, p. 7994.; JQ-HDSL 175: 10a.
2 ZPZZ 1262-023, reel 61/5, QL 26/12/8, Xiong Xuepeng 熊學鵬.
3 ZPZZ 1270–004, reel 61/9, QL 34/1/27, Yong De 永德.
4 GX-HDSL vol. 10, 218: 10a, p. 7994; JQ-HDSL 175: 10a.
5 The same was true for Guangdong province.
6 A regulation set up in 1791 (QL 56). GX-HDSL vol. 10, 218: 17a+b, p. 7998; JQ-HDSL 175: 17a+b.

single transport is documented by all these provinces. The same is true for zinc, lead and tin transports from Hankou. The following case study is based on this extensive archival documentation. For no obvious reason this documentation ends abruptly with the end of the Qianlong reign in 1795.

3.1 Mint metal transport problems

As minting of copper cash depended on a timely supply with mint metals, delays of transports constituted one of the major problems for the mints. This was especially true for copper transports from Yunnan. The reasons for transport delays were manifold, but scarcity of pack animals, illness and/or death of transport officials, shipwrecks and the changing natural conditions may be considered as predominant.

3.1.1 Scarcity of pack animals

Due to the many copper transports by the different provinces pack animals were always in great demand and therefore very scarce.[7] The situation, however, became very tense for transport officials when the pack animals were needed in agriculture. As oxen and horses were employed in farm work, the transport official had enormous problems to find enough pack animals during agricultural high seasons: the planting time and the harvest seasons. The convoy had no choice but to wait until pack animals became available again. According to the regulations, the time limit could be extended for 60 days in such a case:

> If a transport is conducted during the fifth or sixth month, when the transport labourers (*jiaohu* 腳戶) return home in order to cultivate their fields, or during the eighth or ninth month, when it is time for the harvest, the transport must not be pushed forwards. In compliance with the regulations, the local official has to investigate and to confirm the matter and [the two officials jointly] submit a report [to the provincial governor of Yunnan who notifies the Ministry. The transport will then be halted] and the time limit will be extended by two months.[8]

3.1.2 Illness and/or death of transport official

The regions around Bo'ai and Baise (especially the ten stages between Ajide 阿記得 and Bo'ai were known as highly infectious malaria area (*yanzhang* 煙瘴) during summer and

7 See also Vogel 1989, 367ff.
8 TZBL 7: 5a-b. Translation by the author.

early autumn.[9] Transport officials were recommended to rather perform transports during spring and late autumn. During these times, however, the transports were likely to coincide with the agricultural high seasons.

In a routine memorial in 1745 (QL 10) even the stretch between Zhuyuancun and Bo'ai is described as an highly infectious malaria area, allowing transporting only between the 11th to the 2nd months, as porters refrain from being hired from the 3rd month onwards.[10] But although Baise certainly was a somewhat feverish place, concerning the stretch between Zhuyuancun and Bo'ai, the Chinese exaggerate its unhealthiness as they also did in other circumstances.[11]

In case a transport official fell sick, and, in accordance with the regulations, the transport had to be halted until his recovery:

> If a transport official falls ill en route, the local officials have to investigate and to confirm the matter and to send in a report. The time from his sickness to his recovery has to be entered in the final report of Yunnan province on this transport and be deducted from the time limit.[12]

In case a transport official died en route, he had to be replaced by another official wich certainly led to severe delays. In some cases, however, the transport was forwarded by a local provincial official.[13] The same procedure was applied in case a transport official was accused of an offense and removed from his duty.

3.1.3 Shipwrecks

When, in spite of all precautionary measures, copper sank due to a shipwreck (*chenru* 沉溺), an important duty of the local official was to participate in the salvaging of copper.[14] Together with the transport official he was responsible for the hiring of divers (*shuimo* 水摸).

Each time a shipwreck occurred, the officials concerned had to adhere to special regulations. First a time-limit of ten days was set, within which the attempt should be made to salvage the copper immediately. After ten days, the copper convoy had to proceed, but the transport official left back a confidant who directed salvaging operations together with the local official. The place of the accident was secured by soldiers in order to prevent the illicit selling of salvaged copper by the divers, being in collusion with shop dealers along the way. After having delivered up the copper in Peking, the transport official returned to the accident

9 GX-HDSL vol. 10, 218: 6b, p. 7992.; JQ-HDSL 175: 6b; ZPZZ 1267-014, reel 61/7, QL 31/8/10; Yang Yingju and others 楊應琚等.
10 NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.
11 See also: Davies 1909, 112.
12 TZBL 7: 5b. Translation by the author.
13 GZD 34-673, QL 39/2/26, Chen Huizu 陳輝祖.
14 Vogel 1989, 384c.

site. A time-limit of one year was set for salvaging the whole amount of copper lost. Remittance was only granted at dangerous shoals. In case no copper or merely a part of it was salvaged, the transport official had to make good 70 percent of the copper and the local official 30 percent.[15]

3.1.4 Changing natural conditions

Changing natural conditions were the most prevailing factor for delays of mint metal transports. Delays were caused by ice and frozen waterways, waiting for wind (*shoufeng* 守風), storms (*zufeng* 阻風)[16], low and high water and others.

3.1.5 Other reasons

Other reasons for delays were customs inspections (*guoguan chayan* 過關查驗), repair of boats (*xiuchuan* 修船), lightering (*qibo* 起剝)[17], encounters with tribute grain ships that had the right of way[18] and shallows and rapids. Military actions like the war with Burma in the 1760s also had an impact on mint metal procurment: The expectant district magistrate Tang Zhongshu 候補知縣湯仲書 procured 200,000 *jin* of copper from the mines Tangdan and Jinchai in Yunnan. He exceeded the time limit of 120 days for the stretch from Hangzhou to Yunnanfu by 39 days. According to the governor of Guizhou the delay was due to the scarcity of means of transport caused by troop movements (*yantu shuifa jingbing* 沿途水發京兵) in his territory. This gives indeed evidence to the assumption that the Burma War (1763-1769) had a detrimental influence on provincial copper procurement.[19]

Another reason for delays were congestions of transport officials at the same mines. The transport of Tang Zhongshu mentioned above arrived another 86 days too late at Bo'ai which reportedly was caused by a bottleneck in the handing over of copper at the mine Jinchai, as transport officials of several provinces arrived around the same time.[20]

15 Vogel 1989, 384d.
16 GZD 37-226, QL 39/10/12, Hai Cheng 海成.
17 GZD 37-20, QL 39/9/26, Sa Zai 薩載.
18 Vogel 1989, 390.
19 ZPZZ 1286-037, reel 61/17, QL 37/12/4, Xiong Xuepeng 熊學鵬.
20 ZPZZ 1286-037, reel 61/17, QL 37/12/4, Xiong Xuepeng 熊學鵬.

3.2 Abusive pratices in mint metal procurement

Abuses connected to mint metal transports were, amongst others, the smuggling of salt, weapons, merchandise, and women on copper transport boats and the bribing of local officials and underlings by the transport officials with presents of local products to prevent them from intentionally impeding the copper convoys. [21] There were also cases in which transport officials were suspected to have manipulated their reports.

Yet, the most serious abuse beyond doubt was theft and illicit sale of copper along the way. This is confirmed by Tong Hua 童華, Prefect of Suzhou, who reports about the transport of Japanese copper:

> "There is nothing which causes more harm to copper procurement than theft. […]. From the unloading of the copper from the ocean ships on lighters to the handing in and repacking [*gaikun* 改綑] at the storehouses and from the handing out from the storehouses and the beginning of the transport until its arrival and delivery [of the copper] at the [mints of the] Ministries, there is never ever any place where copper is not stolen. The more strict the preventive measures, the more copper being stolen.[22]

3.2.1 Theft by transport officials

Transport officials were the main target of imperial suspicion concerning theft and illegal sale of copper. In 1752 (QL 17) the Qianlong emperor issued the following edict:

> Hitherto, when copper ships of [transport officials of] the different provinces shipwrecked en route there were cases in which the shipwrecks were due to dangerous spots [in the rivers] or storms. But there were also cases in which worthless and mean officials had illegally sold [copper] on their way and manipulated the accounts.

Vogel made out one case in 1783, in which a transport official was accused of having clandestinely sold 200,000 *jin* (about 120 tons) of copper. He was handed over to the Board of Punishments for interrogation, but it seems that he finally was rather punished on account of his administrative incompetence than because of any illegal action.[23]

In 1790 the emperor issued another edict in which he expressed further suspicions toward transport officials:

21 Vogel 1989, 392b.
22 Tong Hua, Tongzheng tiaoyi, 803.
23 Vogel 1989, 392d.

> Copper is such a hard substance that one finds it difficult to break up [the large pieces] for re-melting; how can it be claimed that it cannot stand a little bit of knocking about? Even if the thinner edges of the cakes should be broken off occasionally, the bits should still be found inside the boat, where they can be picked up and returned [to the container]; and even if some of it should be lost, it surely cannot amount to several thousand catties! All this must be due to the fact that the transport officials are guilty of the theft and illegal sale of the goods under their charge or of loss [through carelessness], and are trying to cover up with lies….Let [the transport officials] make complete restitution of all the copper that has been 'lost through breakage'…….. The same officials are to be handed to the Board [of Civil Appointment] for severe punishment.[24]

3.2.2 Theft by boat crews and divers

Not only transport officials and their underlings but also boat crews and divers, salvaging sunken copper, were frequently suspected and accused of having indulged in this abuse. Shipwrecks were simulated and the copper thrown into shallow water, or a boat was intentionally sunk. Thereafter the copper was clandestinely salvaged and sold.[25]

In 1756 (QL 21) a provincial official reported to the emperor how boat crews steal copper. According to this report the boat crews on each [arising occasion] slow down the speed, anchor at deserted places and clandestinely throw [copper] in the water. [Afterwards] they set sail and proceed. They are followed by small boats which secretly salvage [the copper] and sell it. Having done this many times and fearing to be caught they cut a hole in the planks of the boat and sink it in order to hide their tracks.[26]

In 1778 (QL 43) a similar case of theft of 3600 *jin* (about 2150 kg) of copper was revealed. The boat crew of a lighter had intentionally fallen behind the convoy, anchored at the home of one of the members of the crew and stashed away copper. They afterwards substituted the stolen copper with clod of earth. In order to conceal the theft they cut a hole in the boat, sank it and fled. When the theft finally was discovered they had already sold part of the copper in Jiangsu. The main culprit, who had planned the whole thing, was sentenced with dead by strangling. The others were sentenced with strangling after the autumn assizes, lifelong banishment and compulsory labour respectively.[27]

In another case a boat crew had stolen about 100 kg of copper, substituted it by iron and sold the copper.[28]

24 QCWXTK, 7683b. Translation based on Sun 1971, 144.
25 Vogel 1989, 392b.
26 GZD 16-23; ZPZZ 1249-021, QL 22/4/15, Bai Zhongshan and others 白鍾山等.
27 Reiser 1996.43.
28 Reiser 1996, 43.

Sometimes boat crews even joined forces with divers in order to purloin copper. In 1765 (QL 30) a case of copper theft was revealed in which a group of divers and their accomplices and even a boat crew, altogether 25 persons, were involved. The divers had not only performed their duties perfunctorily and even obstructed the copper salvaging process but even devised a plan to purloin copper. They had cut 4 openings in the hull of the salvage vessel and attached ropes to them, which hang into the water. Each time they dived in order to salvage copper they stole copper and retained the copper by affixing it to the ropes. In the night they moved the boat and deposited the stolen copper at shallow riverbanks so as to sell it secretly at convenience. When this abuse was revealed some of them had already sold 5500 *jin* (about 3300 kg) of copper for 815 *tael* silver. Another 1135 *jin* (about 680 kg) of the stolen copper was found on a boat together with some of the divers.[29]

These cases show that there was reason not to trust boat crews and divers and it is remarkable that like in the last case, even though the place of the accident was secured by soldiers in order to prevent the divers and boat crews from stealing salvaged copper, they were resourceful in finding ways to circumvent these measures.

3.2.3 Theft by packing, weighing and transport personnel

Again, the personal writings of Tong Hua are revealing about abusive practices by hired packing, weighing and transport personnel:

> "Numerous persons and hands are involved in bundling and weighing the copper and therefore [copper] gets lost very easily due to negligence. Furthermore these people have all been stealing copper for many years and it is very difficult to prevent them from doing so. I have already [arranged], that, in order to prevent abuses, all the people who are engaged in repacking during the summer months put off their clothing and enter [the storehouses] stripped to the waist and are once again searched when coming out. But I do not know, whether there are still people, who steal secretly. The workers in the storehouses use large kerchiefs to wipe off sweat and when they go to the toilet they wrap short pieces of copper in it or they hide them in their trousers waistband and bury the pieces at places afield and afterwards they dig them out and take them away [clandestinely]. […] Among all the skippers of the small and large ships, the storage workers, the cart drivers and the personal of the Ministries (*buzhong kantang ren* 部中看堂人) there is no one who does not pilfer [copper].[30]

29 GZD 25-131f.
30 Tong Hua, Tongzheng tiaoyi, 804.

3.3 Case Study: Transport problems and abusive practices within the mint metal procurement for Jiangsu and Zhejiang

3.3.1 Shipwrecks

During the period under investigation three transports of Jiangsu and two of Zhejiang shipwrecked. In the case of the first shipwreck, the copper transport of the Jiangsu official Zhang Teng 張騰 in 1767 (QL 31), the whole amount of sunken copper was salvaged.[31] The Jiangsu copper transport by Ren Hui 任惠 in 1780 (QL 45), lost 1,077 *jin* of copper due to shipwreck.[32] The third shipwreck of Jiangsu province occurred during a zinc transport by the transport official Pan Guangshu 潘光曙 in QL 44. 27,599 *jin* of a sunken 95,940+ *jin* could be recovered.[33]

The two copper transports by Zhejiang, the transport by Shi Yongfu 石永福 in QL 47[34] and by Zhu Linzheng 朱麟徵in QL 53[35], lost 45,544+ *jin* and 4,683 *jin* in shipwrecks, respectively.

Table 26: Mint metal losses by Jiangsu and Zhejiang

	Jiangsu		**Zhejiang**
	Zinc	**Copper**	**Copper**
Total amount of transported metal/*jin*	8.98+ million	2.9 million	4.74 million
Lost metal/*jin*	27,599	2,927	57,439
Lost metal/percent of whole transported amount	0.3%	0.1%	1.2%

The shipwrecks certainly delayed the transports but the losses due to shipwrecks were insignificant and negligible. As can be seen from the table above the transport losses only ranged between 0.1 and 1.2 percent.

But as 90 percent of all shipwrecked mint metal transports had occurred in the dangerous stretches between Luzhou in Southwestern Sichuan and Hankou[36] the situation of Jiangsu and Zhejiang is certainly not representative for the whole mint metal procurement system. Besides, these provinces performed less copper transports than other provinces as they could additionally rely on imported copper from Japan. 1,850 *jin* of the lost copper of Jiangsu

[31] ZPZZ 1266-031, reel 61/7, QL 31/5/30, Ming De 明德; ZPZZ 1266-039, reel 61/7, QL 31/6/21, Ming De 明德.
32 ZPZZ 1309-007, reel 62/9, QL 45/2/13, Li Hu 李湖.
[33] ZPZZ 1306-015, reel 62/8, QL 44/10/12, Min Eyuan 閔鶚元
34 GZD 52-709, QL 47/8/19, Sa Zai 薩載.
35 GZD 71-24, QL 54/1/18, Min Eyuan 閔鶚元.
[36] Unpublished conference paper by the author, presented on the2008 MMF conference in Bochum.

province, however, were not lost in a shipwreck but apparently embezzled by the transport official Zhang Lüguan 張履觀.

3.3.2 Manipulated transport reports

Zhang Lüguan 張履觀 had been made responsible for a copper transport to the Suzhou mint in Jiangsu province in 1782. He had received about 300 tons of copper from the Jinchai mine in Yunnan. During the land transport within Yunnan, which was accomplished by pack animals, he had lost about 600 kg copper due to abrasion. Because transport loss was quite common on the overland route in Yunnan it was budgeted for in the regulations, so that the transport official could deduct the lost copper in his transport account. From Guangxi onwards, however, the copper was transported on waterway. Due to adverse water conditions the official had to change boats and to lighter several times. Reportedly, Zhang Lüguan used these circumstances as a pretext to submit a report with manipulated figures on copper losses of more than 1 ton of copper due to abrasion. Yet, according to the reports of the particular military escorts and the passed jurisdictions no losses had occurred that were affirmed by Hunan province. As a result, he was accused of having manipulated the accounts with intent to illegally sell copper and it was proposed to sentence him to 100 blows with the heavy bamboo and banishment for 10 years. This sentence was also due to the fact, that when he finally arrived in Suzhou about 670 kg of copper were indeed missing. Apart from this finding there is, concerning mint metal transports to Jiangsu and Zhejiang, no documentary evidence of direct involvement of transport officials in theft and illicit sale of copper.

Though there were many edicts in which the emperor expressed his suspicion about abuses by transport officials and frequently ordered a thorough investigation, it seems that only very seldom such abuses could be proven to have taken place. There is no evidentiary basis for the thesis of Sun that "in reality the losses, when not truly the result of accidents, were more often due to the acts of the transport officials themselves rather than divers."[37] The situation is, however, different with intentional delays.

3.3.3 Deliberate delays by transport officials

In the year 1770 (in late Qianlong 34) the emperor issued the following edict:

> Whenever transport officials of the [copper procuring] provinces proceed to Yunnan in order to buy copper there are stipulated time limits for the way to Yunnan and back to Zhejiang. But as many of those officials use pretexts to delay these transports and do not adhere to the stipulated time limits, we order the provincials governor [of Yunnan] to report in a memorial [the date of]

37 Sun 1971, 145.

> the arrival and departure from Yunnan of the officials. Concerning the date of arrival in the home province and whether there were delays or not, I order the respective governors-general and governors to verify and submit a memorial. If there were delays without reason, the names [of the officials] and an impeachment are to be submitted and investigations are to be carried out.[38]

The edict accuses transport officials of commonly disregarding the stipulated time limits, ordering closer monitoring to stop such malpractice. In this case there is documentary evidence on transport delays by transport officials. Because the transport official Lin Bingyi 林秉彝 had delayed the copper transport to Jiangsu in QL 35 very severely he was dismissed and the transport was handed over to the transport official Zhang Tingfang 張廷芳.[39] Whether Lin Bingyi had delayed the transport deliberately or due to organisational incompetence stays open. Zhang Tingfang, however, delayed the transport unintentionally. He died in Guangxi.[40] One of the transport officials of Zhejiang, Liang Tao 梁洮, also died on his way to Yunnan.[41] Shu Tairan 舒泰然, another transport official from Zhejiang fell ill en route. As he was not able to complete his copper procurement mission; he was replaced by a certain Sun Fengming 孫鳳鳴.[42] All these incidents led to severe transport delays.

The difference in duration of transports is remarkable. In order to demonstrate this circumstance, we will take a look at four shipments by Zhejiang which took place between 1774 and 1784 (QL 39 and 49):

The transport officials of the first three shipments stayed within the set time limit of 120 days for the journey from Zhejiang to Yunnan, only the 1784 shipment exceeded it. As to the fourth, we learn from a pertinent palace memorial that adverse weather conditions caused the delay.[43] Since it was a delay by less than a month (19 days only), the transport official escaped punishment.

In the case of the first transport of 1774 (QL 39), the time limit for the overland part of the transport from the mine Wanbao to Bo'ai was 283 days. The transport official, however, exceeded the time limit by 72 days. He reported that because his transport coincided with the harvest time he had not been able to meet the stipulated limit.[44]

It was on account of his late reporting on this time transgression that the transport official was impeached by the provincial governor of Yunnan. The governor thereupon received a

38 GZD 38-151.

39 ZPZZ 1289-003, reel 61/18, QL 38/5/27, Li Hu 李湖; ZPZZ 1349-034, reel 63/8, no date, Sa Zai 薩載.

40 ZPZZ 1290-010, reel 61/18, QL 38/8/18, Sa Zai 薩載.

41 ZPZZ 1324-012, reel 62/17, QL 51/5/25, Yiling'a 伊齡阿.

42 ZPZZ 1343-021, reel 63/6, QL 59/6/13, Feng Guangxiong 馮光熊; ZPZZ 1345-025, reel 63/7, QL 59/10/8, Feng Guangxiong 馮光熊.

43 GZD 69-49f.

44 GZD 38-152.

communication from the Ministry of Revenue to wait in this matter until the transport had reached its final destination, the Zhejiang mint.

The time limit from Bo'ai to Hangzhou was 211 days. Because of delays caused by the changing of boats, adverse weather, the paying of duty at customs-posts and other reasons, the time limit was extended by 101 days. When the transport official finally arrived at Hangzhou, he had exceeded the time limit by altogether 28 days. In accordance with the regulations (see previous chapter), he was exempted from punishment.

In the case of the second transport of 1775 (QL 40), the transport official received copper from the Jinchai mine as well as from the storehouses at Yunnanfu. His transport also coincided with the gathering of the harvest, but he was granted an additional 60 days according to the regulations. The time limit for the transport from the Yunnan mines to Hangzhou would have been 537 days. In the event, the convoy reached Hangzhou 43 days early. We will come back to this transport later, because in this case the period of time which the transport official needed to procure the copper was surprisingly short compared with other transports.

The transport official of the transport in 1776 (QL 41) needed only 416 days for his journey from the Jinchai mine in Yunnan to Hangzhou, i.e. 78 days less than the his colleague in the preceeding year, while transporting the same amount of copper.

The transport official of the transport of 1784 (QL 49) was less fortunate. In Yunnan, he fell sick for 90 days, and, in accordance with the regulations, the transport was halted until his recovery:

On the return voyage, not far from his destination, one of his boats sank in Anhui province and all the copper with it. In this case as in other memorials reporting irregularities, we find revealing information. We learn from the Anhui provincial governor's report that the transport had been split up into two convoys, the first of which consisted of six boats. Furthermore, it is reported that the sunken boat was loaded with 23,800 *jin* of copper, approximately thirteen tons. In spite of the shipwreck, the transport official finally arrived at Hangzhou before the expiration of the time limit.[45]

Table 27: Four copper transports and their actual duration

Year of transport	Zhejiang to Yunnanfu/days	Stay in Yunnan/days	Yunnan to Zhejiang/days	Source
1774	115	234	622	GZD 38-151ff.
1775	113	159	494	GZD 39-863
1776	115	363	416	GZD 48-183
1784	139	534	791	GZD 69-49f.

45 GZD 68-250.

The differences in the length of time within which different transport officials finished all bureaucratic procedures in Yunnanfu, set out to the mine, obtained the allocated copper, and departed from the mine, are remarkable. There were, of course, time limits for all procedures in Yunnanfu, the journey to the mines, and the handing over of the copper at the mines, but due to a lack of information on how these steps were actually carried out, we are not able to reconstruct them competely. From the regulations we know that one of the main problems was the handing over of the copper at the mines, for which there were no time limits before 1770 (QL 35), when the Ministry of Revenue eventually set fixed time limits.[46] Nevertheless, the problems continued.

As can be seen from the table above, the transport official of the transport of 1784 (QL 49) needed almost one and a half years to procure full copper quota. According to my calculations, the regular time limit would have been between 150 and 200 days. The available documents do not tell us whether this massive transgression of time stipulations had any unpleasant consequences for the officials involved. The transport of 1775 (QL 40) stayed within the time limit, but in this special case copper was handed over at the storehouses in Yunnanfu as well as at the mines.

As a result of the continuing problems at the mines, the emperor issued an edict in 1789 (Qianlong 54) in which he expressed fears that corruption among the Yunnan mine officials caused these delays. It seems that at times these officials provided preferential treatment to transport officials who had arrived later than others, presumably due to bribes. In order to eradicate these practices the emperor ordered strict measures to be taken.[47]

By comparing the stipulated time limits with the times reported for individual transports, we conclude that shipments rarely met the regular time limits. Due to delays on account of adverse weather, the changing of boats, the paying of customs duties, illness of the transport official, shortage of pack animals because of agricultural demands, trans-shipment at shoals or rapids, repair of boats, shipwreck and other reasons the time limit had to be officially extended time and again. These complicated rules and exemptions in themselves demonstrate how challenging the transport official's task was, and how much ingenuity he needed to direct his convoy from Yunnan to his destination. This basic investigation leaves us with the impression that transport officials usually managed to escape punishment, although one of the four transports took two years and another even twice as long (four years), greatly exceeding the regular stipulated duration.

The rare example of a final transport account gives evidence to the circumstance that another factor contributed decisively to speeding up a transport and adhering to the stipulated time limits:

[46] GX-HDSL 219: 3a.
47 GX-HDSL 219:4b.

In Daoguang 3/11/28 the transport official Dai Gongwang 戴公望 set out for Yunnan from Suzhou to procure 650,000 *jin* regular copper, 149,500 *jin* wastage copper and 6,500 *jin* surplus copper, altogether 806,000 *jin* of copper from the mine Jinchai. Already after less than two years he returned with the accordant amount in DG 5/9/26 and handed the copper over to the provincial mint of Jiangsu. From the treasury of Suzhou he had received 58,500 *tael* for the copper purchase and 29,766+ *tael* transport funds including miscellanous funds. The transport funds were to cover the expenses for the transport of regular and wastage copper only, not those for the transport of the surplus copper. When he departed from Yunnanfu he received an additional 500 *tael* to cover transport expenses. As he shipwrecked three times in Guangxi he borrowed another 500 *tael* from Guangxi province, amounting to a total of 89,266+ *tael* silver. As the Ministry of Revenue reclined his financial account he had to reduce the actual costs and finally was granted the amount of 89,328+ *tael*, 61 *tael* more than the advanced funds. He, however, mentions that he had not included all the expenses in the account but had met the expenses of more than 5,000 *tael* for the rewards for the various transporters involved (*shanghaoyin* 賞號銀) from his own pockets. This amount he deemed as a personal contribution (*juangei* 捐給).[48] Although Dai Gongwang shipwrecked three times he was able to complete his assignment within less than two years whereas the transport official Zhou Dai, who transported the same amount from Jinchai and did not shipwreck, needed more than four years.[49] It seems to me that the reward silver (*shanghaoyin* 賞號銀) had contributeted decisively to speeding up the copper transport.

This evidence points to circumstance that transport officials had not only to spend money out of their own pockets to cover the expenses for transport and additional staffing, shown in the previous chapter, but also made substantial personal contributions to transporting personnel in order to accomplish a mint metal transport successfully, meaning delivering the expected amount of copper within the stipulated time limit. In view of this evidence the repeated demand of the Qianlong emperor to appoint only wealthy officials all the more makes perfect sense.

3.4 Concluding remarks

Although the transporting officials were underfunded, understaffed and were not trained to perform such challenging tasks, they, despite of the many transport problems and the tight

[48] NGHKTB 11.11/12, DG 7/2/ 13, Tao Shu 陶澍.

[49] There is only one other final transport account for the provinces Jiangsu and Zhejiang rendered in the archival documents: The transport official Zhou Dai 周岱 started his transport in JQ 13/閏 5/13 from Suzhou to procure 650,000 *jin* regular copper, 149,500 *jin* wastage copper and 6,500 *jin* surplus copper, altogether 806,000 *jin* of copper from the mine Jinchai in Yunnan and returned after four years in JQ 17/7/26. NGHKTB 10.15/14, JQ 19/閏2/ 26, Zhu Li 朱理.

time limits described above, managed to keep the transport losses at an insignificant 0.1 to 1.2 percent. The ascertained minor losses conflict strongly with the quoted statements of Tong Hua on considerable transport losses on account of theft during the transport of Japanese copper from the ocean ships to the metropolitan mints in Beijing.

Reports on abuses within the mint metal procurement system of Jiangsu and Zhejiang are very scarce, which leaves the impression that the system and its control mechanisms worked smoothly and abuses like theft and illicit sale of copper were infrequent exceptions. In the one revealed case a relatively minor amount of copper was involved, yet the proposed punishment was most severe. There is no documentary evidence of large-scale malpractices as assumed by the Qianlong emperor, neither in the salvaging of shipwrecked copper transports by divers and skippers and their crews nor by transport officials.

The case of the transport official Dai Gongwang 戴公望 reveals that there was a "shadow bureaucracy" behind the official administration of the mint metal transports as depicted in the archival documents. The report on Dai Gongwang is the only report in the whole corpus of archival documents that points a the fact that transport officials had to spent substantial amounts of silver for the rewards (*shanghaoyin* 賞號銀) of the various transporters involved in order to guarantee the arrival of the full transport amount within the stipulated time limit. The 5,000 *tael* of silver for rewards contributed by Dai Gongwang from his own pockets, in addition to contributing to transport funding, did not only speed up the transport but certainly also helped to prevent abuses like theft. We may assume that in case of transport losses due to theft or other abuses the transport officials were also obliged to make up for the losses which certainly would explain the minor official transport losses.

As a result of this chapter we conclude that the underfunded, understaffed and non-specialist transport officials of Jiangsu and Zhejiang managed to perform mint metal transports with only insignificant transport losses despite major transport problems. In order to achieve their goals, however, they had to contribute substantial amounts of money of their own pockets. This explains why the Qianlong over and over again advised the provincial governments to appoint only wealthy official for mint metal transporting.

For the transport officials a transport of copper fom Yunnan was a major challenging and dangerous task that could detrimentally affect their lives and the family's fortune. The statement of Tong Hua is therefore only too understandable:

"[A transport] is viewed by all [transport officials] as a dangerous task. As soon as the order arrives, sleep and food are gone."[50]

[50] Tong Hua, Tongzheng tiaoyi, 802.

Chapter 4: Mint metal transports to the provincial mints of Jiangsu and Zhejiang between 1740 and 1850: A quantitative reconstruction

It is the main objective of this chapter to reconstruct all mint metal transports from Yunnan and Hankou to the provincial mints of Jiangsu and Zhejiang. Japanese copper, however, will be dealt with separately in the next chapters. The quantitative data of the palace memorials, analyzed in the previous chapter, will now be brought together with all other available quantitative data on transports of Yunnan copper, zinc, lead and tin to these two provinces. In the first section of this chapter we will give a short account of the way we used the available sources. In the following section we explain our method of reconstruction. The last section deals with the results of the quantitative reconstruction and its analysis.

4.1 Sources of quantitative data for reconstruction

Besides palace memorials, which have already been introduced and analyzed in the previous chapter, the most important source for data on provincial mint metal transports are routine memorials by the departement of the Ministry of Revenue in the Imperial Grand Secretariat (*Neige* 内閣). Unlike the palace memorials they contain transport data also for the Jiaqing and Daoguang periods. In addition, they supply us with amounts of mints metals used for minting and the amounts in store before and after the minting. These data are very rich. They are not only essential for the reconstruction of consumed amounts of Japanese copper, which will be done in the next chapters, but they also allow us to make a big step forward towards a meaningful reconstruction of mint metal transports to the provincial mints of Jiangsu and Zhejiang.

Yunnan province notified the copper procuring provinces twice a year[1] about amounts and the qualities of copper available for provincial purchase.[2] Yet, before a provincial government assigned an official to purchase copper from Yunnan, it had to memorialize to the Ministry of Revenue indicating why a particular purchase was necessary and how much copper it intended to buy. If the request was approved the copper procuring province and Yunnan province were notified.[3] Lists of these approved copper allocations to Jiangsu and Zhejiang survived in the TZBL and YNTZ. A comparison of these lists with the actual mint metal reports in the memorials show only minor divergences and give evidence to the high reliability of this source. Especially for the early Qianlong and the Jiaqing period these lists therefore are of great use.

[1] The communication were sent each year after the 6th and the 12th month. GX-HDSL vol. 10, 218: 12a, p. 7995; JQ-HDSL 175: 12a; ZPZZ 1290-024, reel 62/1, QL 38/9/13, Li Hu 李湖.
[2] GX-HDSL vol. 10, 218: 12a+16b, pp. 7995+7997; JQ-HDSL 175: 12a+16a.
[3] See for example. NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安; Shulman 1989: 128.

Another important source were so far unpublished statistics on copper cash production of the Jiangsu and Zhejiang mints, which Werner Burger, member of the research group "Monies, Markets and Finance in China and East Asia, 1600-1900", has kindly been provided us with.

4.2 Method of reconstruction

In a first step we assembled all the gathered data on mint metal transports to Jiangsu and Zhejiang from the palace memorials, routine memorials and copper allocation data in one table each for Jiangsu and Zhejiang. For the period between 1760 (QL 25) and 1795 (QL 60) the palace memorial are the most realiable source on mint metal transports. All transports that took place during this period are covered in these documents. As each province on the way from Yunnan to Jiangsu or Zhejiang respectively had to send in a transport report on one and the same transport, the probability that at least one of those reports survived in the archives was very high. For this reason we assume that our reconstruction contains all the transports that took place between 1760 and 1795. By comparing the data with the data in the routine memorials our assumption was affirmed.

The situation is different for the period before 1760 and after 1795. As there exist no palace memorials on mint metal transports for these periods we had to rely on routine memorials almost exclusively. The data on the mint metals copper, zinc, lead and tin in these routine memorials is much richer than in the palace memorials as it does not only contain the amounts of transported mint metals but also data on mint metal consumption by the mints and amounts in storage. All the data is arranged in the four columns:

1. Mint metal in store before minting
2. Newly arrived mint metals
3. Mint metals used for minting and
4. Mint metals in store after minting.

Although all provinces used this four-column-system the way of accounting could differ considerably. Zhejiang listed the regular, the wastage, surplus and other amounts of mint metals in detail and just added up these individual amounts. Jiangsu, however, accounted totally different. Let us take the copper transport of Zhou Dai 周岱 in 1812 (JQ 17) as an example. Jiangsu did not list the 650,000 *jin* regular copper, 149,500 *jin* wastage copper and 6,500 *jin* surplus copper, altogether 806,000 *jin* of copper from the mine Jinchai in the column "Newly arrived mint metals" like Zhejiang would have done, but the amount of 657,288+ *jin.* This was the amount of pure copper the mint had produced adding up all the procured copper from Jinchai.[4] In the case of Jiangsu we therefore had to do the back calculation to the original transport amounts according to the regulations.

[4] NGHKTB 10.15/14, JQ 19/閏2/ 26, Zhu Li 朱理.

Although the data in the routine memorials is very rich, it is incomplete because memorials for some years in between are missing. In order to fill the gaps in our data we, as a second step, complemented the *mint metal in store before minting*- and *mint metal in store after minting*-columns of the table. The amount of mint metal in store after minting had to be identical with the mint metal in store before minting of the following year and vice versa. This was at least the case for the data we had. As a rule any reconstructions were put in square brackets.

If the amount of mint metal used for minting, as well as the amount of mint metal in store before and after minting was known, the amount of newly arrived mint metal could be reconstructed without any problems.

If the amount of metal used for minting in a certain year was unknown we referred to the coin production figures and reconstructed the consumed amounts and thereafter the mint metal transports by comparing the necessary amounts with allocated amounts by Yunnan province.

With this method we were able to meaningfully reconstruct all copper transports from Yunnan to Jiangsu and Zhejiang between 1740 and 1840. Yet, due to a lack of reliable data, this was not possible for the transports of zinc, lead and tin. One possibility would have been to reconstruct the transported amounts of zinc, lead and tin on the basis of the regulations on the composition of the copper cash alloy. The archival materials, however, showed that in reality the alloy was quite different from the general regulations and that such a reconstruction would be totally misleading, especially for Jiangsu.

The tables with the lists of allocated copper and the reconstructed mint metal transports to Jiangsu and Zhejiang are appended to this chapter.

4.3 Results of the quantitative reconstruction

In this section results of the reconstruction will be presented in graphs and supplied with some analytical comments.

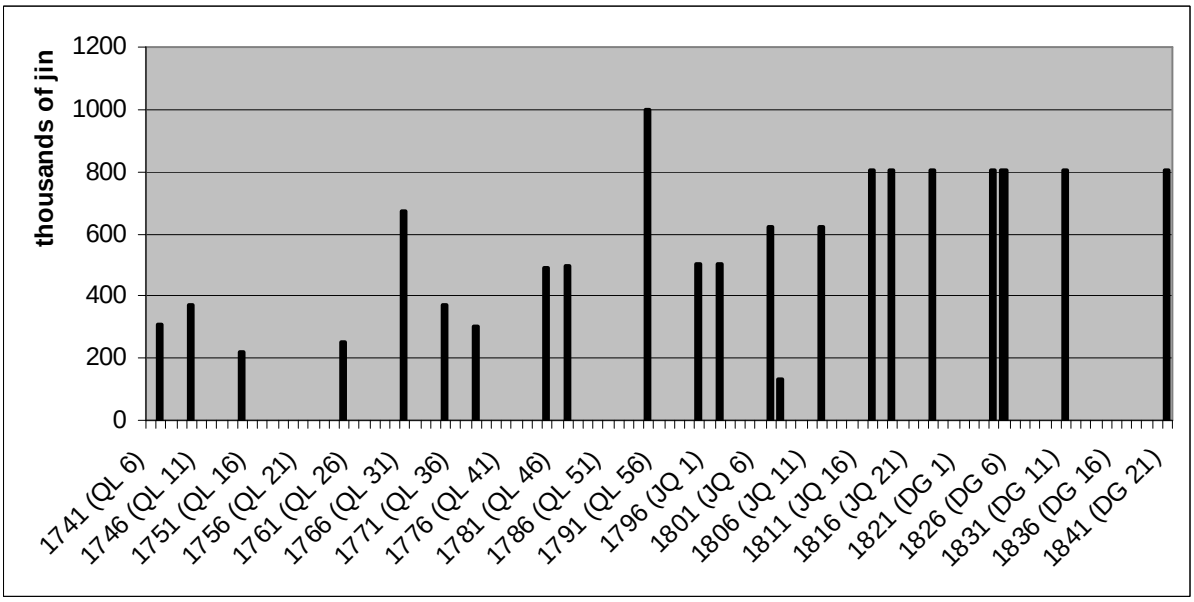
4.3.1 Copper and zinc transports to Jiangsu and Zhejiang between 1740 and 1850

According to our reconstruction between 1740 and 1850 22 copper transports to Jiangsu and 52 copper transports to Zhejiang took place. This would strongly indicate that, although the transported amounts to Jiangsu were on an average higher than those to Zhejiang, Jiangsu used more Japanese copper than Zhejiang. Yet, according to the regulations, Zhejiang should have received almost the same amount as Jiangsu.

Whereas Zhejiang procured low quality copper from Jinchai as well as high quality copper from other mines throughout the period under investigation, Jiangsu from 1807 (JQ 12)

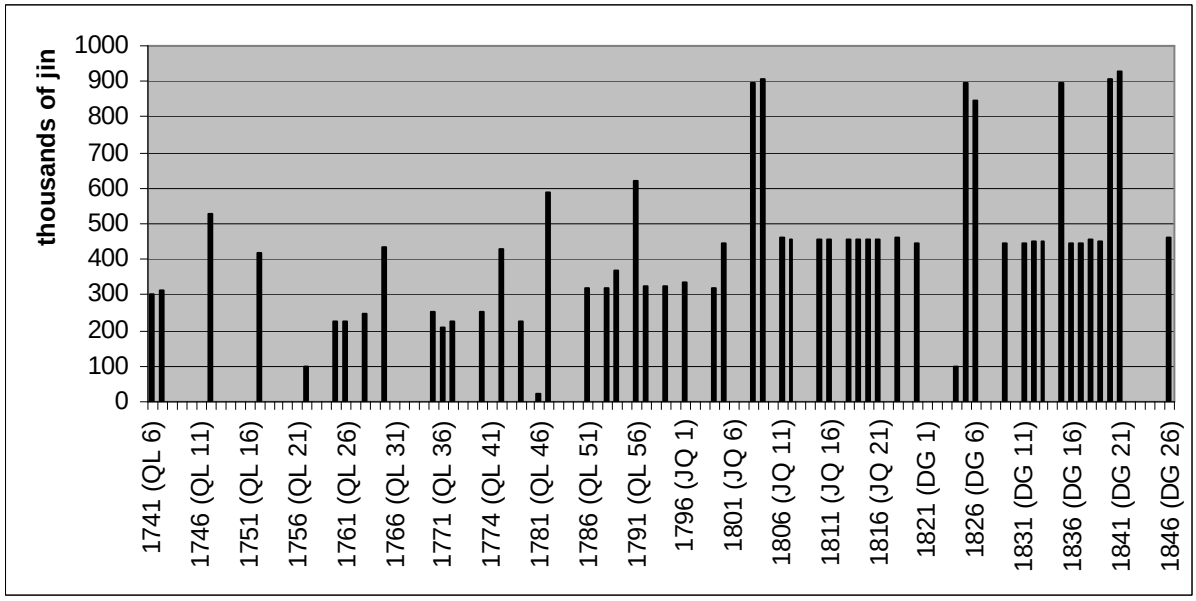
onwards, received only low quality copper from Jinchai. This was due to a shortage in the output of high-quality copper and the preferential treatment of other provinces. The amount transported by one official amounted to 650,000 *jin* of regular copper and altogether 806,000 *jin* of copper including wastage and surplus copper. This was almost double the amount transported by a Zhejiang official during the same period and more than the amounts transported by the officials of all the other provinces.[5]

Graph 5: Copper transports to Jiangsu between 1740 and 1841



[5] NGHKTB 10.15/14, JQ 19/閏2/ 26, Zhu Li 朱理.

Graph 6: Copper transports to Zhejiang between 1740 and 1846



Although the copper from the mine Jinchai had only a purity of 80 percent when added the additional quality compensating copper, it, however, contained a high amount of lead, which reduced procurement funds for lead.[6] This circumstance is mentioned nowhere in the archival documents. Yet, it is clearly evident from the fact that when the provincial mints, except those of Zhili and Shanxi, procured more copper from Jinchai after 1800 (JQ 5), they did not need to procure additional lead at Hankou anymore as the high content of lead in the Jinchai copper was sufficient.[7]

Due to the high content of lead in the Jinchai copper its colour was somewhat blackish. Therefore, when Zhejiang started to use copper from the Jinchai mine in 1759 (QL 24) additional zinc was added to the alloy to brighten the colour of the copper cash. In order to make this clearer we will compare the minting in 1758 and in 1761 of the Zhejiang mint as in these years the same amount of copper was used but in different compositions:

[6] NGHKTB 1.8/10, QL 7/8/2, Xu Ben 徐本.
[7] GX-HDSL vol. 10, 218: 19b+20a, p. 7999; JQ-HDSL 175: 19b.

Table 28: The composition of alloy of the Zhejiang mint

Mint metals for the Zhejiang mint	**Amount (*jin*) in 1758 (QL 23)**		**Amount (*jin*) in 1761 (QL 25)**	
Japanese copper	534,065+		389,822+	534,064+
Yunnanese copper from Jinchai mine	---		57,692+	
Yunnanese copper from Daxing mine	---		86,550+	
Zinc	443,274+	512,702+	458,274+	512,702
Lead	69,428+		54,428+	
Tin	21,362+		21,362+	

In 1758 Zhejiang only used copper from Japan, whereas in 1761 it used copper from Japan, from Daxing mine and also from Jinchai mine. By using 57,692+ *jin* of Jinchai copper, 15,000 *jin* less lead had to be added, which would suggest that copper from this mine contained 26% of lead. The same amount, namely 15,000 *jin* of zinc, was additionally added to the alloy. As a result the total amount of zinc and lead was always the same no matter what composition the copper was.[8]

The composition of the copper cash, however, would be slightly different from the regulations for *qingqian* 青錢.[9] It contains less copper and more zinc. To sum up, by using copper from Jinchai mine less lead had to be purchased by the provincial mints. Yet, in order to prevent the copper cash from becoming darkish and breakable[10], the amount of lead, saved by using Jinchai copper, had to be replaced by zinc.[11]

Although the zinc transports to the mints of Jiangsu and Zhejiang could not be reconstructed completely, the graphs on these transports clearly demonstrate this circumstance. Because Jiangsu used huge amounts of copper from Jinchai it used much more zinc than Zhejiang. When during the Daoguang period the price of zinc rose, according to the information in the routine memorials, the mint of Jiangsu encountered financial difficulties at the end of the Daoguang period as the allocated funds had not sufficed to cover the actual costs of the zinc purchases.

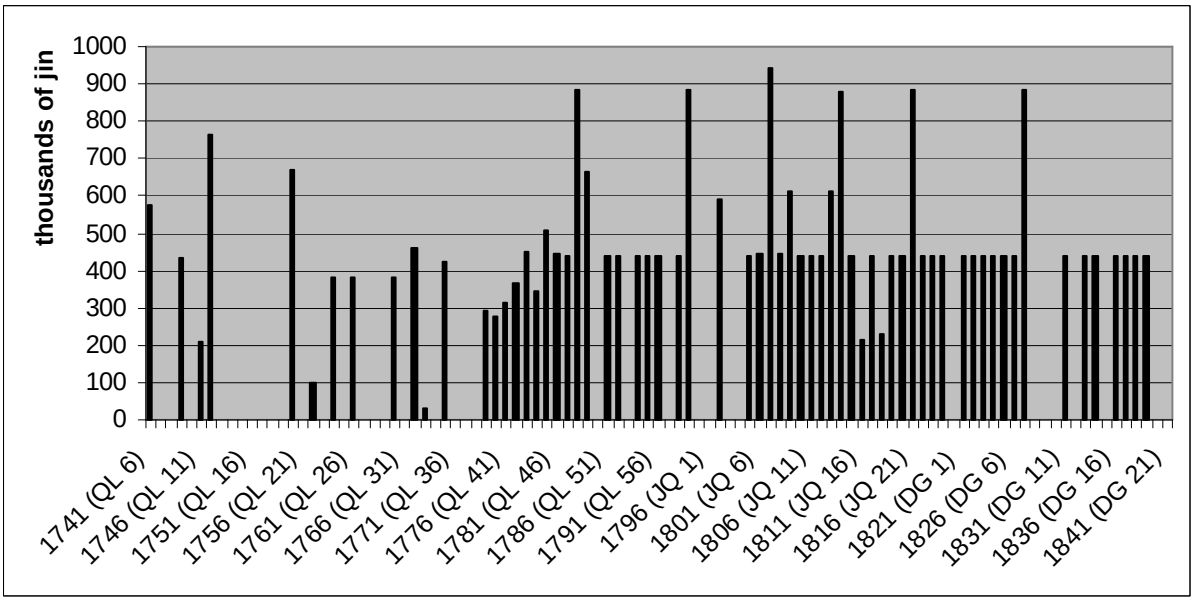
[8] NGHKTB 4.17/3, QL 27/10/27, Zhuang Yougong 莊有恭.

[9] The regulation for the composition of the copper cash alloy during the Qianlong period was as follows: 50% copper, 41.5% zinc, 6.5%lead and 2% tin.

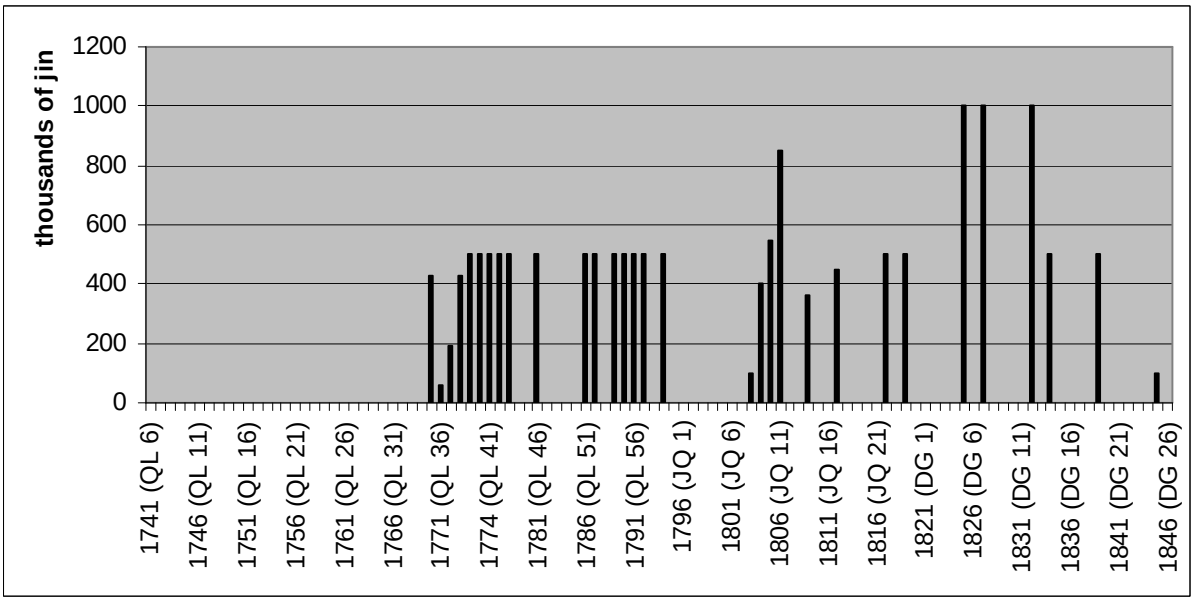
[10] NGHKTB 6.7/2, QL 35/2/13, Guan Bao 官保: *yingpei heiqian.…zhaoshu gaipei baiqian zhuchu qianwen, suilie xishao, yanse guangliang* 應配黑錢。。。照數改配白鉛,鑄出錢文,碎裂稀少,顏色光亮.

[11] NGHKTB 5.7/1, QL 29/8/25, Chang Jun 常鈞.

Graph 7: Zinc transports to Jiangsu between 1740 and 1841



Graph 8: Zinc transports to Zhejiang between 1740 and 1846

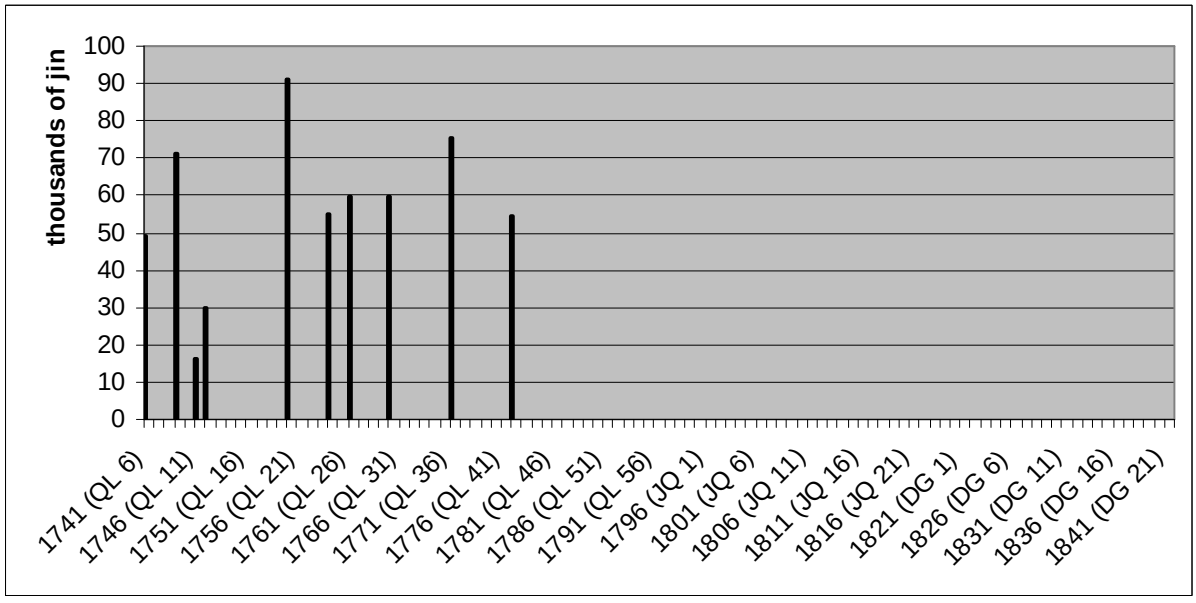


4.3.2 Lead and tin transports to Jiangsu and Zhejiang between 1740 and 1850

By 1778 (QL 43) the provinces Shaanxi, Jiangxi and Hubei had ceased to use lead for minting at all and had replaced it entirely by zinc. Zhejiang was deliberating on doing the same. Although this incisive measure had certainly to do with the increasing use of Jinchai copper, the decisive factor was different: in the years before 1778 Guizhou, Hunan and Guangxi had only produced trifling amounts of lead and on this account had been compelled to put a halt to lead transports to Hankou. Although merchant lead was still for sale at Hankou its price had soared due to the supply shortage.[12]

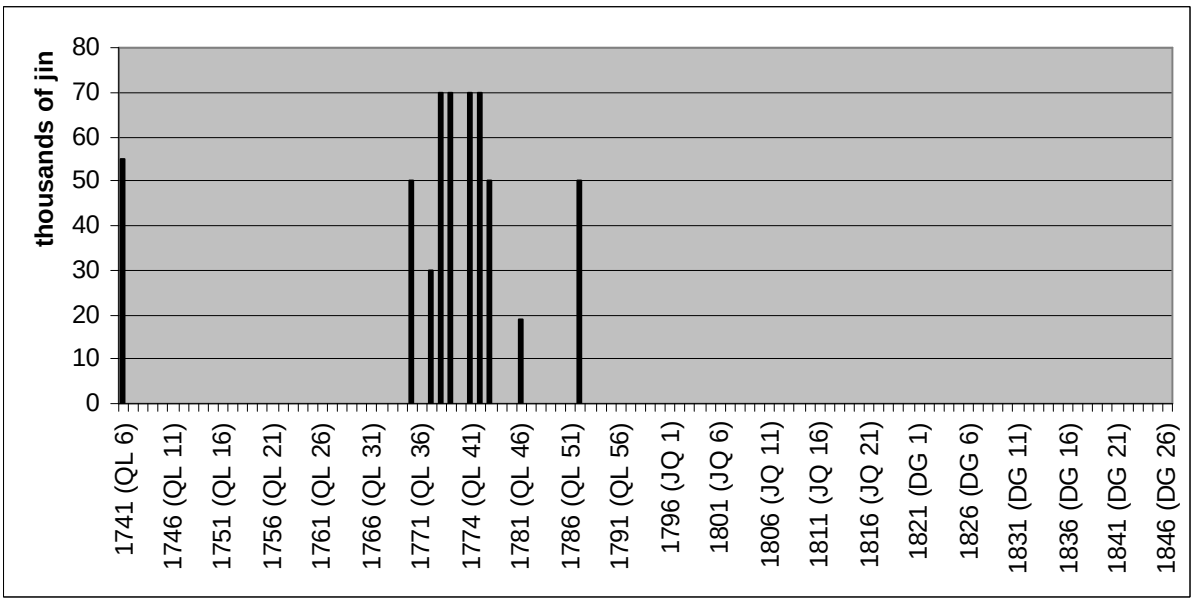
Due to these circumstances, Chen Huizu 陳輝祖, the provincial governor of Hubei requested in a memorial that the four provinces Zhili, Shanxi, Jiangsu and Zhejiang also cease to use lead and have it replaced by zinc. Zhili and Shaanxi replied that it would be difficult for them to leave the lead as they only used copper from Japan. Jiangsu responded positively as 30 percent of the annually consumed copper consisted of the highly plumbiferous Jinchai copper. Zhejiang's reply was restrained. It only assented to reduce the addition of lead and brought forward the argument that it was allocated only a certain quota of Jinchai copper.[13]

Graph 9: Lead transports to Jiangsu between 1740 and 1841

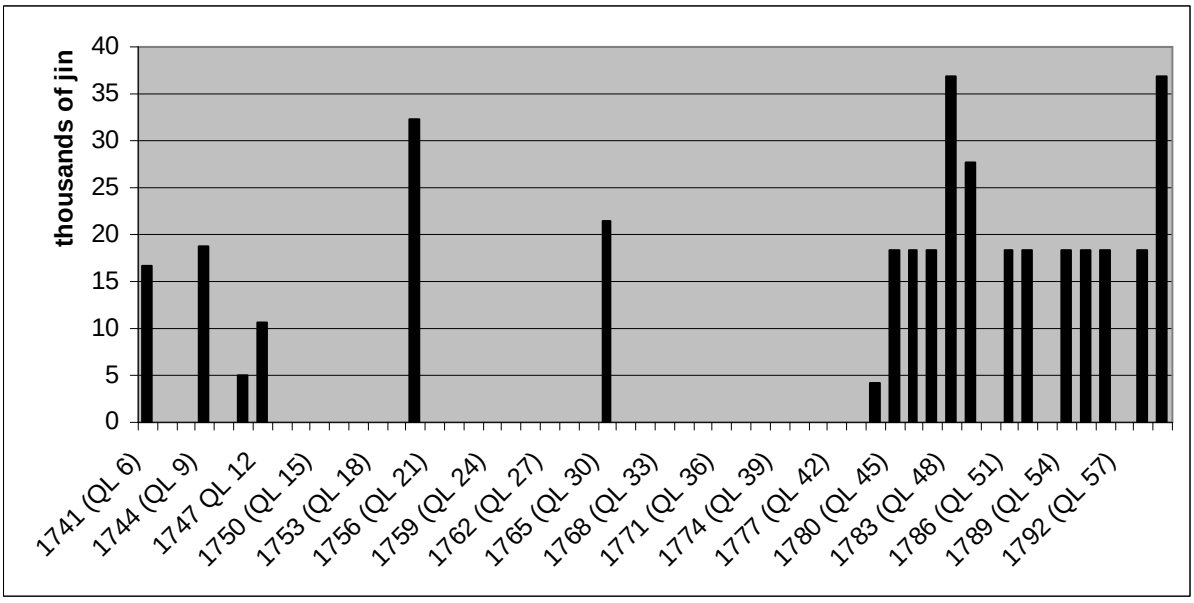


[12] NGHKTB 8.3/1,QL 44/11/12, Wang Danwang 王亶望.
[13] NGHKTB 8.3/1,QL 44/11/12, Wang Danwang 王亶望.

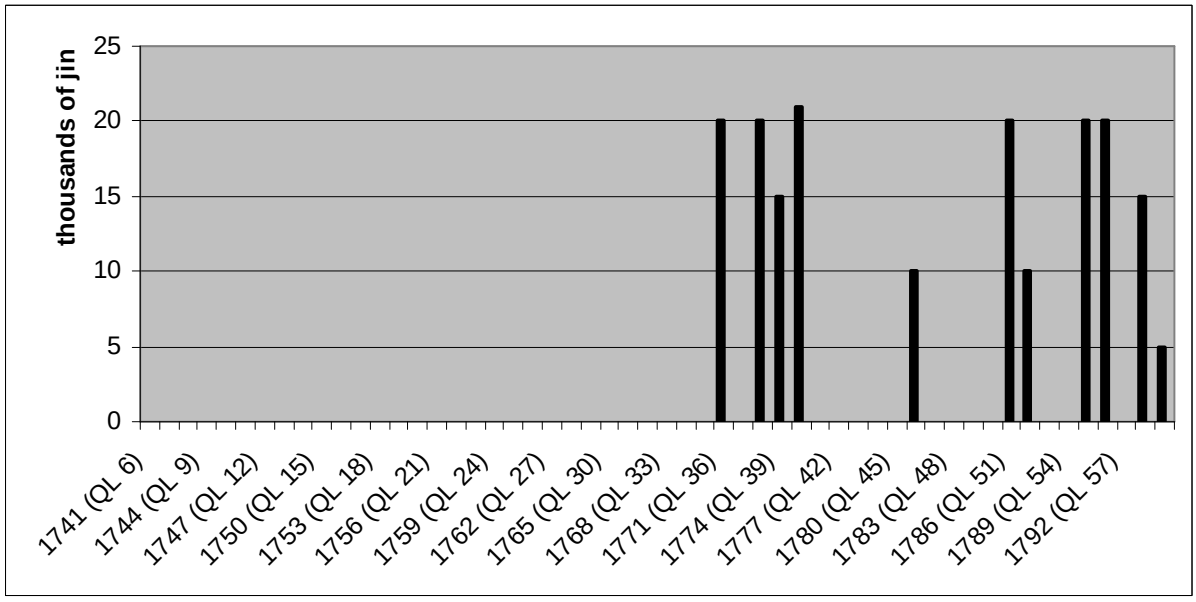
Graph 10: Lead transports to Zhejiang between 1740 and 1846



Graph 11: Tin transports to Jiangsu between 1740 and 1841



Graph 12: Tin transports to Zhejiang between 1740 and 1846



4.4 Concluding remarks

This reconstruction of the transports of Yunnan copper, zinc, lead and tin to the provincial mints of Jiangsu and Zhejiang, constitutes the first of altogether three steps towards a evaluation of the organisational capability of the Qing state in the procurement of mints metals between 1740 and 1850, based on a solid and reliable quantitative grounding. As a complete reconstruction of the zinc, lead and tin transports proved to be infeasible, the realized reconstruction of all the copper transports from Yunnan to Jiangsu and Zhejiang during the period under investigation is essential to our objective. Building on our findings in this chapter we will reconstruct the transports of Japanese copper to these provincial mints in the next chapters. By bringing together all the reconstructed data in a concluding chapter we attempt to arrive at solid and reliable statements about the organisational capability of Jiangsu and Zhejiang in particular and the Qing state in general.

Building up on the results of the previous chapters we conclude the underfunded, understaffed and non-specialist transport officials of Jiangsu and Zhejiang managed to perform mint metal transports, above all copper transports from Yunnan, with astonishing high effectiveness not only during the Qianlong period (1736-1795) but also throughout the Jiaqing and Daoguang periods (1796-1850). Within the framework of this study we perceive

"effectiveness" as the degree to which the bureaucracy in the field of mint metal procurement achieved its objectives. In view of the low organisational capacity, ascertained in the second chapter, this is all the more astonishing as the copper amounts handled by one Jiangsu transport official and the number of transports by Zhejiang increased significantly from 1740 to 1850. As a result of increased transport amounts and frequency of transports organisational problems like the recruitment of a sufficient number of pack animals and boats aggravated massively, the organisational performance of Jiangsu and Zhejiang should be given even more credit. For this reason we argue that the organisational capability in the mint metal procurement of Jiangsu and Zhejiang did not decline between 1740 and 1850 but rather increased. Our findings, however, suggests a retrenchment of the central government in terms of funding and staffing and a shifting of those responsibilities to the provincial governments, in particular to the respective officials responsible for a mint metal transport. In general, the mint metal transport regulations of the Ministry of Revenue were not adapted but represent the status of the Qianlong period. Although the copper transport amounts increased significantly, especially those of Jiangsu, there is no evidence of an appropriate adjustment of transport regulations.

Our reconstruction of the mint metal transports to Jiangsu and Zhejiang give evidence of intra-provincial cooperation between these two provinces. In this way the two provinces managed to bridge bottlenecks in the supply of zinc and copper and thereby enhanced their organisational capabilities.

Table 29: Allocations of Yunnan copper to Jiangsu

Year of allocation	Year of arrival of transport [reconstructed]	Mine of origin	Type of Copper	Regular Copper/ jin	Wastage Copper/ *jin*[1]	Surplus Copper/ jin[2]	Total amount/ *jin*[3]	Sources
1740 (QL 5)		[Tangdan]	高銅	300,000[4]	13,194[5]	3,000	**316,194**	TZBL 7: 12a, p. 461; YNTZ 7: 12a, p. 281
1742 (QL 7)		Jinchai	低銅	300,000	69,000	3,000	**372,000**	TZBL 7: 12a, p. 461; YNTZ 7: 12a, p. 281
1747 (QL 12)			高銅	100,000		1,000	**225,000**	TZBL 7: 12a, p. 461; YNTZ 7: 12a, p. 281
			低銅	100,000	23,000	1,000		
1762 (QL 27)	Both transports arrived in QL 31[6]		高銅	300,000		3,000	**675,000**	TZBL 7: 12a, p. 461; YNTZ 7: 12a, p. 281
			低銅	300,000	69,000	3,000		
1766 (QL 31)	QL 35[7] and QL		高銅	300,000		3,000	**675,000**	TZBL 7: 12b, p. 462; YNTZ

1 These figures are not mentioned in the sources but were calculated according to the regulations in chapter 2.
2 Ibid.
3 Ibid.
4 See also: ZPZZ 1231-005, reel 60/6, QL 5/6/11, Qing Fu and others 慶復等.
5 In case of the Tangdan mine for each 100 jin of regular copper in accordance with the regulations 4 jin and 6.37+ liang *haotong* was added. E.g. NGHKTB 2.3/1, QL 10/4/28, Chan An 常安.
6 ZPZZ 1266-031, reel 61/7, QL 31/5/30, Ming De 明德; ZPZZ 1266-039, reel 61/7, QL 31/6/21, Ming De 明德; ZPZZ 1268-023, reel 61/8, QL 32/1/26, Wu Shaoshi 吳紹詩.
7 ZPZZ 1277-028, reel 61/12, QL 35/10/24, Sa Zai 薩載.
8 GZD 34-437, QL 39/1/28, Sa Zai 薩載.

	38[8]		低銅	300,000	69,000	3,000		7: 12a, p. 281
1777 (QL 42)	QL 45[9]	Jinchai	低銅	400,000	92,000	4,000	**496,000**	TZBL 7: 12b, p. 462; [YNTZ 7: 12a, p. 281][10]
1780 (QL 45)	QL 47[11]	Jinchai	低銅	400,000	92,000	4,000	**496 000**	TZBL 7: 12b, p. 462; [YNTZ 7: 12a, p. 281][12]
1784-1800 (QL 49 - JQ 5)	Altogether 3 transports: The first two arrived in QL 55[13], the last one in QL 60[14]		高銅	300,000		3,000	**303,000**	YNTZ 7: 12a-b, p. 281f.
1784-1800 (QL 49 - JQ 5)			高銅	300,000		3,000	**303,000**	YNTZ 7: 12a-b, p. 281f.
1784-1800 (QL 49 - JQ 5)			高銅	300,000		3,000	**303,000**	YNTZ 7: 12a-b, p. 281f.
1784-1800 (QL 49 - JQ 5)			高銅	300,000		3,000	**303,000**	YNTZ 7: 12a-b, p. 281f.
1784-1800 (QL 49 - JQ 5)			高銅	300,000		3,000	**303,000**	YNTZ 7: 12a-b, p. 281f.

[9] ZPZZ 1310-018, reel 62/10, QL 45/5/6, Wu Tan 吳壇; GZD 45-309f., QL 43/10/28, Yang Kui 楊魁.
[10] The YNTZ only mentions that between QL 42-45 two transports took place, whereas the TZBL refers to the concrete date.
[11] GZD 54-116; QL 47/11/24, Min Eyuan 閔鶚元.
[12] The YNTZ only mentions that between QL 42-45 two transports took place, whereas the TZBL refers to the concrete date.
[13] ZPZZ 1327-008, reel 62/18, QL 55/5/21, Fu Song 福崧; ZPZZ 1329-018, reel 62/19, QL 55/10/17, Zhu Gui 朱珪; MQDA 100007, 100699.
[14] ZPZZ 1347-029, reel 63/8, QL 60/3/17, Jifeng'e 奇豐額.

1800 (JQ 5)			高銅	500,000		5,000	**505,000**	TZBL 7: 12b, p. 462;
1803 (JQ 8)		Jinchai	低銅	500,000	115,000	5,000	**620,000**	TZBL 7: 12b, p. 462; YNTZ 7: 12b, p. 282
1808 (JQ 13)		Jinchai	低銅	650,000	149,500	6,500	**806,000**	TZBL 7: 12b, p. 462; YNTZ 7: 12b, p. 282
1811 (JQ 16)		[Jinchai]	低銅	520,000	119,600	5,200	**816,500**	Vogel 1989: 689.
			高銅	170,000		1,700		

The first copper from Yunnan for the provincial mint of Jiangsu came from the Tangdan mine and was received by its transport officials at Yongning (永寧) in 1741 or 1742 (QL 6 or 7)[15]. Although Zhang Qu 張渠, Governor of Jiangsu, had requested 500,000 jin of copper from Yunnan, he was only granted 300,000 jin, due to the circumstance that Jiangsu province was supposed to rely on copper from Japan. The 300,000 jin were to be segmented into two transports of 150,000 jin each and should be transported to Jiangsu in the course of two years.[16] In accordance with the copper procurement regulations for Zhejiang the funds for the purchase and the transport of the copper to the Jiangsu mint were set at 14.5 tael/100 jin.[17] Accordingly the assistant magistrate of the district Qingpu 青浦, Wang Ting 王侹, transporting the first transport of 150,000 jin of copper (shangyun 上運), received funds amounting to 21,750+ tael silver.[18] When Wang Ting and the transport official of the second transport, Liu Zhonglu 劉鍾麓, arrived at Yongning their funds did not suffice to purchase 300,000 jin. Therefore they only received 293,193 jin of [regular] copper. Thereupon Wang Ting

[15] NGHKTB 1.7/6, QL 6/4/13, Neqin 訥親.
[16] NGHKTB 1.7/1, QL 5/12/21, Xu Shilin 徐士林.
[17] NGHKTB 1.7/3, QL 6/1/20, Xu Shilin 徐士林.
[18] NGHKTB 1.7/6, QL 6/4/13, Neqin 訥親.

transported back 149,250 jin of copper to the Suzhou mint and Liu Zhonglu the remaining amount of 143,943 jin. The total funds for 100 jin of this Tangdan copper including transport finally amounted to 14.70+tael. [19]

Table 30: Allocations of Yunnan copper to Zhejiang

Year of allocation	Year of arrival of transport [reconstructed]	Name of Mine	Type of Copper	Regular Copper/ *jin*	Wastage copper/ *jin*[20]	Surplus Copper/ *jin*[21]	Total Amount/ *jin*[22]	Sources
1740 (QL 5)		[Tangdan]	高銅	600,000	26,388+[23]	6,000[24]	**632,388+**	TZBL 7: 16a, p. 469; YNTZ 7: 15a, p. 284
1745 (QL 10)		[Duona]	高銅	478,370[25]		4,784	**483,154**	TZBL 7: 16a, p. 469; YNTZ 7: 15a, p. 284

19 NGHKTB 1.13/2, QL 9/4/18, Chang An 常安.

20 These figures are not mentioned in the sources but were calculated according to the regulations in chapter 2.

21 ibid.

22 ibid.

23 In case of the Tangdan mine for each 100 jin of regular copper in accordance with the regulations 4 jin and 6.37+ liang haotong was added. NGHKTB 2.3/1, QL 10/4/28, Chan An 常安.

24 In the document (NGHKTB 2.3/1, QL 10/4/28, Chan An 常安) only the allocation of *haotong* is mentioned.

25 In QL 10 high-grade copper was sold at the price of 9,2 tael silver for each 100 jin to Zhejiang province. TZBL 7: 16a; YNTZ 7: 15a. This copper derived from the mine Duona in the department Xundian and was sold at this price because its copper was of mixed quality (Duonachang tong chengse jian you gaodi 多那成色間有高低). According to archival materials the amount of regular copper was 478,307 and not 478,370 jin of copper. The amount of 483,090+ jin of copper (according to the regulation Zhejiang should have received 483,154 jin of copper as mentioned above) was the last copper from this mine, as it was closed down afterwards. NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.

1749 (QL 14)		[Tangdan]	高銅	400,000	17,592+	4,000	**421,592+**	TZBL 7: 16a, p. 469; YNTZ 7: 15a, p. 284
1759 (QL 24)	QL 25[26] and QL 26[27]	[Daxing]	高銅	200,000		2,000	**450,000**	TZBL 7: 16a-b, p. 469f.; YNTZ 7: 15a, p. 284
		Jinchai	低銅	200,000	46,000	2,000		
1761 (QL 26)	QL 28[28]	[Jinchai]	低銅	400,000	92,000	4,000	**496,000**	TZBL 7: 16a-b, p. 469f.; YNTZ 7: 15a, p. 284
1762 (QL 27)	QL 30[29]	[Yidu and Daxing]	高銅	300,000	13,125[30]	3,000	**440,125**	TZBL 7: 16b, p. 470; YNTZ 7: 15a-b, p. 284f.
		Jinchai	低銅	100,000	23,000	1,000		
1766 (QL 31)	QL 35[31]	[Yidu]	高銅	110,000	4,812+	1 100	**252 312+**	TZBL 7: 16b, p. 470; [YNTZ 7: 15b, p. 285] [32]
		[Jinchai]	低銅	110,000	25,300	1,100		
1768 (QL 33)	QL 37[33]	[Tangdan]	高銅	110,000	4,812+	1,100	**239,912+**	TZBL 7: 16b, p. 470; [YNTZ

26 ZPZZ 1261-035, reel 61/4, QL 26/9/6, Zhuang Yougong 莊有恭.
27 ZPZZ 1261-035, reel 61/4, QL 26/9/6, Zhuang Yougong 莊有恭; ZPZZ 1266-004, reel 61/7, QL 31/3/7, Xiong Xuepeng 熊學鵬.
28 ZPZZ 1266-004, reel 61/7, QL 31/3/7, Xiong Xuepeng 熊學鵬.
29 ZPZZ 1266-004, reel 61/7, QL 31/3/7, Xiong Xuepeng 熊學鵬.
30 The remark inserted after the transport figures for the year QL 27 reads as follows: According to the regulations and precedents of the Ministry of Revenue 4 jin 6 liang 3 qian 7 fen und 3 li quality compensating copper (haotong 耗銅) have to be added to each 100 jin regular procured copper. This figure diverges with the amount of 4 jin und 6 liang [quality compensating copper], which the province of Yunnan [actually] adds.
31 ZPZZ 1286-037, reel 61/17, QL 37/12/4, Xiong Xuepeng 熊學鵬.
32 According to the YNTZ in QL 31 only 110 000 jin high-grade copper was procured, there is no purchase of low-grade copper mentioned.
33 ZPZZ 1286-037, reel 61/17, QL 37/12/4, Xiong Xuepeng 熊學鵬.

		[Jinchai]	低銅	100,000	23,000	1,000		7: 15b, p. 285] [34]
1769 (QL 34)	QL 36[35]	[Jianshan]	高銅	200,000	8,750	2,000	**210,750**	TZBL 7: 16b, p. 470; YNTZ 7: 15b, p. 285
1772-1777 (QL 37-42)	QL 40[36]	[Yidu]	高銅	100,000	4,375	1,000	**229,375**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	100,000	23,000	1,000		
1772-1777 (QL 37-42)	QL 42[37]	[Yidu and Wanbao]	高銅	100,000	4,375	1,000	**229,375**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	100,000	23,000	1,000		
1772-1777 (QL 37-42)	QL 42[38]	[Damei]	高銅	100,000	4,375	1,000	**229,375**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	100,000	23,000	1,000		
1772-1777 (QL 37-42)	QL 44[39]	[Yidu and others]	高銅	100,000	4,375	1,000	**229,375**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	100,000	23,000	1,000		

34 According to the YNTZ only 100,000 jin high-grade copper was procured.
35 ZPZZ 1280-041, reel 61/14, QL 36/7/22, Pei Zongxi 裴宗錫; NGHKTB 6.15/1, QL 38/2/23, Yong Gui 永貴.
36 ZPZZ 1294-016, reel 62/2, QL 40/5/22, San Bao 三寶.
37 GZD 38-152, QL 42/3/21, San Bao 三寶.
38 GZD 39-863, QL 42/9/3, San Bao 三寶.
39 GZD 48-183, QL 44/6/19, Wang Danwang 王亶望.

1780-1784 (QL 45-49)	QL 47 or QL 48[40]	[Baiyang]	高銅	140,000	6,125	1,400	**321,125**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	140,000	32,200	1,400		
1780-1784 (QL 45-49)	QL 47 or QL 48[41]	[Ningtai]	高銅	140,000	6,125	1,400	**321,125**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	140,000	32,200	1,400		
1780-1784 (QL 45-49)	QL 51[42]	[Baiyang and Ningtai]	高銅	140,000	6,125	1,400	**321,125**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	140,000	32,200	1,400		
1780-1784 (QL 45-49)	QL 53[43]	[Baiyang]	高銅	140,000	6,125	1,400	**321,125**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	140,000	32,200	1,400		
1786 (QL 51)	QL 54 or QL 55[44]	[Baiyang]	高銅	190,000	8,312+	1,900	**373,812+**	TZBL 7: 17a, p. 471; YNTZ 7: 15b, p. 285
		[Jinchai]	低銅	140,000	32,200	1,400		
1788 (QL 53)	QL 56[45]	[Wanbao]	高銅	140,000	6,125	1,400	**321,125**	TZBL 7: 17a, p. 471; [YNTZ

40 GZD 51-722f., QL 47/5/15, Tan Shangzhong 譚尚忠.
41 GZD 52-637, QL 47/8/11, Min Eyuan 閔鶚元.
42 ZPZZ 1324-012, reel 62/17, QL 51/5/25, Yiling'a 伊齡阿.
43 GZD 69-49, QL 53/7/24, Lang Gan 琅玕.
44 MQDA 100866.
45 ZPZZ 1331-038, reel 63/1, QL 56/3/27, Fu Song 福崧.

		[Jinchai]	低銅	140,000	32,200	1,400		7: 15b, p. 285][46]
1788-1797 (QL 53 –JQ 2)	QL 56[47]	[Wanbao]	高銅	140,000	6,125	1,400	**321,125**	[TZBL 7: 17a, p. 471;] [48] YNTZ 7: 15b-16a, p. 285
		[Jinchai]	低銅	140,000	32,200	1,400		
1788-1797 (QL 53 –JQ 2)	QL 57[49]	[Wanbao and Ningtai]	高銅	140,000	6,125	1,400	**321,125**	[TZBL 7: 17a, p. 471;] [50] YNTZ 7: 15b-16a, p. 285
		[Jinchai]	低銅	140,000	32,200	1,400		
1788-1797 (QL 53 –JQ 2)	QL 59[51]		高銅	140,000	6,125	1,400	**321,125**	[TZBL 7: 17a, p. 471;] [52] YNTZ 7: 15b-16a, p. 285
			低銅	140,000	32,200	1,400		
1788-1797 (QL 53 –JQ 2)	JQ 1[53]		高銅	140,000	6,125	1,400	**321,125**	[TZBL 7: 17a, p. 471;] [54] YNTZ 7: 15b-16a, p. 285
			低銅	140,000	32,200	1,400		

46 The YNTZ only mentions that between QL 53 and JQ 2 six transports took place, whereas the TZBL mentions one transport in QL 53 and one in JQ 2, but gives no concrete number of transports between QL 53 and JQ 2.

47 ZPZZ 1334-038, reel 63/2, QL 56/12/7, Fu Song 福崧; MQDA 095566.

48 The YNTZ only mentions that between QL 53 and JQ 2 six transports took place, whereas the TZBL mentions one transport in QL 53 and one in JQ 2, but gives no concrete number of transports between QL 53 and JQ 2.

49 ZPZZ 1337-014, reel 63/3, QL 57/10/1, Fu Song 福崧.

50 The YNTZ only mentions that between QL 53 and JQ 2 six transports took place, whereas the TZBL mentions one transport in QL 53 and one in JQ 2, but gives no concrete number of transports between QL 53 and JQ 2.

51 ZPZZ 1342-030, reel 63/5, QL 59/4/9, Ji Qing 吉慶.

52 The YNTZ only mentions that between QL 53 and JQ 2 six transports took place, whereas the TZBL mentions one transport in QL 53 and one in JQ 2, but gives no concrete number of transports between QL 53 and JQ 2.

53 NGHKTB 10.1/14, JQ 3/5/1, He Shen 和珅.

1797 (JQ 2)	[Between JQ 4 and JQ 8]		高銅	140,000	6,125	1,400	**321,125**	TZBL 7: 17a+b, p. 471f.; [YNTZ 7: 15b-16a, p. 285][55]
			低銅	140,000	32,200	1,400		
1798 (JQ 3)	[Between JQ 5 and JQ 8]		高銅	260,000	11,375	2,600	**447,575**	TZBL 7: 17b, p. 472; [YNTZ 7: 16a, p. 285] [56]
			低銅	140,000	32,200	1,400		
1799 (JQ 4)	JQ 8[57]		高銅	260,000	11,375	2,600	**447,575**	TZBL 7: 17b, p. 472; [YNTZ 7: 16a, p. 285] [58]
			低銅	140,000	32,200	1,400		
1800 (JQ 5)	JQ 9[59]		高銅	260,000	11,375	2,600	**447,575**	TZBL 7: 17b, p. 472; [YNTZ 7: 16a, p. 285][60]
			低銅	140,000	32,200	1,400		
1801 (JQ 6)	JQ 8[61]		高銅	140,000	6,125	1,400	**469,925**	TZBL 7: 17b, p. 472; YNTZ 7: 16a, p. 285
			低銅	260,000	59,800	2,600		
from 1802 (JQ 7) on	JQ 9[62]		高銅	200,000	8,750	2,000	**458,750**	TZBL 7: 17b, p. 472; YNTZ

[54] The YNTZ only mentions that between QL 53 and JQ 2 six transports took place, whereas the TZBL mentions one transport in QL 53 and one in JQ 2, but gives no concrete number of transports between QL 53 and JQ 2.
[55] Ibid.
[56] According to the YNTZ only 250 000 jin high-grade copper was procured that year. YNTZ 7: 16a.
[57] NGHKTB 10.7/10, JQ 10/2/27, Ruan Yuan 阮元; NGHKTB 10.7/13, JQ 10/閏6/7, Zongshi Lu Kang 宗室祿康.
[58] According to the YNTZ 250 000 jin high-grade copper was procured that year. YNTZ 7: 16a.
[59] NGHKTB 10.8/17, JQ 11/8/10, Zongshi Lu Kang 宗室祿康.
[60] According to the YNTZ only 250 000 jin high-grade copper was procured that year. YNTZ 7: 16a.
[61] NGHKTB 10.7/10, JQ 10/2/27, Ruan Yuan 阮元; NGHKTB 10.7/13, JQ 10/閏6/7, Zongshi Lu Kang 宗室祿康.

			低銅	200,000	46,000	2,000		7: 16a, p. 285

The first three copper allocations from Yunnan to Zhejiang in 1740, 1745 and 1749 (QL 5, 10 and 14) are confirmed by a memorial of Yong De 永德, the Governor of Zhejiang. According to his memorial the transport officials set out for Yunnan from Zhejiang in the same year or one year before the allocation by Yunnan and transported between 100,000 and 300,000 *jin*.[63]

The first copper transport from Yunnan to Zhejiang province after the reopening of the mint in 1740 (QL 5) was allocated in the very same year. The transport of 600,000 *jin* of copper from the mine Tangdan was divided into two separate transports. The transport official Kang Sheng 康昇 performed the first transport and Liu Guoheng 劉國恒 the second. The copper of the first transport amounted to 290,703+ *jin* regular copper plus 12,786+ *haotong*, 4 *jin* and 6.37+ *liang* for each 100 *jin* regular copper, amounting to a total sum of 303,499+ *jin*.[64]The remaining amount, the exact sum is not mentioned, was transported by the transport official Liu Guoheng.

---

[62] NGHKTB 10.8/17, JQ 11/8/10, Zongshi Lu Kang 宗室祿康.
63 ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德.
[64] NGHKTB 2.3/1, QL 10/4/28, Chan An 常安.

The copper of the transport, allocated in 1745 (QL 10) derived from the mine Duona in the department Xundian and was sold at 9,2 *tael* silver for each 100 *jin*[65] because its copper was of mixed quality (*Duonachang tong chengse jian you gaodi* 多那成色間有高低). According to archival materials the amount of regular copper was 478,307 and not 478,370 *jin* of copper as mentioned in the YNTZ and the TZBL. The amount of 483,090+ *jin* of copper (according to the regulation Zhejiang should have received 483,154 *jin* of copper as mentioned above) was the last copper from this mine, as it was closed down afterwards.[66] This copper was probably transported by the transport officials Shao Wu 邵武 and Huang Yingzhong 黃應中.[67]

The copper transport of Zhejiang province, allocated in 1749 (QL 14), was performed by Wang Chang 王昶, assistant magistrate of the district Haiyan 海鹽. He received 200,000 *jin* from the mine Tangdan.[68] The remaining amount was probably transported by the official Zhou Dingfang 周定方. [69]

[65] TZBL 7: 16a; YNTZ 7: 15a.
[66] NGHKTB 2.3/1, QL 10/4/ 28, Chang An 常安.
[67] NGHKTB 3.3/3, QL 15/12/10, Fu Heng 傅恒.
[68] NGHKTB 3.3/3, QL 15/12/10, Fu Heng 傅恒.
[69] NGHKTB 2.13/3, QL 14/11/8, Fu Heng 傅恒; NGHKTB 3.3/3, QL 15/12/10, Fu Heng 傅恒.

Table 31: Mint metal transports to Jiangsu between 1741 and 1841

Year	Mint metals in *jin*			
	Yunnan copper	Zinc	Lead	Tin
1741 (QL 6)		573696	49332	16572
1742 (QL 7)	306087			
1744 (QL 9)		435180	71280	18852
1745 (QL 10)	369000			
1746 (QL 11)		206993	16473	5068
1747 QL 12		764928	30000	10688
1750 (QL 15)	223000			
1755 (QL 20)		672115	91345	32394
1757 (QL 22)		100000		
1759 (QL 24)		382464	55060	
1760 (QL 25)	250000			
1761 (QL 26)		382464	59904	
1765 (QL 30)		382464	59904	21432
1766 (QL 31)	675000			
1767 (QL 32)		460800		
1768 (QL 33)		29952		
1770 (QL 35)	372000	424860		
1771 (QL 36)			75636	
1773 (QL 38)	303000			
1774 (QL 39)		295006		
1775 (QL 40)		276419		
1776 (QL 41)		315042		
1777 (QL 42)		364378	54627	
1778 (QL 43)		449401		
1779 (QL 44)		343548		4176
1780 (QL 45)	490000	507091		18432
1781 (QL 46)		444866		18432
1782 (QL 47)	495010	442368		18432
1783 (QL 48)		884736		36864
1784 (QL 49)		663552		27648
1786 (QL 51)		442368		18432
1787 (QL 52)		442368		18432
1789 (QL 54)		442368		18432
1790 (QL 55)	1001072	442368		18432
1791 (QL 56)		442368		18432
1793 (QL 58)		442368		18432
1794 (QL 59)		884736		36864
1795 (QL 60)	505000			

1797 (JQ 2)	505000	589824		
1800 (JQ 5)		442368		
1801 (JQ 6)		447464		
1802 (JQ 7)	620000	942368		
1803 (JQ 8)	135000	444638		
1804 (JQ 9)		611370		
1805 (JQ 10)		442368		
1806 (JQ 11)		442368		
1807 (JQ 12)	620000	442368		
1808 (JQ 13)		611370		
1809 (JQ 14)		882178		
1810 (JQ 15)		442368		
1811 (JQ 16)		216234		
1812 (JQ 17)	806000	442368		
1813 (JQ 18)		230000		
1814 (JQ 19)	806000	441060		
1815 (JQ 20)		442368		
1816 (JQ 21)		884736		
1817 (JQ 22)		442368		
1818 (JQ 23)	806000	442368		
1819 (JQ 24)		442368		
1821 (DG 1)		442368		
1822 (DG 2)		442368		
1823 (DG 3)		442368		
1824 (DG 4)	806000	442368		
1825 (DG 5)	806000	442368		
1826 (DG 6)		442368		
1827 (DG 7)		884736		
1831 (DG 11)	806000	442368		
1833 (DG 13)		442368		
1834 (DG 14)		442368		
1836 (DG 16)		442368		
1837 (DG 17)		442368		
1838 (DG 18)		442368		
1839 (DG 19)		442368		
1841 (DG 21)	806000			

Table 32: Mint metal transports to Zhejiang between 1741 and 1846

Year	Mint metals in *jin*			
	Yunnan copper	Zinc	Lead	Tin
1741 (QL 6)	303487		54834	
1742 (QL 7)	313194			
1747 (QL 12)	527333			
1752 (QL 17	417595			
1757 (QL 22)	100000			
1760 (QL 25)	227374			
1761 (QL 26)	227374			
1763 (QL 28)	246000			
1765 (QL 30)	432914			
1770 (QL 35)	252312	430000	50000	
1771 (QL 36)	208760	57000		20000
1772 (QL 37)	227857	190000	30000	
1773 (QL 38)		428973	70000	20000
1774 (QL 39)		500000	70000	15000
1775 (QL 40)	252541	500000		21000
1774 (QL 41)		500000	70000	
1777 (QL 42)	430748	500000	70000	
1778 (QL 43)		500000	50000	
1779 (QL 44)	227371			
1781 (QL 46)	19500	500000	18688	10000
1782 (QL 47)	586694			
1786 (QL 51)	320706	500000		20000
1787 (QL 52)		500000	50000	10000
1788 (QL 53)	318325			
1789 (QL 54)	370512	500000		
1790 (QL 55)		500000		20000
1791 (QL 56)	622767	500000		20000
1792 (QL 57)	324427	500000		
1793 (QL 58)				15000
1794 (QL 59)	321726	500000		5000
1796 (JQ 1)	333291			
1799 (JQ 4)	321123			

1800 (JQ 5)	447573			
1803 (JQ 8)	898248	100000		
1804 (JQ 9)	907935	400000		
1805 (JQ 10)		550394		
1806 (JQ 11)	459856	850000		
1807 (JQ 12)	458748			
1809 (JQ 14)		361660		
1810 (JQ 15)	458748			
1811 (JQ 16)	458748			
1812 (JQ 17)		451575		
1813 (JQ 18)	458748			
1814 (JQ 19)	458748			
1815 (JQ 20)	458748			
1816 (JQ 21)	458748			
1817 (JQ 22)		500000		
1818 (JQ 23)	461424			
1819 (JQ 24)		500000		
1820 (JQ 25)	447573			
1824 (DG 4)	100921			
1825 (DG 5)	895146	1000000		
1826 (DG 6)	843571			
1827 (DG 7)		1000000		
1829 (DG 9)	447573			
1831 (DG 11)	447573			
1832 (DG 12)	450070	1000000		
1833 (DG 13)	449251			
1834 (DG 14)		500000		
1835 (DG 15)	895146			
1836 (DG 16)	447573			
1837 (DG 17)	447573			
1838 (DG 18)	458748			
1839 (DG 19)	448769	500000		
1840 (DG 20)	906231			
1841 (DG 21)	928631			
1845 (DG 25)		100000		
1846 (DG 26)	459067			

Chapter 5: The Sino-Japanese copper trade from the Qianlong to the Daoguang Reigns (1736-1850): The reform phase from 1736 to 1744

The following three chapters deal with the Sino-Japanese copper trade and its relevance for Chinese mints, in particular those of Jiangsu and Zhejiang, from 1736 to 1850. The Chinese organisation of the copper trade from the Qianlong to the Daoguang reigns (1736-1850) underwent several significant policy changes, from major reforms and the Qing government's encouragement of wealthy private merchants to run the copper trade, the additional appointment of a state merchant with a fixed annual copper quota, to the coexistence of one state merchant and a group of twelve private merchants, being termed "quota merchants".Accordingly, the Sino-Japanese trade can be divided into three phases: 1736-1744, 1745-1755, and finally from 1755 to the end of the Daoguang reign in 1850. This chapter deals with the first phase, the major problems and reforms and the consequtive liberalization of the copper trade with Japan from 1736 to 1744.

Of all the phases of the Sino-Japanese trade the reform phase is the most richly documented one as it resulted in an extensive bulk of archival documents. These archival materials allow us insights into the major problems of the trade the Qing had to deal with at that time. In addition, they afford us the rare opportunity to observe how the Qing bureaucracy, and especially the Ministry of Revenue, was operating in the mid-eighteenth century in handling those problems. The many memorials on the same issues submitted by officials from different levels of the Qing bureaucracy do not only reveal the divergent interests of the merchants and the Qing state but also those between the central and provincial governments and between the various provincial governments. The process from the negotiation of the different interests to the final decisions in form of authorative regulations by the Ministry of Revenue delivers glimpses into decision-making in imperial China of the eighteenth century.

5.1 The nature of the Sino-Japanese trade

China's relations with Japan during the early and mid-Qing periods differed significantly from the usual tributary relationship entertained with other neighbouring states. One reason was the Tokugawa dynasty's claim to sovereignty. Debating the establishment of formal relations with the Qing state, the Japanese decided against adopting a tributary role in China's world order.

Although Chinese trading ships were permitted to enter the harbour of Nagasaki, contacts remained unofficial and never attained the level of a country-to-country relationship. No Chinese missions came to Japan, nor did Japan send any missions to the Chinese court. On the contrary: the Japanese issued a warning that Chinese officials were not to accompany the trading ships.

For Japan's part, since Japanese ships could not leave to partake of trade, they had no choice but to wait for the arrival of Chinese vessels. Because of this circumstance, it was a passive trade for the Japanese in which they perforce considered domestic economic trends

and planned strategies accordingly.[1] If Japan made changes in the manner in which Chinese trading vessels would be received in port, the Chinese had to adopt their policies accordingly.[2]

As to the Chinese side, the Manchu policy should not be int**er**preted as determined by a condescending behaviour, but rather as having come about by recognition of economic necessities. Hence, Chinese merchants were allowed to sail to Japan, thereby treating Japan in effect as an equal trading partner. The basic items of this trade were on the Chinese side raw silk (*cancaosi* 蠶糙絲), silk yarn (*juanpi* 絹疋) diffent kinds of silks and satins (*chouduan* 綢緞), different kind of sugar (*tanghuo* 糖貨), pharmaceutical substances (*yaocai* 藥材) and on the Japanese side above all copper, the latter being used as the principal ingredient in minting Qing China's currency.[3]

Since copper cash was primarily used in small-scale retail trade, its use was an essential feature of the daily life of the Chinese common people. It was therefore imp**e**rative that the government assured a continuous, adequate supply of refined copper for all mints. In view of the importance of Japanese copper, one can understand why the Qing government allowed lofty political ideals to succumb to economic needs. While mines within China were a possible source of copper, the Manchus in the beginning after their conquest of China carried out a conservative mining policy. Copper mines in operation were subjected to tight government controlling and supervision. Alternatively, the option of purchasing copper in Japan was energetically pursued.

It was not until the end of the Kangxi reign, i.e. in the early 20s of the eighteenth century, that the government fully realised the risks of relying so heavily on foreign imports. Consequently, exploitation of China's own copper resources in Yunnan became an urgent matter. Following the enthronement of the Qianlong-emperor in 1736, the Sino-Japanese copper trade entered a period of decline, for two reasons: First, the development of indigenous copper mining in Yunnan and second, the continued decrease in Japanese copper production and the resulting restrictions on copper exports. Yet, Japanese copper remained a vital source to the Chinese monetary economy between 1736 and 1850, second only to Yunnan copper.

[1] There is, however, some archival evidence that suggests that also some Japanese ships found their way to China to barter copper for Chinese goods. ZPZZ 1228-011, reel 60/3, QL 3/6/17, E'ertai and others, 鄂爾泰等.

[2] Osamu 1996, 50.

[3] ZPZZ 1259-033, reel 61/3, QL 25/11/1, Chen Hongmou 陳弘謀.

5.2 The Sino-Japanese copper trade before 1736

Large-scale importation of Japanese copper started in 1683, triggered by a mint metal crisis around 1673. For the following 40 years the Chinese mints depended almost completely on Japanese copper[4]

A second and more serious copper crisis set in around 1715 when the Japanese government limited the exports of Japanese copper exports while the demand for copper cash in China was growing. Due to a decline in Japanese copper production at the beginning of the 18th century combined with a lingering domestic demand for copper, the Shogunat had to impose restrictions on the Sino-Japanese copper trade.[5] The crisis dangerously drove up the value of the copper cash in China. As a result of this crisis, the Chinese central authorities were forced to support copper mining in Yunnan more substantially. In reaction to the impending copper shortage, which would strongly influence copper cash production and circulation, the hitherto towards the development of domestic copper mining negligent Yongzheng emperor felt impelled to take active measures. Yunnan copper increasingly began to substitute Japanese copper and from 1738 the metropolitan mints were completely supplied with copper from Yunnan.[6] Yet, Japanese copper became to play a vital role for the provincial mints that opened in the 1740s at the beginning of the Qianlong period.

5.3 The situation of the Sino-Japanese trade in 1736

Due to the flourishing copper production in Yunnan, the continuing decrease in Japanese import copper and lingering arrears of the copper merchants the Qianlong emperor, at the beginning of his reign in 1736, initiated the reorganization of the copper administration. He ordered the central and provincial bureaucracies to bring forward suggestions on how to reorganize the copper administration and the copper procurement policies. The reactions were twofold: he received memorials which proposed to use only copper from Yunnan and Sichuan for Chinese minting purposes and recommended the abolishment of the procurement of Japanese copper and the abandonment of the Sino-Japanese trade. Others, however, suggested to use indigenous copper as well as copper from Japan and supported the continuation of the copper trade with Japan.

The second of the two main problems that pre-dominated the copper administration, besides the permanent shortage of Japanese copper, were the ever increasing arrears of the

[4] Vogel 1989, 32.
[5] Liu 1999a: 93.
[6] Vogel 1989, 32.

copper merchants and the transport officials. The responses by Chinese officials on how to solve this problem were manifold.

This section shows how the situation of the Japanese copper shortage was dealt with and finally relieved. In other words, it deals with the transition from the use of Japanese copper to indigenous copper for metropolitan minting purposes. This paragraph further inquires into the matter of the huge arrears in the Sino-Japanese trade.

5.3.1 Indigenous copper for the metropolitan mints but continuation of copper trade with Japan

In view of the flourishing copper production of the Yunnan copper mines and the decreasing and unstable imports of Japanese copper, there was a wide consensus in 1736 that the metropolitan mints should increasingly if not entirely resort to indigenous copper supplies. From 1730 onwards they had already been partially supplied by Yunnan copper as Hunan, Hubei and Guangdong were told to fill their one-eight quotas from Yunnan. The five remaining provinces had continued to buy imported copper.[7] There was, however, deep disagreement in 1736 whether the Sino-Japanese copper trade should be continued or not.

Li Fu 李紱, Vice-president of the Ministry of Revenue, advocated the continuation of a liberalized copper trade. In his opinion the state should withdraw from the Sino-Japanese copper trade and allow private trade as private commerce with Japan would necessarily bring about copper imports. His arguments will be dealt with in more detail later on.[8]

Gu Cong 顧琮, acting Provincial Governor of Jiangsu, also stood up for a continuation of the copper trade with Japan. In his opinion copper should be procured from Yunnan, Sichuan and also from Japan. He argued that if the copper trade with Japan was abolished and only indigenous copper was used, it was to be feared that the mining output might not be sufficient which would be detrimental to the minting of copper cash. Yet, he petitioned to reduce the annual procurement quota for Japanese copper by arguing that cutting down the annual quota for Japanese copper would speed up the return of Chinese vessels from Japan as the Japanese copper mines would then be able to keep up with copper production.[9]

5.3.2 A first investigation into the reasons for the arrears in the Sino-Japanese trade

The Minister of the Ministry of Revenue, Zhang Tingyu, reports that already between 1716 (KX 55) and 1729 (YZ 7) the provinces that procured Japanese copper accumulated huge arrears towards the metropolitan mints. The transport officials had to bear the brunt and many were deprived of their family fortune.[10]

[7] Dunstan 1992, 62.
[8] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.
[9] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮; QCWXTK 16: 4993 a-b.
[10] MQDA, A 67-61, QL 1/2/16, Zhang Tingyu 張廷玉.

Despite the deployment of various measures the outstanding debts could not be alleviated but increased instead. Gu Cong, Provincial Governor of Jiangsu, claims that after the introduction of the copper certificate (*tongpai modui* 銅牌磨對)-system after 1730 there was no transport that did not incur further debts.[11]

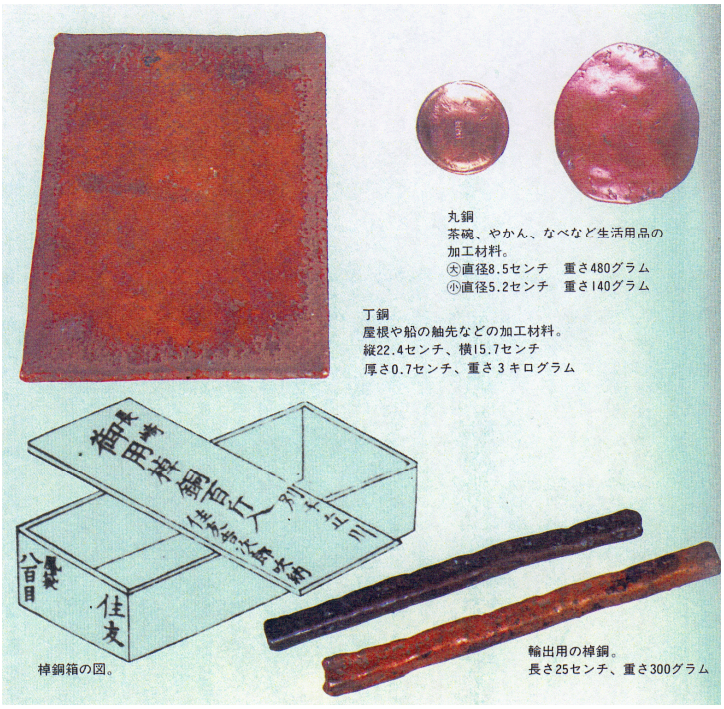
This section delves into the reasons for the arrears as depicted by central and provincial officials. By making a comparative analysis of the different views on the situation we will proceed one step further to the heart of the matter.

5.3.2.1. Fraudulent weighing practices

According to Li Fu 李紱, the Vice-president of the Ministry of Revenue, the weighing procedures at Nagasaki were manipulated. He claims, that in the years preceding 1736, the Japanese weighed in only 97 *jin* for a nominal 100 *jin*.[12]

Japanese copper was received by Chinese merchants in the shape of rods (*tiaotong* 條銅), each weighing 300 grams and having a length of 25 cm.

Picture 1: Copper rods and other shapes of Japanese copper[13]



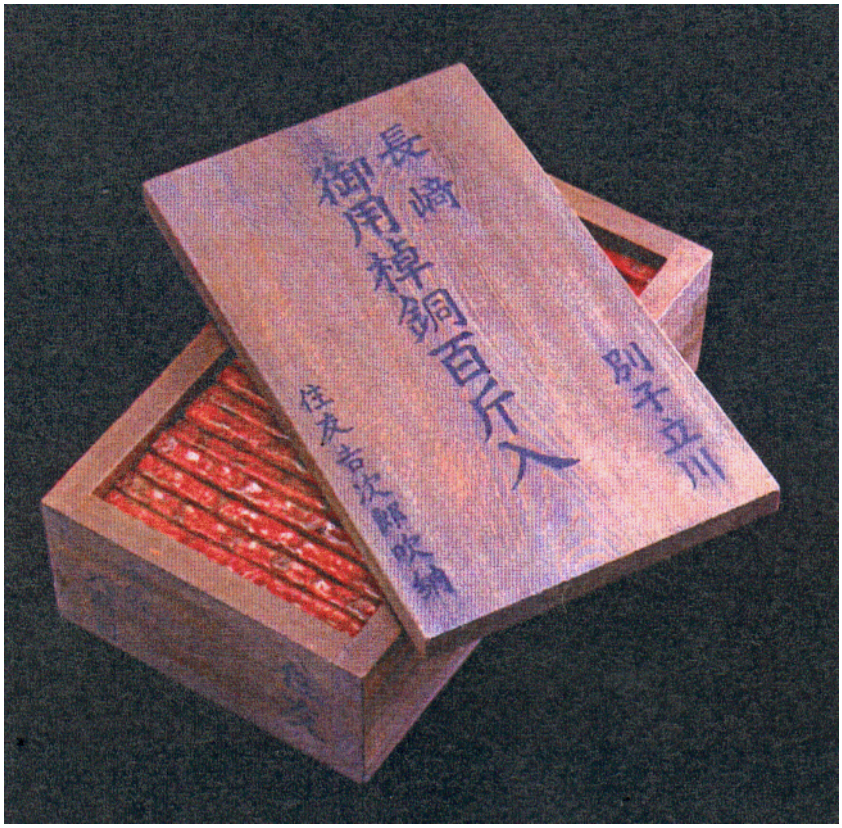
[11] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮

[12] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.

[13] I want to thank Anke Scherer for providing me with this picture. Sumitomo shôji kabushiki gaisha kôhôshitsu 住友商事株式会社広報室 (Department for publicity of the Sumitomo trade corporation) (ed.) (1985). *Sumitomo no fûdo* 住友の風土 (Views from Sumitomo). Tokyo: Sumitomo shôji kabushiki gaisha kôhôshitsu, page 33.

These rods were packed in boxes that weighed a nominal 100 jin (59,7 kg) each.

Picture 2: Reconstructed copper chest[14]



According to Li Fu these Japanese copper chests contained only 97 jin instead of 100 jin of copper. As a result, the transport officials reportedly incurred deficits of 3,000 *jin* when transporting an amount of 100,000 *jin*, which they had to make up for.[15]

This assertion about manipulated Japanese weighing procedures is openly rejected by Gu Cong.[16] He suspected that the pretense of irregular weighing in Japan was just a means to cover the very same practices by the metropolitan mints. This is evidenced by Tong Hua:

> "Hitherto, when the two Ministries received copper, the Ministry of Revenue used balances and the Ministry of Works used steelyards. Because the Ministry of Revenue [used balances], it accumulated more and more deficits, whereas the Ministry of Works never experienced any

[14] I want to thank Anke Scherer for providing me with this picture.Booklet on the permanent exhibition in the museum of the Sumitomo company in Kyoto: 歴史展示館 (rekishi tenjikan), page. 12.
[15] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.
[16] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮.

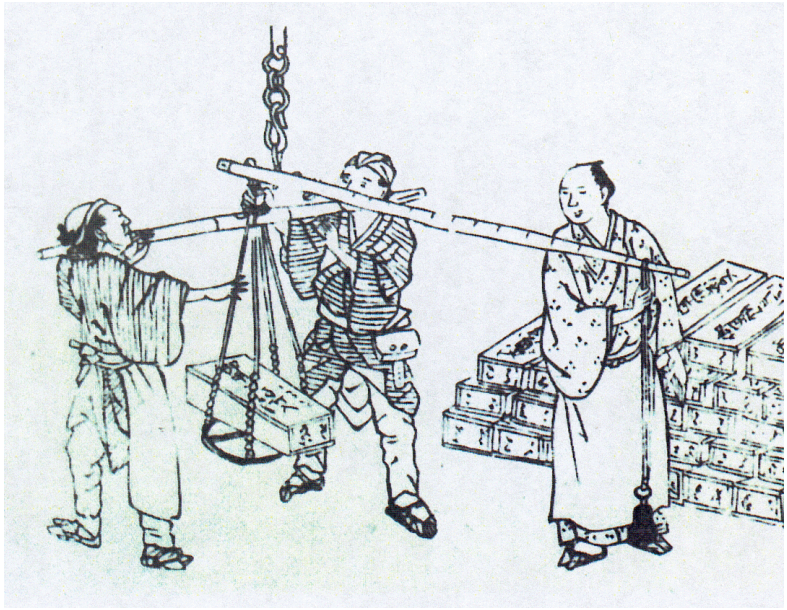
weighing discrepancies. (*dui que* 兌缺). From this it is obvious that the balance is not as precise as the steelyard. [It is therefore strange] that now also the Ministry of Work uses balances. The weight of the 100 *jin* standard weights are difficult to standardize. The furnace heads (*lutou* 爐頭) on purpose select destroyed bundles, from which copper rods had been stolen, and deposit them at a separate place. When the balances are adjusted [*tandui* 彈兌] with ten [of these] bundles, this necessarily will result in weighing discrepancies and [therefore] wooden chips will be added [to the copper]. As [the wooden chips] are of low weight, several tens to one hundred of them have to be added [to adjust the imbalances]. Afterwards the wooden chips are weighed with a small steelyard. The ratio [of required wooden chips] per this ten bundles is applied to the more than thousand [remaining] copper bundles. This is then added up and [accordingly] enumerated in the reports. [Thereafter], the copper is not put into storehouses, but distributed to the furnace heads. Also the copper, which is added for compensating the deficits, is filled into their ditches. The result is that the furnace heads become always richer, are not subjected to any investigations and make large profits without doing anything. This, of course is of no benefit for State finances."[17]

Gu Cong does not only accuse Li Fu of making false pretenses, he also blames the Ministry of Revenue for negligence in adjusting the established regulations to meet the changed conditions (*biantong chengli* 變通成例) of the weighing and quality assessing of the copper. In his opinion this regulative vacuum contributed significantly to the arrears of the officials and the depleted capital of the merchants as the low-ranking transport officials did not dare to fight against the illicit practices. He resolutely requests to restrain the weighing personal (*chengshou* 秤手) and the furnace heads (*lutou* 鑪頭)[18] from assessing the quality and the weight of the copper at random to prevent further arrears by the transport officials and the merchants.[19] Weighing, however, never ceased to be a problem.[20] When in 1772 (QL 37) the Jiangsu authorities investigated into the annual imports of the private merchants it turned out that these merchants had to deliver additional copper to make up for alleged weighing deficiencies (*buqingchengtong* 補輕秤銅). For one box of copper, weighing a nominal 100 *jin*, the merchants were made to hand over additional 3 *jin* and 13 *liang* to the mints of Jiangsu, Jiangxi and Zhejiang as they maintained that one box contained only 96 *jin* and 3

[17] Tong Hua, Tongzheng tiaoyi, 804 f.
[18] Zhang Tingyu uses the generic term *tangguan* 堂官 for the weighing personal (*chengshou* 秤手) and the furnace heads (*lutou* 鑪頭) ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉; MQD, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉.
[19] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮.
[20] e.g. ZPZZ 1239-017, reel 60/14, QL 13/12/24, Peng Jiabing 彭家屏.

liang of copper.[21] In order to prevent such weighing deficits in the copper procurement from Yunnan the transport officials were equipped by their provinces with standard weights from the Minstry of Revenue in order to check and compare them with the local weights at Yunnan.[22] Flawed weighing procedures were also prevalent in the salt business. However, in this case it was in favour of the merchants that profited from it. Thanks to a set of adulterated weights[23], issued by the Ministry of Revenue, the merchants could "legally" pack more salt into their bales and had therefore to pay less tax. Afterwards they would sell this tax-free salt to tribute-grain boats or send it to neighboring Hedong and Lianghuai divisions where higher tax rates ruled. Such flagrant violation of the law would not have been possible without the benign neglect, if not tacit cooperation, of officials from the highest rank to lowly yamen runners and even the emperors since early Qing were aware of it.[24] This case shows that even official standard weights of the Ministry of Revenue could be tampered with. It appears to me that in case of Japanese copper for Chinese mints the additional excated copper served as a kind of customary surcharge that was condoned by most of the officials involved as they also received their share.

Picture 3: Weighing of copper chests at Nagasaki[25]



[21] ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等.

[22] NGHKTB 11.11/12, DG 7/2/ 13, Tao Shu 陶澍; NGHKTB 10.15/14, JQ 19/閏2/ 26, Zhu Li 朱理.

[23] One *jin* of salt at the depot was actually 17.3 instead of the nominal 16 *liang*.

[24] Kwan 2001: 46.

[25] I want to thank Anke Scherer for providing me with this picture. Sumitomo shôji kabushiki gaisha kôhôshitsu 住友商事株式会社広報室 (Department for publicity of the Sumitomo trade corporation) (ed.) (1985). *Sumitomo no fûdo* 住友の風土 (Views from Sumitomo). Tokyo: Sumitomo shôji kabushiki gaisha kôhôshitsu, page 33.

Although Gu Cong does not deny fraudulent practices at Nagasaki, in his opinion the weighing irregularities in China contributed decisively to the arrears of the transport officials and merchants. Yet in his opinion another reason for the accumulated arrears was the five-province system for the procurement of Japanese copper.

5.3.2.2. The five-province system for the procurement of Japanese copper

From 1716 to 1721 and again from 1724 to 1736 eight provinces were responsible for the procurement of some more than 4,435,000 *jin*, each province about 554,000 *jin* of copper, for the metropolitan mints in Beijing. The five provinces Anhui, Fujian, Jiangsu, Jiangxi and Zhejiang would procure 2,772,000 *jin* of Japanese copper and the three provinces Guangdong, Hubei and Hunan would purchase some more than 1,663,000 *jin* of copper from Yunnan.[26]

According to Li Fu 李紱, Vice-president of the Ministry of Revenue, the competition for the purchase of Japanese copper between officials from these provinces at Suzhou, however, had caused a steady rise of the copper price. The funds issued by the Ministry of Revenue did eventually not cover the actual costs. As a consequence these competitive purchase conditions resulted in arrears by the copper procuring officials. Until 1736 (QL 1), in the words of Li Fu, this had already led to the indictment of 75 copper procuring officials, made responsible for a copper deficit of all in all 3.87 million *jin*. In order to remedy this situation the intendant of the maritime customs of Jiangsu already in 1720 (KX 59) had requested to put Jiangsu alone in charge of the procurement of Japanese copper. The request was, however, denied at that time.[27]

Thereupon, Li Fu together with Bai Huang 白潢, former Minister of the Ministry of War, and others submitted a memorial with further proposals for the reform of the existing procurement system: In order to solve the problem of the rising copper price by competition they suggested making the two provinces of Jiangsu and Zhejiang solely responsible for the procurement of Japanese copper. Due to the fact that all copper ships sailed from and back to the ports of Zhejiang and Jiangsu, these two provinces would just have to purchase the copper upon the arrival of the merchant ships at the ports and thus the problem of a continuous price rise by competition would be eliminated.[28] This time the request was granted and from 1721 till 1724 the 4.4 million *jin* total purchase quota was divided in the ratio 5:3 between Jiangsu and Zhejiang.[29]

[26] QCWXTK 16: 4993a; ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉; MQD, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉; Shulman 1989, 166 184; Dunstan 1992, 62ff; Vogel 1989, 190ff.
[27] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.
[28] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.
[29] Dunstan 1992, 62.

Reportedly, Jiangsu and Zhejiang managed the administration of the Sino-Japanese copper trade quite well for some years. Yet, when they began to appoint lower-ranking officials (*renwei diqing* 人微地輕) who could not withstand the merchants' wicked and artful ways once again arrears were accumulated and the responsibilities for Japanese copper procurement were again divided between five provinces.

As before, the provinces Anhui, Fujian, Jiangxi and Zhejiang had each to depute an official to go to Suzhou to procure copper for the mints in Beijing. However, Gu Cong argued, the travel route was not only far but also the expenditures were high and the allotted transport funds not sufficient to cover the expenses due to extended waiting times at Suzhou. Yet, he totally rejected the assertion by Li Fu that arrears were accumulated because the funds for the procurement of copper issued by the Ministry of Revenue did not suffice to cover the actual costs as a consequence of competitive purchase conditions at Suzhou. He claims that, besides high expenses for transport and lodging at Suzhou, the officials, deputed by the four provinces, often hired untrustworthy merchants.

Because the procurement officials from the neighboring provinces did not have command over the financially strong and reliable merchants and were also not familiar with the financial situation of the local merchants, they easily recruited untrustworthy merchants with depleted financial resources.[30] This resulted in the situation that the funds for the purchase of copper, paid to the merchants in advance, could not be recovered.[31] To avoid such dilemma, the copper procuring officials reportedly even hired local revenue clerks (*qianliang renmin* 錢糧人民) illicitly, which, however, lead to further arrears.[32] It seems that the actual work of contacting the merchants devolved upon the lower echelon of the local yamen staff. This practice of employing "contract chiefs" (*lantou* 攬頭), prevalent not only in the tax collection but also in the contracting of mint metal transportation, had in many cases led to major problems even culminating in insurrections and always corrupted the procedure.[33]

5.3.2.3. Deterioration of the quality of Japanese copper

The Chinese copper merchants incurred huge losses because of allegedly insufficient quality of Japanese copper. In the years before 1736 the metropolitan mints had declined Japanese copper due to its insufficient quality. The copper procuring officials had ordered the merchants to re-smelt it, which cost them additionally 1.1 *tael* for each 100 *jin*. If the copper was all the same declined, the merchants had been ordered to make up for the deficit. [34]

[30] QCWXTK 16: 4993a.
[31] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮.
[32] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.
[33] See also Sun 1971, 141f.
[34] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.

Hao Yulin 郝玉麟, Governor-general of Fujian and Zhejiang, reports that the quality problems started around 1730 and 1731 (YZ 8 and 9). According to him, ships of the prefectures Wenzhou and Quzhou in Zhejiang loaded with Japanese copper shipwrecked, which resulted in the denial of the copper load by the metropolitan mints.[35] This incident is further elaborated by Tong Hua, Prefect of Suzhou[36]:

> "When Japanese copper arrived at the Ministries, its quality has never been assessed so far. In recent years it happened, however, that copper that has been shipwrecked and salvaged lost its glossiness and turned blackish by having been soaked in seawater. By this dark color the suspicion of the furnace heads was aroused so that they started to inspect its quality and assessed its copper content to a range between 80 or 90 percent [only]. The officials responsible for the procurement, who were made liable for compensation, shifted these liabilities to the original merchants. These merchants only counted the number of chests when receiving the copper in Japan. Thus, if adulterations occurred, these were due to abuses by the Japanese, and the merchants neither could know this nor did they dare to ask. Now, by debts being accumulated and dragged along year for year, their fears about further deficits are increased. If [the copper] could be examined and received as had been done earlier, this would constitute a generous policy. However, if this is not possible then the copper, declined on account of its [deficits in] assessment, should be returned to the transport official. He should be allowed to sell it in Beijing or to refine it by himself. Thus the burden of the merchants would be somewhat relieved."

There is indeed some evidence that Japanese copper was not always of pure quality. In 1734 (YZ 12) Jiangxi transported Japanese copper of only 95 percent purity to the metropolitan mints[37] and in 1779 (QL 44) Jiangsu delivered 47,853+ *jin* of Japanese copper of 95 percent purity and 100,000 *jin* of Japanese copper of even only 90 percent purity to the mints of the Ministry of Revenue.[38] In 1781 (QL 46) Jiangsu delivered another 50,000 *jin* of Japanese copper of 98 percent purity to these mints.[39] This is further substantiated by evidence from Japanese sources which indicate that the Japanese copper of superior quality was first and foremost sold to the Dutch merchants.

The depiction of the circumstance by Tong Hua sounds somehow convincing. Apparently it was taken for granted that Japanese copper was generally of superior quality and this

[35] ZPZZ 1226-026, reel 60/1, no date, Hao Yulin 郝玉麟.
[36] Tong Hua, Tongzheng tiaoyi, 805.
[37] MQDA, A 103-53, QL 6/6/16, 署江西巡撫 (no name).
[38] NGHKTB 8.4/11, QL 45/5/27, Jin Jian 金簡.
[39] NGHKTB 8.8/4, QL 47/5/21, Cao Wenzhi 曹文埴.

assumption was only shattered by the incident of the shipwrecks in 1730 and 1731 (YZ 8 and 9) when the quality of the Japanese copper was subjected to closer examination.

The copper merchants were charged of embezzling state funds by replacing high quality copper with copper of lower quality (*chouhuan qinshi* 抽換侵蝕) that contained either a high percentage of lead or iron-like metals (*huo chanza woqian huo jiadai tiexing* 或攙雜倭鉛或夾帶鐵性).[40] All the merchants were quite innovative in adulterating their merchandise in order to enhance their profits. The salt merchants, as an example, added dirt to the salt to increase the weight. Slightly better would be the use of water. The less scrupulous added even gypsum and alum. Employees that participated in the adultering received a portion of the extra income that reportedly exceeded their nominal monthly salaries.[41]

As Tong Hua describes, the merchants, however, denied any responsibility and alleged that they only check the amount of received copper chests and that any adulterations are due to abuses by the Japanese. According to Zhang Tingyu, the central governments was not convinced by the allegations of the copper merchants and in 1730 introduced the copper-certificate (*tongpai modui* 銅牌磨對 or *tongse duipai* 銅色對牌)-system to prevent fraudulent practices by the copper merchants.[42]

The inauguration of the copper certificate-system had dire consequences for the transport officials. Reportedly thereafter all transports without exception accumulated arrears due to insufficient quality of the Japanese copper.[43] According to Hao Yulin, from between the Fujian and Zhejiang transport officials alone, six were made liable for insufficient quality of Japanese copper between 1732 and 1734 (YZ 10 and 12) resulting in arrears of altogether more than 20,870 *tael* silver.[44]

Although Japanese copper may not always have been pure its quality was certainly better than most of the copper from Yunnan and most definitely not as low as 80 to 90 percent like the report of Tong Hua and the memorial by Hao Yulin suggest. Although roundly denied by Zhang Tingyu 張廷玉, Minister of the Ministry of Revenue[45], it rather seems, as Gu Cong suggests, that in many cases the pretext of insufficient quality was arbitrarily used to exploit the transport officials and copper merchants. Yet, the copper certificate-system did not only lead to illicit practices by the mint officials but also to incessantly increasing arrears by the transport officials and the copper merchants.

[40] ZPZZ 1227-006, reel 60/2, QL 1/12/4, Zhang Tingyu 張廷玉; MQDA, A 69-43, QL 1/12/4, Zhang Tingyu 張廷玉.
[41] Kwan 2001: 48.
[42] A deeper investigation of this system could not be found in the relevant literature and can not be undertaken here. ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉. MQDA, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉; ZPZZ 1227-006, reel 60/2, QL 1/12/4, Zhang Tingyu 張廷玉.
[43] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮.
[44] ZPZZ 1226-026, reel 60/1, no date, Hao Yulin 郝玉麟.
[45] ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉; MQD, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉.

5.3.3 Reform suggestions

5.3.3.1. Abolishment of the five-province procurement system for Japanese copper and handing over the management to Jiangsu and Zhejiang

Already in 1735 (YZ 13), Lu Chao 盧焯, Provincial Governor of Fujian, had requested to abolish the five-province procurement system and to appoint an special intendant for copper administration (*tongzhengdao* 銅政道) at Suzhou who would supervise the recruitment of merchants and the procurement of Japanese copper.[46] Tong Hua, prefect of Suzhou, had made the same suggestion:

> "It seems to be better to depute a special circuit intendant to handle the copper procurement of the four provinces Jiangnan [i.e. Anhui and Jiangsu], Zhejiang, Fujian and Jiangxi in order to save expenditures for the outward and return journeys of the deputed officials and prevent the many problems and disorders caused by the numerous substitutions of these officials. If we set up a precise list of the names of the [copper] merchants of Jiangsu and Zhejiang, who have a [trading] license and launch them in turn according to that list, then such corrupt practices as favoritism and the exceeding of one's authority will be put to an end."[47]

Although Gu Cong did not accede to the proposal to appoint a copper intendant, he suggested that the circuit intendants of the Jiangsu and Zhejiang maritime customs stations at Shanghai and Ningbo should be solely appointed as officials handling the procurement of Japanese copper for the metropolitan mints. He argued that they had anyway been responsible for the inspection of the copper transports before and on the other hand this would certainly speed up the procurement of copper from Japan. The annual quota of Anhui and Jiangxi should be transferred to the maritime customs intendant of Jiangsu and the annual quota of Fujian and Zhejiang should be transferred to the maritime customs intendant of Zhejiang. In order to denote their full authority, their official title should be extended to "supervising the maritime customs station and handling copper matters".[48]

Gu Cong also favored the Jiangsu and Zhejiang-management of the copper trade because they would be able to exert control over the local merchants much more effectively and also guarantee a more careful and reliable selection. In his opinion the method of selection merchants was of decisive importance for the copper trade and it was negligence in exactly this respect that had led to the huge arrears. Laying the whole blame on the treacherous

[46] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮.
[47] Tong Hua, Tongzheng tiaoyi, 802.
[48] 監督海關兼辦銅務 *jiandu haiguan jianban tongwu*. ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮; ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉; MQD, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉.

Japanese would only draw off the attention from the cause. As before, the merchants should be given funds one year in advance to procure copper in Japan. The intendants of the customs stations should select around 20 honest, wealthy and experienced copper merchants from under those who have a valid trade license and who are clear of debts. The intendants should further have them signed a written agreement to guarantee for each other and have this register sent to the ministry. In addition, all illegal practices like the collecting of customary fees for bundling and guarding the copper and food supply for family members[49], have to be abolished immediately.[50]

5.3.3.2. Abolishment of the pre-funding system and liberalization of the copper trade

One of the strongest proponents of the abolishment of the he advance funding system was Li Fu 李紱, the Vice-president of the Ministry of Revenue. According to his account this system was not institutionalized by the central government but evolved over the time out of necessity. It was a means, utilized by the copper procuring officials, to assure a continuing supply with Japanese copper in order to avoid punishments. From his point of view, however, the pre-funding system was the main reason for the huge arrears of the copper merchants and the transport officials because it had led to indomitable problems not only in China but also at Nagasaki. Li Fu out of this reason forwarded his arguments why the pre-funding system should be abolished and private trade, the solution to all the problems, should be allowed[51]:

a. In his opinion the advancing of governmental funds to the merchants most likely results in irretrievable deficits as the sea-going venture involves many incalculable risks like for example shipwreck.

b. In addition, a huge amount of the advanced funds are not actually used to procure copper but to cover other expenses, e.g. the purchase of Japanese trade licenses, the ship rent of about 1,300+ *tael*[52], the salaries of the boat crew.

c. The competition between officials from different provinces at Suzhou for the purchase of Japanese caused a steady rise of the copper price. This argument suggests that the funds issued by the Ministry of Revenue did eventually not suffice the actual costs. As a consequence these competitive purchase conditions resulted in arrears by the copper procuring officials.

d. The Japanese are aware that the Chinese merchants receive governmental funds and have to meet fixed time limits and hence put them under pressure and extort large amounts of money.

Therefore, in his opinion, the advance funding system should be abolished because it is not only dysfunctional but also completely unnecessary. As long as Chinese merchants are

[49] *yubao shoutong jiaren fanshi* 預包守銅家人飯食.
[50] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮.
[51] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.
[52] ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等.

permitted to trade in Japan, copper arrives in China without state involvement. In order to sail from Nagasaki back to China sailing vessels had to have ballast and in the opinion of Li Fu the merchants would, as a matter of fact, take copper as the indispensible ballast good. [53] In addition, he claims, there is no need to assign merchants to purchase copper as the Japanese are eager to sell it because of the very substantial tax revenues and because it is their only commodity valuable enough to be exchanged with silk textiles and other Chinese commodities.

Helen Dunstan considers Li Fu's "liberal" on the copper importation question as consistent with the liberalizing tendencies that were of growing importance in public policy discussion from the beginning of the Qianlong period and in the 1740s.[54]

5.3.3.3. Further reform suggestions

Due to the brass prohibition which had been enforced under the Yongzheng emperor, Gu Cong reports, the market price of copper in 1736 had doubled in comparison to former years because of the sustained high demand in copper. As the people necessarily seek for profit, there is the malpractice of illegal minting, when the nominal value is higher than the intrinsic value (*qianwen qing yu tongjia* 錢文輕於銅價), and the abuse of illegal melting down [of coins], when the intrinsic value is higher than the nominal value (*tongjia zhong yu qianwen* 銅價輕於錢文). Therefore the intrinsic and the nominal value should be about the same. Gu Cong suggests to allow the merchants to sell the copper, which they procure beyond the quota, freely on the market in order to make their dangerous travels more profitable and to lower the market price of copper. As there will then be abundant copper circulating on the market the illegal melting down [of coins] will gradually come to an end.[55] Zhang Qu 張渠, the Provincial Treasurer of Jiangsu, put the same issue a little different: In order to reduce the price of copper cash [relative to the kuping silver *tael*] the copper price has to reduced first and in order to lower the copper price there has to be abundant copper on the market.[56]

5.4 First reforms in 1736

The Ministry of Revenue, under the direction of Minister (*shangshu* 尚書) Zhang Tingyu 張廷玉 approved of almost all of the suggestions made by Gu Cong. The following new regulations were set up by the Ministry in 1736[57]:

[53] Dunstan 1992, 66f.
[54] Dunstan 1992, 67.
[55] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮.
[56] ZPZZ 1227-018, reel 60/2, QL 2/10/11, Zhang Qu 張渠: *yu qianjia zhi jian bixu xian ping tongjia er yu tongjia zhi ping bi shitong chongyu* 欲錢價之減必須先平銅價而欲銅價之平必市銅充裕
[57] QCWXTK 16: 4993a-b.

5.4.1. Reduction of the quota of Japanese copper and transfer of the management of the copper trade to Jiangsu and Zhejiang

In 1735 (YZ 12) the weight of the copper cash had been reduced from 1.4 *qian* to 1.2 *qian*. Due to that change the metropolitan mints only needed 3,300,000 – 3,400,000 *jin* of copper annually and therefore had a surplus of copper in 1736. On account of these circumstances the total annual copper quota for the metropolitan mints was cut down from 4,43 million *jin* to 4 million *jin*.[58] The Yunnan authorities, who had before 1736 sent only 1,663,000 *jin* of copper, were now made responsible for half of the quota of 4 million *jin*, sending most of their 2 million *jin* ready-minted. The responsibility for the other 2 million *jin* of copper was transferred to the circuit intendants of the maritime customs station of Jiangsu and Zhejiang, both of which were to buy 1 million of copper imported from Japan.

As funds for the procurement of the quota of 1737 (QL 2) of 2,772,000 *jin* had already been advanced to the merchants, the three provinces Anhui, Fujian and Jiangxi were ordered to procure their share of this quota. From 1738 onwards they were released of their duty and the reduced annual quota of 1738 (QL 3) of 2 million *jin* was transferred to the maritime customs intendants of Jiangsu and Zhejiang. These customs intendants, each responsible for a quota of 1 million *jin* of Japanese copper, were granted the additional title "supervising the maritime customs station and handling copper matters" to denote their full authority as Gu Cong had requested.[59]

In addition, the maritime customs intendants of Jiangsu and Zhejiang received the full responsibility to recruit local copper merchants and appoint transport officials. Although the prefunding system was not abolished the merchants were registered and had to sign a written agreement to guarantee for each other in case of deficits and arrears.[60]

5.4.2. Abolishment of the copper certificate-system

Although Gu Cong had resolutely requested to adjust the established regulations for the assessment of the quality of Japanese copper in order to support the transport officials and the copper merchants, the Ministry of Revenue in 1736 just abolished the copper-certificate system that had been introduced after 1730 and re-installed the pre-1730 handling of this matter as Tong Hua had suggested.[61] Although Jiangxi reports about an additional 2.5 *jin* haotong for each 100 *jin* already in 1748 (QL 13)[62], it was not until 1802 (JQ 7) that the

[58] Due to the reduction of the weight of the copper cash by two *fen*,. QCWXTK 16: 4993 a.
[59] ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉. MQDA, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉.
[60] Ibid.
[61] ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉. MQDA, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉.
[62] ZPZZ 1239-017, reel 60/14, QL 13/12/24, Peng Jiabing 彭家屏.

Ministry of Revenue adjusted the regulations and ordered the merchants to deliver a certain amount of quality compensating copper (*haotong* 耗銅) in addition to each 100 *jin* of regular copper (*zhengtong* 正銅).[63] The report of Jiangxi mentioned above suggests that although the copper certificate system was abolished in 1736, unregulated but rather customary deductions due to alleged quality insufficiency of Japanese copper continued. Though the regulations implemented in 1736 state that in case of copper insufficiency deductions may be made[64], in case of Jiangxi the received copper had always been of superior quality and therefore no deductions should have been made.[65] There is no evidence that the proposal of Jiangxi in 1748 (QL 13) to prohibit the addition of *haotong* was put into practice.

5.4.3. Abolishment of the brass prohibition and liberalization of copper sale

In 1736 the prohibition on brass and brass utensils was lifted. In addition, the merchants, in case they procured more copper than the stipulated quota, were permitted to sell this surplus copper freely on market in order to "level or lower the market price of copper" (*ping minjian tongjia* 平民間銅價). The Qing government, however, continued to assume the right of pre-emption over imported copper.[66]

5.5 A second analysis of the reasons for the arrears in the Sino-Japanese trade

The potential reasons for the arrears of the transport officials and the copper merchants are manifold and so were the various explanations by the central and provincial officials. As shown in a first analysis illicit practices by mint officials and the detrimental five-province system for the procurement of Japanese copper, which led to the recruitment of untrustworthy merchants and the practice of employing "contract chiefs" (*lantou* 攬頭), were identified as some of the main reasons. In this second analysis a closer look will be taken at the main actors in the Sino-Japanese copper trade: the copper merchants.

A certain percentage of the arrears of the merchants were definitely due to the incalculable risks like shipwrecks that involved a sea-going venture like the Sino-Japanese copper trade.[67] As we have seen before the incalculable risks of the copper trade were used as an argument

[63] ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮; GX-HDSL vol. 10, 218: 20a, p. 7999; JQ-HDSL 175: 20a.

[64] ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉. MQDA, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉.

[65] ZPZZ 1239-017, reel 60/14, QL 13/12/24, Peng Jiabing 彭家屏.

[66] QCWXTK 16: 4993a. ZPZZ 1226-032, reel 60/1, QL 1/3/17, Zhang Tingyu 張廷玉. MQDA, A 67-79, QL 1/3/17, Zhang Tingyu 張廷玉.

[67] ZPZZ 1227-002, reel 60/2, QL 1/8/?, Wang Shi 汪楘; ZPZZ 1227-009, reel 60/2, QL 2/5/3, Ji Cengyun 嵇曾筠 and Shao Jin 邵基.

against the prefunding-system by Li Fu.[68] There were, however, other factors that have to be considered as crucial for the liabilities of the copper merchants. The personal writings of Tong Hua, a former prefect of Suzhou, shed more light on this matter.

5.5.1 Underfunding and misappropriation

Tong Hua, the Prefect of Suzhou, does not mince matters:

> "…the copper debts of the former Jiangsu merchants …are all due to the insatiable avariciousness and extortions of the former officials. This behaviour inevitably not only led to deficits but also to faked reports on savings – with the result that although the recovering of debts has been attempted for a long time, they could not be cleared. This is by no means the fault of the merchants."[69]

Unfortunately Tong Hua does not get more precise about the extortions by the former officials. However it is evident from the archival materials that, besides fraudulent practices mentioned above, the copper procuring provinces were in the habit of withholding up to two *tael* of the official rate before issuing it to the merchants, which means that the merchants in some cases only got 12.5 or 12.6 *tael* instead of the regulated 14.5 *tael* silver. These deductions, made generally in the name of deducting customs duties in advance or saving funds were sanctioned by the Board of Revenue.[70] This gives further evidence for the gulf between political ideals and normative requirements and the economic and social realities.

Tong Hua, however, indicates that some of these funds were not conveyed to the state coffers but under the pretext of saving official funds officials had lined their own pockets and faked reports. To give just one example: In 1723 it was found out that a sub-prefect from the prefecture of Suzhou had tried to conceal some more than 5,700 *tael* of such saved funds.[71]

Perhaps the officials, responsible for the procurement of copper, had even deducted more and picked out those from the more than 80 competing copper merchants at that time, who would do it for an even lower price than 12.5 *tael* silver and pocketed the rest of the silver to finance their extravagant lifestyle at Suzhou. Tong Hua elaborates on that matter:

[68] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.
[69] Tong Hua, Tongzheng tiaoyi, 803.
[70] ZPZZ 1226-005, reel 60/1, YZ 1/9/28, Li Fu 李馥.
12Gongzhong dang zhupi zouzhe, Caizheng lei 宮中檔硃批奏摺財政類 (Palace Memorials with Imperial Vermilion Rescripts, Category Financial Administration). Reel 60: Li Fu 李馥, YZ 1/9/8. Zhongguo diyi lishi dang'an guan 中国第一历史档案馆 (The Number One Historical Archives of China). Beijing. YZCHWZPZZ: Vol. 1, p. 919 f: He Tianpei 何天培 YZ 1/9/9; Vol. 3, See also: ZPZZ
[71] YZCHWZPZZ: Vol. 1, p. 919 f: He Tianpei 何天培 YZ 1/9/9.

> "According to the regulations either a circuit intendant or a prefect [*dao fu* 道府] are appointed for the two transports of each year. In case of each transport, they have to wait two years until they get the full [quota]. During [such a period of] two years there are usually seven to eight circuit intendants or prefects waiting at Suzhou….. For the officials waiting for over two years Suzhou is a bustling and prosperous place. They are gradually torn between lewd music and women, amusements and their own proclivities. They take concubines and buy artists, and they drink, eat and feast. This in many cases discredits official dignity, and it is of no small concern."[72]

Due to Depei 德沛, Governor-general of Fujian and Zhejiang, the copper merchants had the following method to cope with the low and sometimes even arbitrarily deducted official funds: They used the advanced capital to do profitable business in China and not until they had made some profit they bought merchandise to barter with and left for Nagasaki.[73] Yet, this resulted in a further procrastination of the copper procurement business and increased arrears of the merchants.

5.5.2 Aggravated trade conditions at Nagasaki

According to Chinese officials the terms for the barter trade at Nagasaki had gradually but markedly worsened for the Chinese merchants.

5.5.2.1 Increase in copper price at Nagasaki

Li Fu reported in 1736 (QL 1) that the Japanese Shogunat had reduced the trading value of the Chinese merchandise by half, which meant that the price of Japanese copper had doubled. For the same amount of Chinese merchandise, the copper merchants now only received half the amount of copper. [74] Tong Hua even provides quantitative data. According to his account, the price of Japanese export copper for China had originally been set at 9 *tael* silver. Later, it was raised to between 13 and 14 *tael*, while the exchange value of the Chinese commodities had remained at the same level.[75] The increase in the copper price is confirmed by statements of defaulting copper merchants and the investigations of a secret agent who reported that from 1728 onwards the price of Japanese copper was increased while prices of Chinese commodities were even lowered. This would have meant that the merchants received less

[72] Tong Hua, Tongzheng tiaoyi, 802.
[73] ZPZZ 1230-011, reel 60/5, QL 5/2/13, De Pei and others 德沛等.
[74] ZPZZ 1226-027, reel 60/1, QL 1/1/17, Li Fu 李紱.
[75] Tong Hua, Changqi qiwen, 798.

copper for the same amount of commodities which resulted in quota deficits.[76] However, according to the Japanese sources the official copper price remained stable at 115 monme silver (11,5 *tael* silver) from 1720 through 1740.[77]

There are two possible explanations for this contradiction: Either Japanese officials arbitrarily imposed a higher price upon Chinese merchants or the latter fabricated the story. At any rate, Tong Hua notes that the increase in the Nagasaki export copper price had cut into profits, so that the merchants only achieved returns of a few hundred *tael* whereas they formerly made a profits between 2,000 and 3,000 *tael*.

5.5.2.2 Unprofitable compensation transactions

Rises in the copper price at Nagasaki were not the only reason for the Chinese merchants' difficulties. In 1715 the "New Shôtoku laws" had been enacted. In addition to regulating the annual quota for trading ships and the trade volume, a ceiling was set for the annual copper export and when not enough copper was available merchants were made to accept other commodities. According to Tong Hua, the result of these new regulations was that the copper merchants suffered losses because they had to accept overpriced compensative commodities such as sea cucumbers and abalone. When selling this merchandise in China they allegedly received only 30 to 40 percent of the Japanese purchase price. Thus not only an increase in the copper price, but also the compensation transactions worsened the terms of the barter trade.

5.5.2.3 Extortionate prices at Nagasaki

Already in 1688 the Chinese merchants at Nagasaki had been confined to a walled compound specifically built for them and depended on the local population for food and other supplies. According to Tong Hua the local Japanese took advantage of this captive market. They kept raising food prices, and increased the rates for the transport of Chinese commodities from the ships to the Nagasaki Accounting House (*Nagasaki kaisho*長崎会所). As a result, Chinese merchants had expenses of over 1,000 *tael* silver per year for food and porterage only. The situation was aggravated by the circumstance that due to shortages in the copper supply and alleged illicit practices in Japan, waiting times at Nagasaki continued to lengthen. Tong Hua reports that while formerly the return journey was accomplished within less than one year, it now took up to more than two years[78]. Ji Cengyun reported that whereas in former years 20 to 30 ships had returned from Japan annually, in spring of 1737 only two ships had returned and many of the more than 40 ships, still waiting at Nagasaki for copper, had already been there

[76] ZPZZ 1227-009, reel 60/2, QL 2/5/3, Ji Cengyun 嵇曾筠 and Shao Jin 邵基; ZPZZ 1227-014, reel 60/2, QL 2/7/11, Ji Cengyun 嵇曾筠.
[77] Nagase-Reimer, Unpublished paper presented at the AAS conference in Chicago March 2009.
[78] Tong Hua, Changqi jiwen, 798.

for three or even four years. The increased costs in terms of both expense and time most certainly cut deep into profits and financial resources.[79]

5.5.3 Incapable and unreliable merchants

Tong Hua claims that the underfunding and abuses by Chinese officials and the aggravated trade conditions made the more substantial merchants turn away, so that "nowadays only ordinary scoundrels engage in the Sino-Japanese copper trade". These scoundrels were keen on getting hold of the Japanese trade licences as they were the only precondition to get prefunded.[80] Such untrustworthy individuals, however, were apt to use the advanced funds to settle old debts and spent them in other business transactions. They were hazardeurs who used the chance to lay their hands on substantial sums of money, using official funds as private trading capital.[81] This appraisal of the situation is confirmed by several memorialists.[82] It was a common concern among officials that "whether or not the copper-purchase funds were adequate, and whether or not the copper would [ever actually] be delivered, did not enter the calculations of these merchants."[83]

5.6 Further Reform Proposals

5.6.1 Temporary cessation of the pre-funding system

Instead of first reforms in 1736 the situation of the copper trade did not improve much. Permanent delays of copper transports resulted in impeachment and punishment of the transport officials and ever-increasing arrears. Therefore, Zhang Qu 張渠, Provincial Treasurer of Jiangsu, and Ji Cengjun 嵇曾筠, Governor of Zhejiang and at the same time Minister of the Ministry of Civil Personnel, in 1736 petitioned to freeze the copper procurement funds for the year 1738 (QL 3) in order to clear up the accumulated arrears and wipe out prevailing illicit practices.[84]

Ji Cengyun directed the attention of the central and provincial officials again at the copper merchants. He identified them as the real cause for the procrastination in the procurement of Japanese copper and the increasing arrears in the copper deliveries to the metropolitan mints.

[79] ZPZZ 1227-009, reel 60/2, QL 2/5/3, Ji Cengyun 嵇曾筠 and Shao Jin 邵基.
[80] MQDA, A68-135, QL 1/10/7, Zhang Tingyu and others 張廷玉等.
[81] ZPZZ 1227-002, reel 60/2, QL 1/8, Wang Shi 汪栻.
[82] Inter alia: ZPZZ 1231-004, reel 60/6, QL 5/6/11, Zhang Yunsui 張允隨.
[83] Dunstan 1992, 66.
[84] QCWXTK 16: 4994a and 17: 5010c; ZPZZ 1226-031, reel 60/1, QL 1/3/12, Ji Cengyun 嵇曾筠; ZPZZ 1227-001, reel 60/2, QL 1/5/24, Zhang Qu 張渠; ZPZZ 1227-005, reel 60/2, QL 1/10/13, Ji Cengyun 嵇曾筠 and Shao Jin 邵基.

He claims that the merchants did not only deliver the quota behind schedule but also in deficient amounts. Ji Cengyun describes the reason for the transport delays in more detail:

In general, the copper merchants receive governmental funds for the procurement of the copper quota of a certain year one year in advance and they also use the Japanese trading license (*wozhao* 倭照) of the former year. Like this the copper merchants have the time frame of a whole year to purchase copper at Nagasaki and ship it back to China. But although the copper quota of the year 1734 should have been procured with the trade license of the year 1733 the merchants[85] used the trade license of the year 1734 to procure the copper quota of 1734. As a result, when they arrived back in China they were already one year behind in their copper procuring duty and passed on the delay to the transport official. So, when the copper procuring official set out for the transport, he already exceeded the fixed time limit by one year.[86] The transport officials were punished severely and taken into custody, whereas the merchants were exempted from punishment. Because they had nothing to fear, according to Zhang Qu, they did not care about time limits at all but the received funds to do other business or spent it as they liked.[87] The merchants, however, passed on the blame to the Japanese officials They alleged that the Japanese also have arrears and are forced to take the commodities of a later arriving ship to provide the copper of an earlier arrived ship.[88]

In addition, according to Ji Cengyun the merchants do not use the advanced governmental funds to fulfill the upcoming quota anymore but to settle the debts of former years (*nuoxin yanjiu* 那新掩舊). As a result the copper procuring officials are not only behind in the time schedule but also deliver deficient copper amounts.[89]

Zhang Qu describes the state of affairs in more detail. He asserts that most of the merchants have depleted their financial resources and therefore engage in the corrupt practice of manipulating accountancy to conceal their financial situation. In view of the upcoming responsibility of Jiangsu and Zhejiang for the copper trade he fears that if the wheat is not separated from the chaff, the abuses will continue and the debts will never be cleared off. The advancement of procurement funds should temporarily be abolished in order to settle the arrears and wipe out abuses. As the Ministries of Revenue and Works reported that there is enough copper in store for two years of minting, funds for the second transport of 1737 should not be issued anymore and for the quota of the year 1738 (QL 3) no funds should be advanced at all. The rationale behind this measure was as follows: Merchants with depleted capital who had already shifted the advanced funds for the copper quota of 1737 to procure the copper

[85] *Shangren Ye Hongwu deng* 商人葉洪五等.
[86] ZPZZ 1226-031, reel 60/1, QL 1/3/12, Ji Cengyun 嵇曾筠.
[87] ZPZZ 1227-001, reel 60/2, QL 1/5/24, Zhang Qu 張渠.
[88] ZPZZ 1227-009, reel 60/2, QL 2/5/3, Ji Cengyun 嵇曾筠 and Shao Jin 邵基.
[89] ZPZZ 1226-031, reel 60/1, QL 1/3/12, Ji Cengyun 嵇曾筠; ZPZZ 1227-005, reel 60/2, QL 1/10/13, Ji Cengyun 嵇曾筠 and Shao Jin 邵基.

quota of 1736 would not be able to shift the funds for the year 1738 to procure the copper of the year 1737.

Zhang Qu anticipates that by this clear break [by 1738] only trifling arrears in the copper procurement duties of the merchants (*jiutong* 舊銅) will remain. In any way, the Jiangsu and Zhejiang officials will be able to identify the reliable merchants who do not have any arrears. New funds should only be issued to them. Hai Wang 海望, Minister of the Ministry of Revenue, urges to advance funds for the copper quota of 1739 (QL 4) in the first month of the year QL 3 (1738) to guarantee the mint supply of 1739 (QL 4).[90]

Zhang Qu was altogether confident that by putting a temporary halt to the advancement of funds the arrears could be settled, "the abuses would be wiped out and the copper administration would be like new again". The reality proved to be different: Although first investigations revealed a copper deficit of *only* about 2.4 million *jin* of copper or some 350,000 *tael* of silver[91] in 1755 the arrears still amounted to more than 127,000 *tael* silver[92] despite continuing compensative transports also after 1739 (QL 4).[93]

5.6.2 Inspection of Japanese trade licences and prohibition of "small licences"

Whereas Zhang Qu suggested to put a temporary halt to pre-funding and to wait for the clearing up of the arrears, Ji Cengyun favoured a more active approach. He argued in 1736 that in recent years wealthy merchants had been reluctant to acquire new Japanese trading licences (*wozhao* 倭照) because they feared to accumulate arrears. In contrast, unreliable and impoverished merchants had appropriated many of these licences to get hold of governmental funds. Ji Cengyun suggests to inspect the Japanese trading licenses of the merchants and to confiscate all the licenses of the defaulting merchants. The confiscated licences should thereafter be rented to wealthy merchants and the returns should be used to settle the arrears.[94]

In addition, Ji Cengyun argued for the prohibition of the small Japanese trading licences (*xiaozhao* 小照), also called (*fuzhao* 浮照). These were additional licences, which enabled the merchants to procure between 100 and 200 chests of copper beyond the quota of the regular trading licence (*ewai fugei* 額外浮給). This illicit sideline business of the merchants, however, had contributed to the delay of the official quota.[95]

[90] MQDA A 68-143, QL 1/10/19, Hai Wang 海望.
[91] ZPZZ 1227-009, reel 60/2, QL 2/5/3, Ji Cengyun 嵇曾筠 and Shao Jin 邵基.
[92] ZPZZ 1227-001, reel 60/2, QL 1/5/24, Zhang Qu 張渠; QCWXTK 17: 5010c.
[93] E.g. ZPZZ 1247-006, reel 60/19, QL 16/5/29, Zhun Tai 準泰.
[94] ZPZZ 1227-005, reel 60/2, QL 1/10/13, Ji Cengyun 嵇曾筠 and Shao Jin 邵基; MQDA, A 68-143, QL 1/10/19, Hai Wang and others 海望等.
[95] ZPZZ 1227-005, reel 60/2, QL 1/10/13, Ji Cengyun 嵇曾筠 and Shao Jin 邵基; MQDA, A 68-143, QL 1/10/19, Hai Wang and others 海望等.

5.6.3 Total supply of metropolitan mints with copper from Yunnan and liberalization of copper trade

From the point of view of Qing Fu 慶復, the Governor-general of Jiangsu, Jiangxi and Anhui, there was no better way to get rid of the fraudulent practices than to promote mining in China. Consequently there would be enough indigenous copper which would render the copper trade with Japan dispensable.[96]

In 1737 the Governor-general of Yunnan, Yin Jishan 尹繼善, also expressed doubts about clearing off the arrears of the defaulting copper merchants within one year and putting an end to fraudulent practices by the merchants. Suggesting a different solution he reports to the emperor: Copper production in Yunnan is flourishing. Besides supplying the metropolitan, Yunnan, Guizhou and Sichuan mints, Yunnan produces a surplus of more than 3 million *jin* of copper annually. Commissioning merchants with the sale of that copper and thus mingling public with private interests would most likely result in abuses. But why actually should copper be sold to merchants, he ask in a rhetorical question, if it is needed by the metropolitan mints, and why should copper be procured in faraway Japan if there is [enough] copper in nearby Yunnan (*shejin er jiuyuan* 舍近而求遠). Therefore he suggests that Jiangsu and Zhejiang should not be allowed to abandon the quota for the year 1738 (QL 3) but instead should be ordered to procure copper from Yunnan and deliver it to Beijing. This should be done the same way in the future and only in case of a shortage of Yunnan copper the maritime custom stations of Jiangsu and Zhejiang should be ordered to procure Japanese copper for the metropolitan mints.[97]

He, however, did not argue for a total abolishment of the copper trade with Japan but supported the suggestion of Lai Bao 來保, the Minister of the Ministry of Works. Lai Bao had suggested to take the one-year abandonment of the prefunding as an opportunity to order the provincial governments of Jiangsu and Zhejiang to issue a public announcement: Merchants willing to trade for copper will be given a Japanese trading license (*wozhao* 倭照), also called (*xinpai* 信牌), and be permitted to trade at Japan. Yet, he recommended the abolishment of the pre-funding system, as Li Fu had proposed, and requested that these private merchants should not receive governmental silver funds beforehand but instead should provide own trading capital. When coming back to China, the intendants of the maritime customs stations of Jiangsu and Zhejiang should have pre-emptive purchase rights over the copper. No deductions and dumping of the purchase price of 14.5 *tael* should be allowed.[98] In addition, Yun Lu 允祿 and others suggested to purchase Japanese copper from the merchants

[96] ZPZZ 1227-008, reel 60/2, QL 2/3/11, Qing Fu 慶復.
[97] QCWXTK 16: 4994a-b; ZPZZ 1227-011, reel 60/2, QL 2/5/27, Yin Jishan 尹繼善.
[98] QCWXTK 16: 4994a; ZPZZ 1227-011, reel 60/2, QL 2/5/27, Yin Jishan 尹繼善.

according to requirements and allow them to sell the remaining copper on the open market.[99] Zhang Qu 張渠 took the matter even a step further towards a pro-market policy. As already mentioned before, he argues that in order to reduce the price of copper cash [relative to the kuping silver *tael*] the copper price has to be reduced first and in order to lower the copper price there has to be abundant copper on the market. He proposes to put a halt to state intervention and calls for a total liberalization of the Sino-Japanese copper trade: The Qing state should cease to purchase Japanese copper and allow the merchants to sell the procured amounts free on the market. This would regulate/lower the market price of copper and prevent the melting down of copper cash.[100]

On the other hand, he argues, if the pre-funding system was to be abolished only a non-interventionist stance would guarantee continuing imports of Japanese copper: The merchants formerly received funds amounting to 14.5 *tael* to procure 100 *jin* of Japanese copper. Yet, the market price of copper in Japan was between 24 to 25 *tael*/100 *jin*. By using the advanced funds to purchase Chinese commodities and sell them at Japan for a much higher price the merchants were able to compensate for the losses.

Although some of Zhang Qu's statements about the working of the copper trade are obviously wrong, his argumentation was not lost upon. Ji Cengyun took up his argumentation and suggested a compromise: The merchants should be committed to sell half of the purchased copper cargo to the maritime customs intedants of Jiangsu and Zhejiang. The other half they should be allowed to sell on the open market.[101]

Others concurred to let them sell all the copper on the open market as Zhang Qu had proposed, but called for a state control of the market to prevent abuses like profit-greedy monopolizing efforts by big merchants (*baolan wangli* 包攬網利).[102]

5.7 Further reforms between 1737 and 1740

As suggested the advancement of funds was temporarily ceased for the copper quota of 1738 (QL 3) but Anhui, Fujian, Jiangsu and Zhejiang were ordered to procure the annual quota of 2 million *jin* of copper, 500,000 *jin* each province, in Yunnan instead and deliver it to Beijing.[103] But soon afterwards in spring of QL 3 (1738) Li Wei 李衛, Governor-general of

[99] ZPZZ 1227-013, reel 60/2, QL 2/7/10, Yun Lu and others 允祿等.
[100] ZPZZ 1227-018, reel 60/2, QL 2/10/11, Zhang Qu 張渠: *yu qianjia zhi jian bixu xian ping tongjia er yu tongjia zhi ping bi shitong chongyu* 欲錢價之減必須先平銅價而欲銅價之平必市銅充裕
[101] ZPZZ 1227-019, reel 60/2, QL 2/11/15, Ji Cengyun 嵇曾筠.
[102] ZPZZ 1228-011, reel 60/3, QL 3/6/17, E'ertai and others, 鄂爾泰等.
[103] QCWXTK 16: 4994b. NGHKTB 1.6/4, QL 5/9/12, Neqin 訥親; ZPZZ 1227-009, reel 60/2, QL 2/5/3, Ji Cengyun 嵇曾筠 and Shao Jin 邵基, ZPZZ 1227-019, reel 60/2, QL 2/11/15, Ji Cengyun 嵇曾筠; ZPZZ 1227-020, reel 60/2, QL 2/11/16, Zhang Yunsui 張允隨; ZPZZ 1228-001, reel 60/3, QL 3/2/25, Hai Wang and others 海望等.

Zhili and former provincial governor of Zhejiang, put forward an objection to this arrangement. He argued that because of the great distance between Yunnan and the four copper procuring provinces the interprovincial communication and the implementation of these transports were very awkward. In his opinion these circumstances and complicated local transport modalities in Yunnan would certainly harm and delay the copper transports and finally result in deficits and arrears like those in the copper trade with Japan. Therefore, he suggested, it would be much more convenient to order Yunnan to deliver the copper directly to the metropolitan mints.[104]

His proposal was granted and from 1739 (QL 4) onwards Yunnan was solely made responsible for the whole annual copper quota of 4 million *jin* for the metropolitan mints.But it was nevertheless decided to carry on with the Sino-Japanese copper trade.

The circumstance that in case of a shortage of Yunnan copper Japanese copper could be used to supplement the annual quota of the metropolitan mints was apparently a decisive factor for the decision to continue with copper importation. It was recommended by some officials that in spite of the surplus of Yunnan copper [during that period] one should nonetheless make arrangements for guaranteeing the supply of the metropolitan mints. The Japanese copper purchased by Zhejiang and Jiangsu from self-funded private merchants should be stored up to bridge bottlenecks in the supply of the metropolitan mints or serve local minting in the immediate vicinity of the ports.[105]

Concerning the former liabilities to the metropolitan mints, the emperor decreed that this copper should not be sent to Beijing anymore but be retained by Zhejiang and Jiangsu instead to serve local minting purposes.[106] Yet, this imperial edict was apparently revoked and although Zhejiang repeatedly requested to be allowed to retain some of the Japanese copper destined for the metropolitan mints for local minting (*jieliu* 截留), the Ministry of Revenue denied the request.[107] Though some of the former liabilities were reportedly settled with copper from Yunnan[108], the defaulting former transport officials in 1740 (QL 5) were as before competing over Japanese copper at Suzhou to clear their debts towards the metropolitan mints. When Jiangsu and Zhejiang complained about insufficient copper supply by the merchants, due to the circumstance that most of the arriving Japanese copper was still destined to make good former liabilities to the metropolitan mints, the Ministry of Revenue

[104] QCWXTK 16: 4994b; ZPZZ 1227-027, reel 60/2, QL 3/2/16, Li Wei 李衛.
[105] QCWXTK 16: 4994b; ZPZZ 1228-001, reel 60/3, QL 3/2/25, Hai Wang and others 海望等; ZPZZ 1228-004, QL 3/3/10, E'ertai and others, 鄂爾泰等; ZPZZ 1228-008, reel 60/3, QL 3/5/30, Zhang Yunsui 張允隨; NGHKTB 1.6/1 QL 5/閏6/9, Lu Chao 盧焯.
[106] ZPZZ 1229-002, reel 60/4, QL 3/10/18, Tan Xingyi 譚行義.
[107] ZPZZ 1229-022, reel 60/4, QL 4/7/8, Lu Chao 盧焯; ZPZZ 1229-025, reel 60/4, QL 4/8/12, Hao Yulin and others 郝玉麟等; ZPZZ 1230-007, reel 60/5, QL 4/12/13, Lu Chao 盧焯; ZPZZ 1230-009, reel 60/5, QL 5/1/12, Neqin and others 訥親等.
[108] ZPZZ 1230-012, reel 60/5, QL 5/3/7, Zhang Tanxiong 張坦熊.

ordered Zhejiang to purchase the copper procured by the self-funding merchants. In early 1740, however, no copper of the self-funded merchants had arrived yet and apparently only one or two of their ships had set sail for Japan.[109] Yet, as these merchant ships would no be returning until 1741/1742 Zhejiang requested to be allowed to procure copper from Yunnan to meet its urgent minting needs. This request was granted but only hesitantly as it was feared that transports by the provinces would delay transports to the metropolitan mints due to the scarcity of pack animals.[110]

Although the metropolitan mints were constantly supplied with copper from Yunnan from 1739 (QL 4) onwards, the four provinces Jiangsu, Anhui (*An* 安), Zhejiang and Fujian in 1740 (QL 5) still had to deliver Japanese quota copper of the years 1736 and 1737 (QL 1 and 2) to the metropolitan mints. By constantly complaining about the copper scarcity Fujian, Jiangsu and Zhejiang intended to get their share of this Japanese copper. [111] This plan worked only in the case of Zhejiang that finally did get at least some of this copper in 1741 (QL 6).[112]

The trading licenses of the defaulting merchants were confiscated and it was decided to rent them to merchants, who were willing to risk their own capital to procure copper at Nagasaki, for a price between 8,000 and 9,000 *tael* silver. Advances of official funds were no longer to be made but when the merchants returned from Japan the circuit intendants of the maritime custom stations at Shanghai and Ningbo would purchase the copper in equal amounts for local minting purposes.[113] Jiangsu and Zhejiang were ordered to carefully select wealthy and capable merchants, to rent the confiscated trade licenses to them and to entrust them with funds for the procurement of the quota of 1739 (QL 4).[114] But between 1737 and 1740 the response of the private merchants to the official summon was quite restrained.[115]

[109] NGHKTB 1.6/1 QL 5/閏6/9, Lu Chao 盧焯: 商人自辦洋銅多係彌補從前虧空即使抽買爲數亦屬無多; ZPZZ 1229-022, reel 60/4, QL 4/7/8, Lu Chao 盧焯; ZPZZ 1229-025, reel 60/4, QL 4/8/12, Hao Yulin and others 郝玉麟等; ZPZZ 1230-007, reel 60/5, QL 4/12/13, Lu Chao 盧焯; ZPZZ 1230-009, reel 60/5, QL 5/1/12, Neqin and others 訥親等; ZPZZ 1230-017, reel 60/5, QL 5/3/21, Zhang Qu 張渠.

[110] ZPZZ 1230-007, reel 60/5, QL 4/12/13, Lu Chao 盧焯; ZPZZ 1230-009, reel 60/5, QL 5/1/12, Neqin and others 訥親等; ZPZZ 1230-019, reel 60/5, QL 5/3/25, Qing Fu and others 慶復等; NGHKTB 1.6/1 QL 5/閏6/9, Lu Chao 盧焯: 運別省銅斤, 駄脚勢必不敷, 恐致有誤京局鼓鑄.

[111] ZPZZ 1229-022, reel 60/4, QL 4/7/8, Lu Chao 盧焯; ZPZZ 1229-025, reel 60/4, QL 4/8/12, Hao Yulin and others 郝玉麟等; ZPZZ 1230-007, reel 60/5, QL 4/12/13, Lu Chao 盧焯; ZPZZ 1230-009, reel 60/5, QL 5/1/12, Neqin and others 訥親等; ZPZZ 1230-021, reel 60/5, QL 5/4/12, Neqin and others 訥親等.

[112] ZPZZ 1230-013, reel 60/5, QL 5/3/9, De Pei 德沛; NGHKTB 1.6/4, QL 5/9/12, Neqin 訥親; ZPZZ 1231-007, reel 60/6, QL 5/閏6/8, Lu Chao 盧焯. The 102663+ jin of copper transported by Rui Fufu 芮復傳were originally destined for the metropolitan mints. However, it was argued that this copper was procured beyond the quota of the metropolitan mints. Consequently the remaining copper of 250,000 jin should be transferred to the Zhejiang mint. In the end Zhejiang received not 250,000 jin but 102,663+ jin as mentioned above. See also: NGHKTB 1.6/1 QL 5/閏6/9, Lu Chao 盧焯.

[113] QCWXTK 17: 5010c.

[114] ZPZZ 1227-009, reel 60/2, QL 2/5/3, Ji Cengyun 嵇曾筠 and Shao Jin 邵基.

[115] ZPZZ 1230-017, reel 60/5, QL 5/3/21, Zhang Qu 張渠.

According to Zhang Qu not even one merchant showed up between the first and tenth month of QL 2 (1737).[116] There were two main reasons for that: Financially strong merchants were not only supposed to risk their own capital but also had to sell the copper to the government at a substantially lower price (14.5 *tael*/100 *jin*) than the 19.8 to 20 *tael* for which Japanese copper could easily be sold on the open market at Suzhou. [117] According to De Pei it even yielded 28 *tael*/100 *jin* in Southern Fujian.[118] Out of these reasons the profit of this trade was questionable.

In order to improve this situation the provincial governor of Jiangsu, Zhang Qu 張渠, in 1740 petitioned for a rising of the purchase price. He proposed to add the 3 *tael*/100 *jin*, formerly designated for delivering the copper to Beijing, to the purchase price and raise it thus from 14.5 *tael* to 17.5 *tael*.[119] The Ministry of Revenue, however, opposed his proposal. On the one hand, the Ministry argued, a purchase price of 17.5 *tael* for 100 *jin* of Japanese copper not including additional transport expenses would be too expensive for the metropolitan mints in case they needed it. On the other hand, the Ministry asserted that as the copper trade had been liberalized there would soon be enough copper on the market which would lower the market price and render an increase in price unnecessary.[120] The Grand Secretary E'ertai backed Zhang Qu and suggested a solution that took also the arguments of the Ministry of Revenue into consideration: The price of Japanese copper should be raised to 17.5 *tael*/100 *jin* to prevent losses of the merchants and guarantee an immediate and stable copper supply. Yet the increase in price should only be made temporarily. As soon as the market price had fallen Jiangsu and Zhejiang would request to adjust the price accordingly. In case the metropolitan mints needed Japanese copper it should be handled as before. The Ministry of Revenue would advance 14.5 *tael*/100 *jin* one year in advance and Jiangsu and Zhejiang would procure the required amount.[121]

The request of E'ertai was complied with and as Zhang Yu had proposed the 3 *tael*/100 *jin*, formerly designated for delivering the copper to Beijing, were added to the purchase price, which raised it thus from 14.5 *tael* to 17.5 *tael*.[122]

As a further incentive, the Grand Secretaries and the Chief Nine Minister decided in 1741 (QL 6) that the new private merchants should be permitted to sell half of the procured copper in the open market at the market price. The remaining half should be purchased by the

[116] ZPZZ 1227-018, reel 60/2, QL 2/10/11, Zhang Qu 張渠.
[117] See QCWXTK 16: 4997a; NGHKTB 1.6/1 QL 5/閏6/9, Lu Chao 盧焯.
[118] ZPZZ 1230-011, reel 60/5, QL 5/2/13, De Pei and others 德沛等.
[119] ZPZZ 1230-017, reel 60/5, QL 5/3/21, Zhang Qu 張渠.
[120] MQDA, A 93-63, QL 5/4/16, Neqin and others 訥親等; ZPZZ 1231-001, reel 60/6, QL 5/4/16, Neqin and others 訥親等.
[121] ZPZZ 1231-002, reel 60/6, QL 5/4/24, E'ertai and others, 鄂爾泰等.
[122] QCWXTK 16: 4997a; NGHKTB 1.6/1 QL 5/閏6/9, Lu Chao 盧焯; ZPZZ 1231-010, reel 60/6, QL 5/閏6/18, Neqin and others 訥親等, ZPZZ 1231-014, reel 60/6, QL 5/7/1, De Pei 德沛.

maritime customs stations of Jiangsu and Zhejiang and equally divided between the two provinces.[123]

There was another innovative proposal made Zhang Yunsui 張允隨, the Provincial Governor of Yunnan, how to ensure an immediate and stable supply with Japanese copper. He proposed to collect all maritime customs duties from ships coming from Nagaski in Japanese copper instead in silver, calculating 100 *jin* of Japanese copper for each 14.5 *tael* of customs duties. In addition, the merchants should be allowed to sell the remaining copper on the open market.[124] This proposal, however, was openly opposed by Fujian and not taken into closer consideration.[125]

5.8 A liberalized trade run by private merchants: The period from 1740 to 1744

The reforms between 1736 and 1740 proved to be realatively successful and from 1740 onwards Japanese copper became a vital source for the provincial mints of Zhejiang and Jiangsu. Already in 1740 Zhejiang reported to have purchased 76,000 *jin* of Japanese copper from the self-funded merchants;[126] and Jiangsu assessed the available amount of Japanese copper available for its mint in 1741 at more than 160,000 *jin* and at even more than 200,000 *jin* from the expected 10 ships of the year 1742. The downside of the liberalized trade, however, also became apparent. As the private merchants were allowed to sell half of the copper by themselves reportedly only about 20,000 *jin* of Japanese copper per ship were available for official purchase by Jiangsu.[127] The estimates by Jiangsu, however, seem to be slightly to low. Although Zhejiang also reports about 10 ships annually entering port after 1742 (QL 7), it estimates the total imports of Japanese copper at 1.1 to 1.2 million *jin*. This would leave 600,000 *jin* of Japanese copper for official purchase and 300,000 *jin* for Zhejiang and Jiangsu each.[128]

Although the Sino-Japanese copper trade during this short phase may be described as liberalized and relatively unrestricted, as Helen Dustan does, the Qing state, however, did not neglect security and control measures.[129] If private merchants (*minshang* 民商) wanted to set sail to trade abroad they had to apply to the local district magistrate for ship licenses

[123] QCWXTK 16: 4997a; ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德.
[124] ZPZZ 1231-004, reel 60/6, QL 5/6/11, Zhang Yunsui 張允隨.
[125] ZPZZ 1231-017, reel 60/6, QL 5/8/7, Ce Leng 策楞.
[126] ZPZZ 1231-007, reel 60/6, QL 5/閏6/8, Lu Chao 盧焯; ZPZZ 1231-014, reel 60/6, QL 5/7/1, De Pei 德沛.
[127] ZPZZ 1232-014, reel 60/7, QL 6/12/1, Nuosutu 那蘇圖.
[128] ZPZZ 1234-024, reel 60/9, QL 9/6/9, Pan Siju.
[129] See Dunstan 1992.

(*chuanpai* 船牌) beforehand.[130] This was called "receiving licences" (*ling pai* 領牌). Altogether there were four licences:

1. The license received from the provincial governor was designated as *buzhao* (部照),
2. The license received from the provincial treasurer was designated as *sizhao* (司照)
3. The license certificated by the district magistrate was called *xianzhao* (縣照),
4. The forth one issued by the office for coastal defense was named *tingzhao* (廳照).

With these four ship licenses the private merchants had to go to the military coast guard station (*tangxun* 塘汛) at which they set off for crossing the sea and had to apply for the inspection of their trading goods and the licences. At that time the military coast guard station sealed the document and pasted the papers of the seal to the licence of the district. This was called "registration" (*guahao* 挂號).[131]

Although Fujian and Jiangxi repeatedly requested to be allowed to purchase some of the Japanese copper their request was denied as the imported copper did not even suffice the annual minting of Jiangsu and Zhejiang.[132] Yet, Fujian was allowed to buy up the Japanese copper of merchants that had drifted off the course or had shipwrecked at its coast. According to the Governor-general of Fujian and Zhejiang in 1769 (QL 34), 13 ships of the copper merchants were blown to the coast of Fujian by thunderstorms between 1742 (QL 7) and 1763 (QL 28) (see table in the chapter appendix).[133]

In 1744 (QL 9) Jiangxi finally got the permission from the Ministry of Revenue to purchase Japanese copper at Jiangsu and Zhejiang. Yet Jiangxi was not to encroach on the 50 percent official share of Jiangsu and Zhejiang but instead the merchants were asked to sell 10 percent of their 50 percent private share to Jiangxi at the price of 17.5 *tael*/100 *jin*. Due to this skimming practice the Qing government received 60 percent of the imported Japanese copper and the merchants were only left 40 percent of the Japanese copper to sell on the open market from 1744 (QL 9) onwards.[134]

On account of the increasing currency depreciation the provinces received the permission to establish their own mints and to start to mint copper cash. Although most of these provincial mints had been in operation before the opening date mentioned below, they had only used raw or rather unprocessed copper (*shengtong* 生銅) and refined copper (*shutong* 熟銅), collectively designated as *huangtong* (荒銅), scrap copper (*feitong* 廢銅), and brass household utensils (*huangtong qimin* 黃銅器皿) at that time.[135] As a matter of course,

[130] ZPZZ 1252-015, reel 60/22, QL 23/2/7, Tuoenduo 託恩多; QCWXTK 17: 5010c-5011a.
[131] Nakagawa Shishin, Shinzoku kibun, pp. 440 and 443.
[132] e. g.: ZPZZ 1232-020, reel 60/7, QL 7/4/29, Chen Hongmou 陳弘某; ZPZZ 1232-024, , reel 60/7, QL 7/7/1, Chen Hongmou 陳弘某.
[133] ZPZZ 1273-021, reel 61/10, QL 34/12/19, Cui Yingjie 崔應階.
[134] ZPZZ 1234-005, reel 60/9, QL 9/1/21, Saileng'e 塞楞額; ZPZZ 1235-004, reel 60/10, QL 9/9/17, Kaerjishan 喀爾吉善; ZPZZ 1237-009, reel 60/12, QL 11/閏3/14, Saileng'e 塞楞額.
[135] See for example NGHKTB 2.2/8, QL 10/2/28 by Neqin 訥親 on the mint of Shaanxi.

copper of this quality was in no way comparable to copper from Japan or even from Yunnan. Scrap copper and unprocessed copper were paid according to a purity degree of 40% and even the refined copper was only judged and paid to a 60 degree of purity.[136]

Table 33: Opening dates of provincial mints in the Qianlong period

Name of the mint		Origin of copper	Opening year	
Jiangxi	寶昌局	Japan, Yunnan	1737	QL 2
Jiangsu[137]	寶蘇局	Japan, Yunnan	1740	QL 5
Zhejiang[138]	寶浙局	Japan, Yunnan	1740	QL 5
Fujian[139]	寶福局	Japan (60%), Yunnan (40%)	1740	QL 5
Hubei[140]	寶武局	Japan, Yunnan, Hankou	1743	QL 8
Zhili[141]	寶直局	Japan	1745	QL 10
Guangdong[142]	寶廣局	Guangdong, Yunnan, Japan[143]	1745	QL 10
Shanxi[144]	寶晉局	Japan, Hankou/Suzhou markets	1748	QL 13
Shaanxi[145]	寶陝局	Japan, Sichuan, Yunnan	1748	QL 13

As a consequence of the large-scale provincial minting, copper, especially Japanese copper, was in great demand. Yet, perhaps because the terms laid down in 1740 were still insufficiently favorable to attract many private merchants, copper imports from Japan did not suffice to cover provincial minting demands. The shortage, however, was not only due to an insufficient number of merchants but also to the circumstance that the merchants were allowed to sell 40 percent of the procured copper on the open market. On the other hand the lesson that importation under the advance funding system cost the state less than buying copper imported by the private merchants had not been lost upon the officialdom.

136 NGHKTB 2.2/8, QL 10/2/28 by Nuoqin 訥親.
137 QCWXTK 16: 4997a–b. From 1736 to 1737 the Jiangsu mint only used scrap metal for minting.
138 QCWXTK 16: 4998a.
139 QCWXTK 16: 4996c–4997a.
140 QCWXTK 16: 5000b, 17: 5005c–5006a.
141 QCWXTK 16: 5002c.
142 QCWXTK 16: 5001c; 17: 5006c.
143 The Japanese copper used by the provincial mint of Guangdong derived from the ships of foreign merchants (*yangyichuan zaidao zhi tong* 洋夷船載到之銅) QCWXTK 17: 5006c; NGHKTB 2.12/7, QL 14/10/14 Fu Heng 傅恒.
144 Shanxi province had a special arrangement with merchants, who procured copper for its mint at Suzhou and Hangzhou. In accordance with the regulation for the Shaanxi and Zhili mints, the allocated funds to the merchants for the copper purchase amounted to 14 *tael*/100 jin. However, these merchants only received one third of the funds beforehand. When they handed over the procured copper they received the other two thirds. QCWXTK 17: 5006a; GX-HDSL vol. 10, 218: 6a, p. 7992.; JQ-HDSL 175: 6a.
145 QCWXTK 17: 5006b.

5.9 Concluding remarks

The richly documented reform phase of the Sino-Japanese trade is a vivid example for the negotiation of the different interests of the merchants and the central and provincial governments, the processes of decisions and the resulting consolidation in form of regulations by the central government. By comparing the different perspectives on the same matter as reflected in the memorials of officials from different levels of the Qing bureaucracy the intentionality and subjectivity of the memorials become evident. The process from the negotiation of the different interests to the final consolidation in form of authorative regulations by the Ministry of Revenue, however, also reveals an active involvment of the provicial and perhaps even local bureaucracy in the decision-making in imperial China of the eighteenth century.

The reforms of the Sino-Japanese copper trade between 1736 and 1744 left the provincial mints of Jiangsu and Zhejiang with half of all the copper imported from Japan by private merchants. Although the metropolitan mints kept an option on Japanese copper they were henceforth supplied exclusively with copper from Yunnan. In this way the dependence on ever dwindling imports of Japanese copper was dealt with and eliminated.

Besides copper shortages, abuses like theft and other problems the weighing and the allegedly insufficient quality of the copper from Japan were identified as the main problems that plagued the system. The copper merchants and in particular the transport officials that were made responsible for the losses accumulated huge arrears that they were not able to settle. By shifting the responsibilities of procurement and the transport of Japanese copper for the provincial mints of Jiangsu and Zhejiang exclusively to wealthy merchants the Qing state managed to surpass most of those problems. In relying on the capital, the manpower and the organisational skills of these merchants the Qing state improved its low organisational capacity in the field of mint metal procurement significantly.

Chapter 6: The Sino-Japanese copper trade from the Qianlong to the Daoguang Reigns (1736-1850): The phases from 1744 to 1850

Following the previous chapter on the reform phase this chapter deals with the following two phases: from 1744 to 1755 and from 1755 to 1850. In contrast to the chapters on the other mint metal transports we will deal with the trade regulations not at the beginning. As they were mainly a result of the major reforms between 1736 and 1740, but also of the following years, we inquire into these regulations at the end of this chapter. The study widens our prospects for understanding the Qing state's relationship with the "private sector", which in turn is of crucial importance to get a deeper insight into the state's presence and involvement in the everyday lives of the people. The procurement of Japanese copper for Jiangsu, Zhejiang and other provinces provides for a unique opportunity to study in detail the interaction between governmental authorities and individual merchants and merchant associations, the various models of cooperation and co-optation sponsored by the government, its successes and its failures, the negotiation of often divergent interests, the fault-lines of conflict as well as coercive measures applied by the government and merchant resistance.

6.1 The inauguration of a state merchant in addition to the private merchants: The phase between 1744 and 1755

In 1744 (QL 9), due to the problems and considerations mentioned at the end of the previous chapter, the Sino-Japanese copper trade was subjected to an additional procurement arrangement: The imperial merchant (*huangshang* 皇商) Fan Yubin 范毓馪 was ordered by the Ministry of Revenue to procure annually 1.3 million *jin* of Japanese copper from the year 1745 (QL 10) onwards.

Throughout Chinese history merchants had been recruited by the imperial governments. These merchants were called state merchants (*guanshang* 官商) and granted special rights and privileges. During the Qing dynasty from within this group of state merchants the emperors selected certain influential, meritorious and affluent merchants to become imperial *Neiwufu* merchants.[1] The imperial merchant system was virtually an extension of the *Neiwwufu* 内务府, the Qing Imperial Household Department, with which all the merchants of the Fan clan were affiliated. The close relationship between the Imperial Houshold Department and certain merchants derives from the alliance between the Manchu conquerors and certain Chinese merchants before the founding of the dynasty[2] and was typical of other conquest dynasties, notably the Mongols.[3] As this cooperation benefited the Manchu imperial household the Qing emperors supported these imperial merchants by licensing them and granting them loans at interest rates of only around ten percent and other additional privileges.[4] Loans from the three emperors Kangxi, Yongzheng and Qianlong totalled at least

[1] Wei und Wu 1981, 42.
[2] Ho 1962: 283.
[3] Torbert 1977, 175.
[4] Torbert 1977: 108.

3.2 million *tael*. Of this amount, at least 1.5 million *tael* went to salt merchants serving concurrently as imperial merchants in the Sino-Japanese trade.[5]

The Qing Imperial Household Department constituted the emperor's "personal bureaucracy" which handled primarily the emperor's personal affairs, but whose functions and influence extended far beyond the imperial palace. Its personnel were drawn, with a few notable exceptions, from the ranks of the bondservants (*baoyi* 包衣) of the upper three, or imperial, banners. From 1661 the *Neiwufu* acquired a significant and expanding role in the affairs of the emperor and even, at times, in state affairs. The eunuchs were not abolished, but the personal bondservants of the emperor took over the main tasks in the salt monopoly, the customs bureaus, and the imperial factories which eunuchs had handled in the Ming period.[6] Thus, throughout the seventeenth and eighteenth centuries, the imperial silk and textile manufactories in the three lower Yangzi cities Nanjing, Hangzhou, and Suzhou were managed by bondservants of the *Neiwufu*. The state merchant Fan Qinghong 范清洪 had already been recruited by the Qianlong emperor in 1757 to trade textiles produced by the imperial manufactories with the Moslems of Xinjiang before he was ordered to take over the copper trade with Japan in 1763 (QL 28).[7]

While they enjoyed the favour of the emperor, members of the elite of the imperial bondservants were able to amass considerable sums of money which invariably led them into close contacts with merchants. The relationship between the Lianghuai salt merchants and certain bondservants was so close that the Lianghuai salt censor Jiqing 吉慶 suggested in 1748 to the Qianlong emperor that the merchants pay off fines which the bondservants owed the state.[8]

The Fan lineage that belonged to the prominent Shanxi merchants provides a concrete example of the close cooperation between the *Neiwufu* and certain merchants. They had lived in the village Zhangyuan 張源 in the district Jiexiu 介休[9] in the in the province of Shanxi since the beginning of Ming times. For his trustworthiness and integrity the Shunzhi emperor granted Fan Yondou 范永斗 the privilege of becoming an imperial merchant of the *Neiwufu*. His eldest grandson Fan Yubin 范毓賓 achieved even wider fame as a trusted and influential Imperial Household Department merchant of the eighteenth century whose career extended to such disparate activities as the ginseng trade, military supplies, the salt monopoly, and mining. Wei Qingyuan even goes so far as dubbing the Fan merchants China's most important salt merchants from the beginning of the dynasty until the Qianlong reign.[10] He certainly had a

[5] Kwan 2001: 40.
[6] Torbert 1977: 25, 27, 111
[7] Torbert 1977: 112.
[8] Torbert 1977: 68.
[9] GZDQL 56/6.
[10] Wei and Wu 1981: 46.

point there if we consider that only the Changlu salt properties of the Fan clan were so extensive that they could be distributed to ten merchants in 1784 (QL 48).[11]

Although many members of the Fan clan rose to high positions in the Qing bureaucracy in the course of the eighteenth centuries the business relationship with the *Neiwufu* always remained of prime importance.[12] Connections with the Imperial Household and the regular bureaucracy however did not prevent business disasters. The unexpected end of the war in remote Turkestan cost Fan Yubin more than 2.65 million *tael* in 1731[13], but he was still able to carry on his commercial activities. In 1743 these debts still amounted to 675,445+ *tael*, although his brother Fan Yuji 范毓(香+奇), regional military commander at Zhengding 正定 in Zhili, had contributed an amount of more than 330,000 *tael* silver.[14]

In addition, there were still other liabilities derived from different business branches. Although the emperor had graciously forgiven him outstanding debts of the years 1740 (QL 5) and 1741 (QL 6) and he was able to make up 79,000 *tael* by the procurement and transport of building lime and lumber, his debts in the gingseng business in 1744 (QL 9) still amounted to more than 430,000 *tael* silver. Additional arrears were accumulated in the salt business as well as in the transport of copper. As a result his total arrears in 1744 (QL 9) amounted to more than 1.14 million *tael*.[15]

Table 34: Arrears of Fan Yubin in 1744

Year of arrears	Branch	Arrears in *tael*	Total arrears in *tael*
1742 and 1743 (QL 7 and 8)	Ginseng business	432,414+	1,141,250+
1731 (YZ 9)	Procurement and transport of rice	675,445+	
---	Salt business and transport of copper	33,390	

At that time the Imperial Household Department pursued a policy of responding to its merchants' failures by giving them new exclusive opportunities through which to could clear their debts. The effect was to create a kind of debt bondage, under which the state tried to recover existing debts, but lost the flexibility to entrust procurement to the best qualified merchants, or to switch easily to new arrangements. The merchants however were locked for a period of years into performing procurement services for the state on terms that were

[11] ZPZZ 1319-026, reel 62/14, QL 50/2/7, Zheng Rui 徵瑞.
[12] Wei and Wu 1981: 46.
[13] ZPZZ 1237–002, reel 60/12, QL 11/2/15, 范毓(香+奇).
[14] ZPZZ 1237–002, reel 60/12, QL 11/2/15, 范毓(香+奇);
[15] NGHKTB 2.2, QL 10/3/28, Gao Bin 高斌; ZPZZ 1234-007, reel 60/9, QL 9/1/29, Neqin and others 訥親等; ZPZZ 1237–002, reel 60/12, QL 11/2/15, 范毓(香+奇).

unfavourable or indeed unrealistic. Compared, however, with the punitive measures, of which the Qing state was capable in such cases, for example referral to the Board of Punishments or forfeiture of property, such arrangements represented preferential treatment.

Consequently the highly indebted Fan Yubin was ordered in an imperial edict to settle his liabilities by procuring copper in Japan for the amount of the outstanding debts of 1.14 million *tael* within a period of 4 years. However, when Zhili and other provinces informed Fan Yubin about the annual demand of their mints and the transport funds he replied that he could only procure 1.3 million *jin* annually. Thereupon, he was ordered to clear his debts by procuring the amount of altogether 8,451,787 *jin* of copper in Japan and deliver annually the amount of 1.3 million *jin* of copper from Japan for six years, beginning in 1745 until 1750. The remaining amount should be delivered to and shared in equal amounts by to the two mints of Zhili and Shaanxi in 1751 (QL 16).[16] So, although it looked like the re-introduction of the prefunding system it was not. Fan Yubin did not receive any funds but was supposed to use his own capital to procure copper in Japan to settle accumulated debts in other business branches.

In 1744 (QL 9) another imperial merchant, Liu Guangsheng[17] 劉光晟 from the district Hongdong 洪洞縣 in the prefecture Pingyang 平陽 in Shanxi, was recruited to procure 500,000 *jin* of copper within one year. The procurement funds were allocated in accordance with the regulation for copper procurement by Fan Yubin and amounted to only 14 *tael*/100 *jin* as they were supposed as a contribution (*juanshu* 捐輸) to show gratitude for imperial favours.[18] Liu Guangsheng received one third of the funds beforehand, and the other two thirds upon delivery of the copper. Although the copper procured by Liu Guangsheng was originally to be distributed to the minting provinces, in first place to the mint of Shanxi, there were no fixed annual quotas of certain provinces and the copper was finally delivered to Shanxi province only.[19]

As a result of the newly introduced procurement arrangements in 1744 (QL) the Qing government expected 1.8 million Japanese copper in addition to the copper of the private merchants in 1745 (QL 10).[20] Accordingly in 1744 and 1745 the imperial merchant Fan

[16] QCWXTK 16: 5000c; NGHKTB 2.2, QL 10/3/28, Gao Bin 高斌; NGHKTB 2.3 /3, QL 10/6/5, Liu Yuyi 劉於義; NGHKTB 3.10/1, QL 18/10/4, Zhong Yin 鐘音; ZPZZ 1234-007, reel 60/9, QL 9/1/29, Neqin and others 訥親等

[17] Liu Guangsheng was also a student of the imperial academy (*jiansheng* 監生). ZPZZ 1238-020, reel 60/13, QL 12/12/26, Zhun Tai 準泰.

[18] ZPZZ 1238-020, reel 60/13, QL 12/12/26, Zhun Tai 準泰.

[19] NGHKTB 3.6/3, QL 17/5/4, Asiha 阿思哈; NGHKTB 3.6/10, QL 17/?/16, Fu Heng 傅恒; ZPZZ 1234-021, reel 60/9, QL 9/5/19, Aligun 阿里袞; ZPZZ 1237-005, reel 60/12, QL 11/3/9, Chen Dashou 陳大受.

[20] ZPZZ 1235-004, reel 60/10, QL 9/9/17, Kaerjishan 喀爾吉善.

Yubin launched 22 ships while about 20 ships were sent off by the private merchants.[21] The expectations of Fan Yubin who had calculated an total import of about 2.8 million *jin* of Japanese copper, on an average 127,000 *jin* copper per ship, were pitched far too high. In 1745 only one of his 22 ships made his way back to China.[22] Because Fan Yubin proved to be unable to procure the quota of 1.3 million *jin* of copper in due time, in 1746 Fan Yuji, a brother of Fan Yubin, memorialized to the emperor, petitioning for a reduction of the quota to 800,000 *jin* of copper annually. The quota was thereupon reduced to annually 800,000 *jin*, in effect from 1747 (QL 12) and had to be reduced again in 1750 (QL 15) to an annual 500,000 *jin*.[23] After the retirement of Fan Yubin his sons Fan Qingzhu 范清注, Fan Qinghong 范清洪 and his nephew Fan Qingji 范清濟 continued to procure copper as imperial merchants until 1783. The first son to take over the copper business was Fan Qingzhu who was active in this branch from 1745–1762 (QL 10–27).

In contrast to the state merchant Fan Qingzhu, Liu Guangsheng seems to have competed quite well with the private merchants. Of the ten ships arriving back from Nagasaki in 1746 three ships belonged to Liu Guangsheng[24] but he also was not able to deliver his copper quota of 500,000 *jin* until spring of 1748 (QL 13).[25] The arrangement with the state merchant Liu was a short one and already finished in 1748.

Despite the recruitment of private merchants and additional state merchants, the copper demand could not be satisfied and copper remained to be in great demand. The request of Zhejiang in 1749 (QL 14) to prohibit the export of copper ware and to punish offenders very severely made this exigency very obvious.[26] The exchange rate of copper cash towards silver *tael* was so high in Zhejiang during this time that the ship captains and their crews tried to make profit by bringing back foreign copper cash from Japan and putting it into circulation on the Chinese market.[27]

Now then by 1748 two types of overseas copper merchants coexisted: the imperial merchant Fan and the private merchants. The Fan clan, who nominally received advance funding from the government, were paid a lower price for the procured copper by government authorities as it was officially assumed that they would make profit by using the silver to buy

[21] The ships of the private merchants, however, did not all come from Jiangsu and Zhejiang, but also from Fujian and Guangdong: 閩浙江廣民舡. ZPZZ 1237–002, reel 60/12, QL 11/2/15, Fan Yuji 范毓(香+奇).

[22] The ships of the private merchants did reportedly also include some ships from Fujian and Guangdong: 閩浙江廣民舡. ZPZZ 1237–002, reel 60/12, QL 11/2/15, Fan Yuji 范毓(香+奇).

[23] ZPZZ 1237–002, reel 60/12, QL 11/2/15, Fan Yuji 范毓(香+奇).; NGHKTB 2.13/9, QL 15/4/25, Yaerhashan 雅爾哈善; NGHKTB 3.3/2; QL 15/12/8, Fu Heng 傅恒; QCWXTK 16: 5000c.

[24] NGHKTB 2.6/2, QL 11/11/21, An Ning 安寧.

[25] ZPZZ 1238-020, reel 60/13, QL 12/12/26, Zhun Tai 準泰.

[26] ZPZZ 1239-022, reel 60/14, QL 14/3/9, Fang Guancheng 方觀承; ZPZZ 1239-033, QL 14/4/14, Fu Heng 傅恒.

[27] ZPZZ 1241-008, reel 60/16, QL 14/9/6, Kaerjishan and others 喀爾吉善等.

commodities in China for a low price and would get more copper in Japan by exchanging these goods, than they would have gotten if they had exchanged it with the silver".[28] This was at least the perspective of Liu Yuyi. The low price, however, was mostly due to the imperial favour in 1740 and 1741 when the emperor had abated some of his debts in the ginseng business and probably other favours before and deemed as contribution to repay these imperial favours (*baoxiao* 報效).[29] This view is confirmed by Fan Yubin himself:

> "吾受恩重，此吾份也。立遣人駕巨舟赴洋採辦。其始終任事，不擇險易，類如此."
>
> "I have received numerous [imperial] favours and [therefore] it is my duty to dispatch men with large ocean vessels to [Japan] immediately to procure [copper]. From between the duties [towards the state] no one should been chosen according to their dangerousness or easiness and [the copper procurement duty] is an example for this."[30]

The state merchant had to meet fixed copper quotas but was allowed to sell any surplus copper on the open market and thereby supplement his profits.[31] As a further privilege he was exempted of paying tax for the imported copper.[32] In order to facilitate the procedure of customs inspection and comfirm the tax exemption the Yamen of the governor of Jiangsu was ordered to issue a permit (*bingpai* 兵牌).[33]

The private merchants, in contrast, had to provide their own capital, but they enjoyed higher profits from the sale of the copper since they were permitted to sell 40 percent of the copper on the open market while the other 60% were sold at a fixed price to Jiangsu, Zhejiang and Jiangxi. This system of entrusting one state merchant and several private merchants with copper importing duties lasted from this time until 1861, yet the number of private merchants changed during the course of time.[34]

The newly introduced state merchant Fan Yubin, however, had been involved in the copper import trade before 1744. As is evident from an epitaph of the Fan clan and from a memorial by the Ministry of Revenue he had been ordered to procure copper from 1739 onwards. But although he was a state merchant he had not enjoyed the privileges of an imperial merchant, like for example tax exemption, but had been equal to the private merchants of Jiangsu.[35] The

[28] QCWXTK 16: 4997a; NGHKTB 2.3 /3, QL 10/6/5, Liu Yuyi 劉於義.
[29] Suzhou fuzhi, chap. 19: 18b.
[30] Wei and Wu 1981: 50.
[31] QCWXTK 16: 5000c; NGHKTB 2.3 /3, QL 10/6/5, Liu Yuyi 劉於義; ZPZZ 1234-007, reel 60/9, QL 9/1/29, Neqin and others 訥親等
[32] QCWXTK 16: 5000c; 17: 5006a; GX-HDSL vol. 10, 218: 18a, p. 7998; JQ-HDSL 175: 17b-18b; ZPZZ 1234-007, reel 60/9, QL 9/1/29, Neqin and others 訥親等
[33] NGHKTB 2.2, QL 10/3/28, Gao Bin 高斌; ZPZZ 1234-007, reel 60/9, QL 9/1/29, Neqin and others 訥親等.
[34] Liu 1986, 121.
[35] Liu 1999a: 108.

same was true for the state merchants Qian Mingcui and Wang Lüjie who were also active in the Changlu salt business.[36]

Table 35: State merchants between 1744 and 1861

Chinese name of the state merchant	Japanese trading name[37]	Period of office
Fan Yubin 范毓馪		1744–1745 (QL 9–10)
Fan Qingzhu 范清注		1745–1762 (QL 10–27)
Fan Qinghong 范清洪		1763–1764 (QL 28–29)
Fan Qingji 范清濟	范天錫	1765–1782 (QL 30–47)
Wang Shirong 王世榮	王恩輪	1783–1787 (QL 48–52)
Qian Mingcui 錢鳴萃	錢恩荣	1788–1795 (QL 53–60)
Qian Jishan 錢繼善		1795–1796 (QL 60–JQ 1)
Wang Lüjie 王履階		1797–1799 (JQ 2–4)
Wang Rigui 王日桂	王永慶	1799 –1807 (JQ 4– 12)
Cheng Hongran 程洪然	(程天和)	1807–1811 (JQ 12–16)
Wang Yongzeng 汪永增		1812–1816 (JQ 17–21)
Wang Yu'an 王宇安		1817–1839 (JQ 22–DG 19)
Wang Bingfu 汪炳符		1839–1841 (DG 19–21)
Wang Yuanzhen 王元珍		1841–1861 (DG 21–XF 10)

In 1763 (QL 28) Fan Qinghong 范清洪 took over the mangagement of the copper trade and in 1764 (QL 29) received a Neiwufu loan of 132,000 *tael*.[38] However, shortly afterwards in 1765 (QL 30) Fan Qingji 范清濟, nephew of Fan Yubin and son of his brother Fan Yuxin 范毓馨, had to take over the responsibility for the copper trade with Japan. Due to the poor management of the salt business by Fan Qinghong the Changlu salt properties were transferred to Fan Qingji. He hold this duty until the he was confronted with insolvency in 1783 (QL 48). First signs of the financial weakness already showed in 1770 (QL 35) when Fan Qingji offered to convey one and a half ship or 150,000 *jin* of his annual quota to the quota merchants because he was finanically not able to launch the annually stipulated seven ships.[39] Apparently this petition was granted as Fan Qingji launched annually only six ships during the next years.[40]

Fan Qingzhu, Fan Qinghong and Fan Qingji were directly integrated into the imperial bureaucracy. Fan Qingzhu and Fan Qinghong were both department directors of a department

[36] GX-HDSL vol. 10, 218: 17b, p. 7998; JQ-HDSL 175: 17b-18b.
[37] Matsuura Akira 1979:77ff.
[38] Torbert 1977: 96.
[39] ZPZZ 1278-024, reel 61/13, [end of QL 35], Gao Jin and others 高晉等; GZD 56/186, QL 48/5/18, Zheng Rui 徵瑞; Matsuura Akira 1979:81.
[40] See table in the chapter appendix.

in the Ministry of Revenue (*Hubu langzhong* 戶部郎中)[41] and Fan Qinghong for a short period in the twenties of the Qianlong reign even held the post of Ningbo and Shaoxing intendant which entailed management of the Zhejiang Custom Bureau and the "quota merchants".[42] Fan Qingji was an expectant official to become a vice department director (*houxuan yuanwailang* 候選員外郎) in one of the Six Ministries.[43]

By 1783 (QL 48), however, Fan Qingqi's financial power was irrevocably exhausted. The poor management of the salt business and the corruption of his son, Fan Li 范李, brought on debts of more than one million *tael*, most of it probably owed to the Imperial Household Department. As a result, his Changlu salt interests were transferred to a group of ten merchants and the head of this group, the state merchant Wang Shirong 王世榮, also named Wang Shichen 王世臣, came to replace Fan Qingji 范清濟 as copper merchant.[44] As before, Wang Shirong was allowed to sell copper freely on the market after having fulfilled his annual quota.[45] The plan of commissioning Fan Chai 范柴, a nephew of Fan Qingji, with the copper procurement duty and the settlement of the arrears of the Fan family was soon given up. As Fan Qingji was deprived of all his Changlu salt properties Fan Chai would not have had the means to raise funds of about 80,000 *tael* for the procurement of the annual copper quota. Zheng Rui 徵瑞, the Changlu salt intendant and Neiwufu bondservant, who was entrusted with the matter, therefore transferred the copper procurement obligation to the ten merchants that had received the salt certificates of Fan Qingji. Each year they had to contribute 80,000 *tael* silver from their profits of the salt business for the purchase of Japanese copper in order to settle the arrears of Fan Qingji.[46] The rationale behind this all is exemplified by the following entry in the *Qingshilu*:

> "范清濟承辦長蘆鹽務并采辦洋銅，原令其彼此通融，以鹽務餘息接濟銅斤，互為調劑. 若專辦銅斤不辦鹽務，是辦鹽之商人得沾餘潤而辦銅者更形竭蹶未免苦樂不均，殊非酌盈劑虛之道."
>
> "Fan Qingji was active in the Changlu salt business and in the copper trade with Japan. He was formerly ordered to transfer funds from one branch to the other, the profits from the salt trade were supposed to be used for the procurement of copper and make up for deficiencies in the copper trade. If [merchants] would only procure copper and not trade in salt, the salt merchants

[41] NGHKTB 5.7/6, QL 30/閏2/19, Fang Qincheng 方親承. Vgl.: Hucker 1985, 301 [3565] and 1985, 597 [8251]; ZPZZ 1259-033, reel 61/3, QL 25/11/1, Chen Hongmou 陳弘謀.
[42] Torbert 1977, 96; Matsuura Akira 1979: 81.
[43] NGHKTB 5.7/6, QL 30/閏2/19, Fang Qincheng 方親承. Vgl.: Hucker 1985, 597 [8251].
[44] For the names of the other nine merchants see GZD 54/518, QL 47/12/21, Zheng Rui 徵瑞.
[45] Torbert 1977, 97 and 115; GX-HDSL vol. 10, 218: 15a, p. 7997; JQ-HDSL 175: 15a.
[46] ZPZZ 1319-026, reel 62/14, QL 50/2/7, Zheng Rui 徵瑞; see also Kwan 2001:43.

would obtain profits and the financial situation of the copper merchants would get more straitened, it would led to an uneven share of burdens and comforts and this would surely not be the way of taking the surplus to make up for deficiencies."

As can be seen from this statement the copper trade by the imperial merchant was rather a losing deal than a profit-yielding business. Therefore the Fans were supposed to transfer the huge profits of their salt properties to compensate for the losses in the copper business.

The Jiangsu governor Chen Hongmou 陳弘謀 provides us with concrete data on how much silver the state merchant and the quota merchants needed for the procurement of the annual quota of Japanese copper in 1760 (QL 25). According to him both merchants spent 19.2 *tael* for the purchase of 100 *jin* of Japanese copper. Relying on this data there would be no profit margin for the state merchant at all as he only received funds amounting to 13 to 14 *tael* for 100 *jin* of Japanese copper. This would be another indication that copper procurement at Nagasaki was indeed a non-profitable business for the state merchant.[47]

Table 36: Required funds for copper purchase by state and quota merchants

	State merchant	Quota merchants
Annual copper quota	0.5 million *jin*	1.5 million *jin*
Required total funds for the copper purchase (*tongbenyin* 銅本銀)	96,000+ *tael* (19.2 *tael*/100 *jin*)	288,000+ *tael* (19.2 *tael*/100 *jin*)
Expenses for the purchase of pharmaceutical substances (*yaocai* 藥材) and different kind of sugar (*tanghuo* 糖貨)	40,000+ *tael*	120,000+ *tael*
Miscellaneous expenses	15,000+ *tael*	48,000+ *tael*
Expenses for the purchase of silk textiles	40,000+ *tael*	[120,000+ *tael*]

The governor of Jiangsu, Min Eyuan 閔鶚元, even comes up with a precise figure on the annual losses of the state merchant when launching seven ships a year. According to testimonies of Fan Qingji and his business partners (*shanghuo* 商夥) the total cost for the procurement of 700,000 *jin* of Japanese copper amounted to about 200,000 *tael* silver. Around 30,000 *tael* of returns were earned by selling the surplus copper, copper procured beyond the quota of 505,906 *jin*, on the free market. In addition, the sale of imported Japanese goods yielded a profit of up to 100,000 *tael*. According to these figures the annual losses, supposed to be compensated by profits in the salt business, amounted to 80,000 *tael* per year.[48] This

[47] ZPZZ 1259-033, reel 61/3, QL 25/11/1, Chen Hongmou 陳弘謀.
[48] GZD 55/450, QL 48/3/21, Min Eyuan 閔鶚元; GZD 54/698f., QL 48/1/12, Zheng Rui 徵瑞.

explains why the ten merchants that were given the Changlu salt properties of Fan Qingji had to contribute an annual amount of 80,000 *tael* for the procurement of Japanese copper.

When in 1783 the Changlu salt properties of Fan Qingji were transferred to ten other merchants, the Fan lineage's long-standing involvement in the Sino-Japanese copper trade consequently came to an end. The real estate in Kalgan (Zhangjiakou 張家口) and the salt lands near Beijing which had belonged to Fan Yubin were taken from Fan Qingji and given to Fan Yubin's eldest grandson, Fan Zhongqi 范重棨. The remaining property of Fan Qingji was expropriated and passed to the Neiwufu. In 1796, however, the salt properties which Fan Zhongqi had received from Fan Qingji also finally passed to the Neiwufu because he was unable to pay off the debts on them. The unfavourable trade conditions for the procurement of Japanese copper, losses in the copper business due to shipwreck and other reasons and an increase of the prices of the Chinese trade commodities, especially silk[49], might have played a part in the fall of the Fan lineage in 1796 but they certainly were not the decisive reason. There was not only a single reason but the reasons seem varied. Natural disasters and the debasement of the brass currency after the middle of the Qianlong reign led to losses in the main branch of the Fan family, the salt business and to insufficient capital to make up for the losses in the copper business. The declining profits in the salt business further whittled away by huge illegal exactions by Neiwufu officials. Although he had large arrears, Zheng Rui 徵瑞, as an example, the Changlu salt intendant and Neiwufu bondservant, was able to present expensive gifts and 200,000 *tael* to the imperial favorite He Shen 和紳 at the end of the Qianlong reign. He Shen, however, was not satisfied with the large bribes but demanded another 200,000 *tael* silver.[50] Although Zheng Rui was also active in other business branches a great amount of this silver certainly derived from "contributions" by the salt merchants. On another point, the merchants because they ranked lowest behind literati-scholars (*shi* 士), farmers (*nong* 農), and artisans (*gong* 工) compensated for their social humiliation with conspicuous consumption on a grand scale.[51] Declining salt revenues, extravagance of the member of the merchant family, inordinate demands by the state and the Neiwufu, and a lower number of members in influential positions in the bureaucracy all played a part in the bancruptcy and consequtive expropriation.[52]

As already mentioned above in 1783, because the Fan clan had badly managed its business and run out of capital, the copper procurement duty was passed on to the merchant Wang Shirong. Like the Fan family the Wang family had debts towards the government. The father

[49] According to Sun alone the price of raw silk rose from 175 *tael*/100jin in 1750 to 310 *tael*/100 jin in 1784. Sun 1981: 161.
[50] Torbert 1977: 115f.
[51] Kwan 2001: 75.
[52] GZDTW 404000913, JQ 1/7/15, Fang Weidian 方維甸, GZD 56/584, QL 48/6/25, Liu'e 劉峨, Torbert 1977: 97; Liu 1999a: 127; Kwan 2001: 38.

of Wang Shirong, the merchant Wang Fengqi 王鳳起 from Tianjin in the province Zhili, still owed the Ministry of Revenue 139,200+ *tael* silver in 1783 (QL 48). As an imperial favour the Qianlong emperor allowed him to keep the families' salt certificates in the provinces Henan and Zhili and settle the arrears by annually repaying 17,400 *tael* silver over a period of eight years. In exchange for this imperial favour, however, he was supposed to procure copper in Japan.[53] However, the trade arrangement was somehow different from that of the Fan family as, in addition to him nine other merchants were made responsible to contribute funds of an annual 80,000 *tael* from the profits of their Changlu salt properties for the procurement of copper from Japan. Although this new arrangement on one hand certainly increased his potential gross profit margin of Wang Shirong, on the other hand he and the other nine merchants were made liable for the arrears of Fan Qingji in the copper procurement. But in any case, this new arrangement eliminated a dysfunctional factor in the copper trade with Japan. As a group of ten salt merchants were made to pool the risks of providing copper funds of 80,000 *tael* annually, the stability and sufficiency of the funding of the Sino-Japanese copper trade was greatly enhanced.[54] The Changlu salt merchants, however, were not only made liable to provide funds for the procurement of Japanese copper in order to settle the debts of Fan Qingji. In 1799 they volunteered a donation of 1 million *tael* for the military campaign against the White Lotus, of which the Jiaqing emperor accepted only 396,000 *tael*. When afterwards the Yellow River broke dikes of the Grand Canal the state unilaterally imposed a series of price increases to finance the repair. And again in 1825, 1838 and 1842 it were funds from the Changlu salt merchants that helped to pay for repairs of the Grand Canal and construction of coastal defenses at Dagu. Between 1799 and 1841, at least 2,422,500+ *tael* were donated for various causes.[55]

Despite the new arrangements, however, Wang Shirong was not able to settle the arrears of his father but instead the arrears increased to 254,100+ *tael* and in 1787 (QL 52), like the Fan family before him, he was confronted with insolvency.[56] He was followed by Qian Mingcui 錢鳴萃 who performed this duty from 1788 to 1795 (QL 53–60). At first Wang Shirong had handed over the copper business to his partner Wang Yuanzhang 王元章 as he was prevented to comply with this duty due to his involvment in the salt business. When, however, shortly afterwards Wang Yuanzhang felt ill Qian Mingcui, also a business partner of Wang Shirong, came to replace him. Qian Mingcui, a merchant from the district Guian 歸安 in the prefecture Huzhou 湖州 in Zhejiang and department magistrate of Pingdu in Shandong from

[53] QSL, chap. 1195: QL 48/12/癸酉; GZD 55/164ff, QL 48/2/16, Zheng Rui 徵瑞.
[54] GZD 55/164ff, QL 48/2/16, Zheng Rui 徵瑞.
[55] Kwan 2001:44.
[56] QSL, chap.1280: QL 52/5/戊寅.

1767-1770 (QL 32-35)[57], was an experienced copper merchant as in addition to being business partner of Wang Shirong he had already been active in the copper trade before 1755.[58] After the death of Qian Mingcui in 1795 (QL 60), his son Qian Jishan 錢繼善 continued to procure Japanese copper for another year until 1796 (JQ 1). Yet as his mercantile skills and financial power were just mediocre, the wealty and able private merchant Wang Lüjie 王履階 from the district Renhe 仁和 in the prefecture Hangzhou 杭州 in Zhejiang province was elected to take over the copper procurement duty of the state merchant from 1797 (JQ 2) onwards. He was inaugurated as head merchant (*zongshang* 総商) and the two merchants Wang Wen'ao 王文鏊 and Sun Bangjie 孫邦杰 as assistant merchants (*fushang* 附商). Contrary to the former pre-financed state merchants he was willing to procure copper from Japan with his own capital, yet the four provinces Zhili, Jiangxi, Hubei and Shaanxi from that time on had to appoint transport officials to pick up the copper at Suzhou. Although Wang Lüjie received the same funds he was not granted the same privileges, like tax exemption, as the state merchants before but remained a private merchant that fulfilled the duties of the state merchants before. In the routine memorials Wang Lüjie and also his successor Wang Rigui are nevertheless entitled as state merchants (*guangshang* 官商). As a result of these changes in 1797 (JQ 2) the private merchants had an absolute monopoly over the copper trade which they maintained for ten years until 1807 (JQ 12).[59]

When Wang Lüjie died in 1799 (JQ 4) the business passed on to his younger brother Wang Rigui 王日桂. In 1803 (JQ 8) Wang Rigui asked to retire from the copper business as the original six year procurement arrangement of his brother Wang Lüjie had been fulfilled and he had grown old. Yet he was not granted that wish and committed to procure Japanese copper for another four years until 1807 (JQ 12).[60]

In 1805 (JQ 10) the wealthy salt merchant Cheng Hongran 程洪然, who concurrently hold an official post in Anhui, petitioned that he would be willing to procure copper in Japan for 12 *tael* instead of the 13.59+[61] *tael*/100 *jin* over a period of 10 years which would save the state some 8,000 *tael* of copper funds per year. In addition, he was willing to provide the funds for the procurement of Japanese copper in advance and only get reimbursed after delivering the copper. The gentry merchant (*shenshang* 紳商) Wang Yongzeng 汪永增 and the merchant Qian Peishan 錢培善, son of the former copper merchant Qian Mingcui 錢鳴萃, guaranteed for him. The private merchants, however, did all they could to maintain their monopoly over the Sino-Japanese trade. Therefore when Cheng Hongran 程洪然 threatened their monopoly

[57] *Shandong Pingdu zhizhou* 山東平度知州. ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等; Matsuura Akira 1979:83.
[58] GZD 64/561f., QL 52/5/30, author unknown.
[59] GZDTW 404001889, JQ2/1/27, Fei Chun 費淳; Matsuura Akira 1979:84.
[60] GZD 1353-041, JQ 11/5/18, Wang Zhiyin 汪志伊.
[61] A mean value for the 14 *tael*/100 jin paid by Zhili and Shaanxi and 13 *tael*/100 jin paid by Jiangsu, Zhejiang, Jiangxi, and Hubei.

the head merchant Yang Lanzhou 楊蘭洲 of the private merchants together with the two assistant merchants (*fushang* 附商) Gu Yuanqi 顧元起 and Liu Yunyi 劉雲臺 reacted by offering to do the job at the same conditions as Cheng Hongran had offered. The Ministry of Revenue, however, finally gave priority to the offer of Cheng Hongran because he was much better off than the other merchants and in addition was the son of the influential former vice department director of the Ministry of Personnel (*Libu yuanwailang* 吏部員外郎) Cheng Zhenjia 程振甲.[62]

When Cheng Hongran fell ill in and was unable to continue with the Sino-Japanese trade, the merchant Wang Yongzeng 汪永增, who had formerly guaranteed for him, took over the procurement duty from 1812 (JQ 17) at the same conditions.[63] In 1817 (JQ 22) the merchant Wang Yu'an 王宇安, the son of Wang Rigui, took over the copper business from Wang Yongzeng 汪永增 and the private merchants again yielded a total monopoly over the Sino-Japanese copper trade until 1839 (DG 19).[64] When he was confronted with pecuniary losses due to shipwrecks of some of his copper ships and accumulated arrears he petitioned to raise the copper procurement funds of 12 *tael*/100 *jin* to the former level of between 13 to 14 *tael*/100 *jin*. His petition was granted and from 1834 (DG 15) onwards the former regulations of 1797 (JQ 2) were enacted and, in addition, he again received copper procurment funds in advance like the state merchants before Cheng Hongran had.[65] Wang Yongzeng was replaced by Wang Bingfu 汪炳符 who procured Japanese copper until 1841 (DG 21). Wang Yuanzhen 王元珍, who was probably the grandson of either Wang Lüjie or Wang Rigui, finally took over the copper procurement duty in 1841 (DG 21) and continued with this duty until the end of the Sino-Japanese trade in 1861 (XF 10).[66]

6.2 The phase from 1755 to 1861

In 1755 the provincial governor of Jiangsu, Zhuang Yougong 莊有恭 reported to the emperor that the former pre-funded merchants still owed the government more than 127,000 *liang* silver. A group of merchants from Suzhou was willing to settle the debts of the former merchants within six years by annually repaying 21,300+ *liang* silver. Therefore the Qianlong emperor decided in 1755 (QL 20) to restrict the management of the private sector of the copper trade to this group. These merchants were named "quota merchants" (*e'shang* 額商)

[62] GZD 1353-041, JQ 11/5/18, Wang Zhiyin 汪志伊; MQDA 13-176818, JQ 20/4, Wang Rizhang 汪日章; MQDA 11-150882, DG15/4, author unknown; MQDA 35-173667, JQ 11/6, [Wang Zhiyin 汪志伊].

[63] GZD 1357-005, JQ 17/4/14, Qing Bao 慶保.

[64] GZD 1359-049; JQ 25/6/13, Chen Guisheng 陳桂生; Fu 1980: 176.

[65] MQDA 11-150882, DG 15/4/?, author unknown; MQDA 11-193418, DG 15/2/30, Tao Shu and others 陶澍等.

[66] Matsuura Akira 1979:85f.

because their number was limited to twelve merchants due to the available ship quota of only twelve ships at that time. The representative of the quota merchants was a merchant named Yang Yuhe 楊裕和. He had to bear financial responsibility for the other merchants like the "head merchants" (*zongshang* 總商) in the salt monopoly who were chosen from among the richest salt magnates.[67]

The economic interest of the private merchants who wished to continue trading with Japan was always threatened by the Fan family. In the 1740s the threat remained latent as Fan Qingzhu 范清注 did not compete effectively. When in 1749 the Japanese cut the permitted number of Chinese ships to fifteen the Qing government set his share at a mere three.[68] The quota merchants that had involved in the copper trade before 1755 as private merchants apparently had seemed to have seen a need to protect their position against possible encroachment by the Fan clan. This they did by creating for themselves the same conditions of debt bondage which had locked the Fans into the copper trade. Since, however, they had no debts of their own towards the state, they took on those of the former copper merchants. Thus they fabricated for themselves a special status comparable with that of the Fans.

Other merchants seeking to participate in the overseas copper trade had to hook up with the quota merchants and register under the name of one of the twelve quota merchants and could not go overseas on their own. The merchants from Fujian and Guangdong were officially prohibited from engaging in the trade at this time.[69] In this fashion, the Qing government gave these twelve private merchants, known as quota merchants, and one state merchant, at that time Fan Qingzhu, a complete monopoly over China's copper trade with Japan. Like the state merchant the quota merchants commissioned sea-going merchants (*xingshang* 行商) with the actual procurement of copper at Nagasaki and thus functioned only as sedentary financier (*zuoshang* 坐商) or as *jiashang* 甲商 in the salt monopoly.[70] The trade arrangements, as they were created in 1755, remained in effect until 1861, although the number of the quota merchants declined in the course of time.

When in 1760 (QL 25) an embargo was imposed on the export of silk, the quota merchants and the state merchant were partially exempted from that prohibition.[71] They were still allowed to export manufactured silks and satins (*chouduan* 綢緞) but prohibited from the export of raw silk (*cancaosi* 蠶糙絲). This embargo was due to soaring silk prices which meant an increase in the cost of raw materials for the domestic textile manufacturer and that

[67] QCWXTK 17: 5010c; ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德; ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等; ZPZZ 1252-015, reel 60/22, QL 23/2/7, Tuoenduo 託恩多.
[68] QCWXTK 17: 5010c.
[69] QCWXTK 17: 5010c-5011a.
[70] ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等.
[71] ZPZZ 1259-033, reel 61/3, QL 25/11/1, Chen Hongmou 陳弘謀.

were interpreted as a result solely of enlarged foreign exports.[72] The copper merchants, however, were permitted to carry along 33 bolts of silks and satins (*chouduan* 綢緞) on each ship, each roll weighing 120 *jin*. This embargo was not lifted until 1764 (QL 29).[73]

In 1763 (QL 28), according to Japanese sources, the quota merchant Wang Lüjie王履階 presented a petition to the Japanese. Each year the quota merchants would export 30,000 *liang* silver in bulk (*yuansiyin* 元絲銀) from China to Japan. In return Japan would provide 300,000 *jin* of copper at the spezial price of 10 *liang* per 100 *jin*. Furthermore they would supply the *bakufu* with other silver like foreign silver dollars (*huabianyin* 花邊銀) (usually Mexican silver dollars) for resmelting in order to use it for indigneous minting purposes. In exchange the Japanese side would also increase the supply of maritime products and other goods. This became known as *betsudanshoho* 別段商法 ("special trade").[74] According to Liu Xufeng such commercial arrangements and contracts, which occasionally also included the state merchants, persisted in different forms until the middle of the 19th century. Therefore, although on first sight it appears as if the volume of trade was constantly shrinking as the number of ships and the amount of exported copper steadily declined, in fact the total volume of the Sino-Japanese trade did not decline.[75]

As a result of these special trade arrangements Japan's marine delicacies, such as dried abalone (*baoyu* 鮑魚 or *fuyu* 鰒魚), sea cucumber, and shark's fin (*shayu* 鯊魚 or *yuchi* 魚翅), collectively called *tawaramono* or *hyōmotsu* (俵物 goods in straw bags), came to be imported in growing amounts to China.

These marine products were used in Chinese cooking to give a unique flavor to dishes. Dried abalone and shark's fin were major ingredients in seafood dishes in China during the Qing era, when such dishes began to grow in popularity even among the common people. Dried sea cucumber, literally, ocean ginseng (*haishen* 海参), was also highly prized for its medicinal value, and imports from Japan rivaled that grown in China. Dried marine products thus developed into a major trade commodity between the two countries as Japan became an important source of supply, perhaps indicating a significant impact of Japanese foodstuffs on Chinese folk culinary traditions.[76]

[72] Sun 1981, 172.
[73] QCWXTK 17: 5011a; QCWXTK 33: 5164c.
[74] Nakamura Tadashi 中村質 (1988). *Kinsei Nagasaki Booeki shi no Kenkyuu* (近世長崎貿易史の研究 Studies on the History of Foreign Trade at Nagasaki During the Premodern Period), Tokyo: Yoshikawa Kobunkan: 423-459 cited in Liu 1999a: 113 and 116.
[75] Liu 1999a: 116.
[76] See Matsuura Akira, 2002: 382-402.

Table 37:The growing proportion of maritime and other products in the Sino-Japanese trade[77]

Year	Number of ships	Total exports of copper, marine and other products from Japan in ***tael***	Copper in ***tael*** in percent	Marine products in ***tael*** in percent	Other products in ***tael*** in percent
1770	11	286,397+	149,500	54,960+	81,936+
			52.2%	19.19%	28.61%
1804	11	436,189+	126,500	163,409+	146,279+
			29%	37.46%	33.54%
1839	8	543,326+	92,000	230,135+	221,191+
			16.93%	42.36%	40.71%

The special trade arrangments made by Wang Lüjie 王履階 in 1763 (QL 28) did not go unnoticed by other Chinese merchants. In 1772 (QL 37) the merchant Qian Mingcui 錢鳴萃 who had been active in the copper trade before 1755 and who had been driven out of the trade by the quota merchants, accused them of embezzling between 0.9 to more than 1 million Japanese copper each year. In the course of the following investigations, which produced no evidence of potential abuses, Qian Mingcui accused Yang Hongfu 楊宏孚of having secretly dispatched Wang Lüjie to Japan in order to make arrangements with the Japanese for additional 300,000 *jin* of copper per year. The additional copper, according to his statement, was to be distributed evenly over the six ships of the quota merchants.[78] The quota merchants roundly denied the whole thing. But if we take a close look at the annual copper imports of the imperial merchant and the quota merchants the statement of Qian Mingcui makes perfect sense. For the quota merchants only copper import data for the five years between 1767 and 1771 are available. According to this data the ships of these merchants were loaded with an average of 146,000 *jin* of Japanese copper whereas the ships of the Fan merchant were always loaded with only the regular 100,000 *jin*.[79] The annual copper imports of an average 876,000+ *jin* between 1767 and 1771 correspond well with the regular annual quota of 600,000 *jin* (100,000 *jin* for each of the six ships) and the additional amount of 300,000 *jin* of copper by way of special trade arrangements.

[77] Liu 1999b: 290.
[78] ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等.
[79] For the copper imports of the Fan merchant consult table at the end of this chapter.

Table 38: Total annual copper imports by quota merchants between 1767 and 1771

Year		Number of ships	Total amount (*jin*)	Source
QL 32	1767	6	839,900	ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等
QL 33	1768	6	940,000	
QL 34	1769	6	870,000	
QL 35	1770	7[80]	1,107,700	
QL 36	1771	5	623,500	

Although the state merchants and the quota merchants were virtually given a monopoly over the copper trade with Japan, there were merchants that found ways to circumvent the monopoly of these merchants. In 1772 (QL 37) the state merchant Fan 范清濟 and the quota merchants, headed by Yang Hongfu 楊宏孚, accused the Fujian merchants Zheng Kongyang 鄭孔陽, Lin Chenghe 林承和, and Ye Rizhang 葉日章 of illegally carrying out trade in copper with Japan. According to the testimonies of the sea-going merchants (*xingshang* 行商) Gong Jisheng 龔繼勝 and Xia Lüduan 夏履端 and others, these merchants had launched three ships to Nagasaki between 1769 and 1770 (QL 34 and 35) and thereby encroached upon their annual copper quotas. As this would be detrimental to their profits and result in future arrears they petitioned to enjoin them from further interferring in the Sino-Japanese copper trade.[81]

The identity of the Chinese merchant Lin Chenghe 林承和 and the destination of his copper cargo could not be made out. According to a Chinese interpreter (*tongshi* 通事) at Nagasaki, however, Lin Chenghe 林承和 had set out for Nagasaki from Annam (*annan* 安南; modern Vietnam).[82]

The illegal involvement of Zheng Kongyang 鄭孔陽 in the copper trade with Japan is evidenced as his ship shipwrecked at the coast of Fujian in 1770 (QL 35).[83] Reportedly he had hired the boat and the service of the ship entrepreneur (*chuanhu* 船户) Wang Antai 汪安泰 from Jiangsu and already set out from Zhapu for Nagasaki in 1767 (QL 32). According to the quota merchants he had stayed four years at Nagasaki although he denied this and told a complete different story.[84]

The matter with Ye Rizhang 葉日章 was a different one. He and the salt merchant You Zhongyi 游中一 (also called You Zhongyue 游中岳) carried out trade in copper with Japan

[80] Due to favourable weather conditions one of the ships scheduled for the year 1771 returned already in 1770. ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等.
[81] ZPZZ 1281-036, reel 61/14, QL 36/11/19, Sa Zai 薩載.
[82] ZPZZ 1286-001, reel 61/17, QL 37/10/1, Zhong Yin and others 鐘音等; ZPZZ 1286-030, reel 61/17, QL 37/11/28, Sa Zai 薩載; ZPZZ 1289-019, reel 61/18, QL 38/6/24, Sa Zai 薩載.
[83] ZPZZ 1276-008, reel 61/12, QL 35/6/26, Cui Yingjie 崔應階.
[84] ZPZZ 1281-019, reel 61/14, QL 36/10/1, Zhong Yin and others 鐘音等.

not illegally but had been granted this right by an imperial decree in 1770 (QL 35). Ye Rizhang 葉日章 already delivered 74,487 *jin* of pure Japanese copper at a price of 17.5 *tael*/100 *jin* in the spring of 1771 (QL 36) to the provincial mint of Fujian. Yet the boat of the other sedentary financier (*zuoshang* 坐商) You Zhongyi 游中一 had been blown away by a storm to the port of Ningbo in Zhejiang before they could get to Nagasaki and the ship entrepreneur Liu Faxiang 劉發祥 and the two sea-going merchants You Chaojin 游朝縉 and Wei Honghui 魏宏輝 were brought before court.[85]

Although the old-established merchants prevailed in this struggle for exclusive trading rights, the quota merchants seemed to have seen further needs to protect their position not only against possible encroachment by the Fan clan but also against other merchants, like those from Fujian. The quota merchants had already settled the debts of the former merchant Zhao Chenzhan 趙宸瞻 and others of 127,820+ *tael*. In addition, in 1765 (QL 30) they had taken over other debts of the former merchants amounting to 31,200+ *tael* which they had agreed to repay in eight annual installments. As in 1771 (QL 36) only one of the yearly installments remained they once again took over the debts of the former merchant Yi Shengjie 伊升吉 and others of 29,370+ *tael* and agreed to pay them back within eight years beginning in 1773 (QL 38).[86] Like they had done before, the quota merchants time and again created a kind of debt bondage towards the Qing government to secure their position in the copper trade from possible encroachment by other merchants. The quota merchants were ordered to settle some portion of the arrears by procuring Japanese copper for the mints of the Ministry of Revenue. For five years, starting in 1769 (QL 34), Jiangsu officials transported annually 40,000 *jin* of Japanese copper to this mints, altogether 200,000 *jin* of copper procured by the quota merchants in Japan. For this copper the merchants only received funds of 15.3 *tael*/100 *jin* as the overall funds of 17.5 *tael*/100 *jin* included transport funds to the metropolitan mints of 2.2 *tael*/100 *jin*. From 1778 (QL 43) onwards the quota merchants delivered another 200,000 *jin* of Japanese copper to the metropolitan mints in four annual installments of 50,000 *jin* at the same conditions.[87]

In 1772 (QL 37) from the originally 12 quota merchant families only 8 were still active in the Sino-Japanese trade. They were now represented by Yang Hongfu 楊宏孚, the son of the former head merchant Yang Yuhe 楊裕和 from Suzhou.[88] Eight year later in 1780 (QL 45) another quota merchant had dropped out, leaving the seven following merchants.[89]

[85] ibid.
[86] ZPZZ 1281-028, reel 61/14, QL 36/11/4, Sa Zai 薩載.
[87] ZPZZ 1277-029, reel 61/12, QL 35/10/24, Sa Zai 薩載; ZPZZ 1275-019, reel 61/11, QL 35/5/9, Sa Zai 薩載; ZPZZ 1286-005, reel 61/17, QL 37/10/6, Sa Zai 薩載; GZD 44/497, QL 43/8/10, Yang Kui 楊魁; GZD 60/75f., QL 49/4/12, Min Eyuan 閔鶚元.
[88] ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等.
[89] Matsuura Akira 1979: 78.

Table 39: Quota merchants active in 1780

Name of the quota merchants in China
Shen Yunzhan 沈雲瞻
Wang Lüjie 王履階
Gao Shanhui 高山輝
Wu Youguang 吳有光
Yu Huishi 俞會時
Yang Yuehuai 楊岳懷
Wu Mingluan 吳鳴鸞

The state merchant and most of the quota merchants did not themselves make the voyage in the convoy of ships which left the Yangzi delta laden with silks, sugar and medicinal products each year for Nagasaki. Rather they supervised and directed the trade and hired carefully selected merchants at Suzhou to handle the actual conduct of commerce.[90] If the hired merchants did not fulfill the quota or delay the transport they were dismissed and other merchants hired. In case of a deficit the hired merchants guaranteed for each other and compensated the deficit together.[91]

Table 40: Quota merchants active between 1755 and 1861

Name of the quota merchants in China
Shen Yunzhan 沈雲瞻
Wang Lüjie 王履階
Gao Shanhui 高山輝
Wu Youguang 吳有光
Yu Huishi 俞會時
Yang Yuehuai 楊岳懷
Wu Mingluan 吳鳴鸞
Yang Yuhe 楊裕和
Li Yulai 李豫來
Yang Lanzhou 楊蘭洲
Yang Hepu 楊鶴圃
Yang Hongfu 楊宏孚
Yang Sixiang 楊嗣亨

[90] GX-HDSL vol. 10, 218: 17b, p. 7998; JQ-HDSL 175: 17b-18b; Torbert 1977: 96.
[91] GX-HDSL vol. 10, 218: 18b, p. 7998; JQ-HDSL 175: 18b.

6.3 Trade regulations

6.3.1 Annual quotas of the state and private merchants

Apart from the governmental preemptive right over half of the imported Japanese copper, the private merchants had to meet no fixed quota at the beginning in 1740 (QL 5). From 1744 (QL 9) onwards, however, they had to sell an additional 10 percent of the copper, which they originally were allowed to sell freely, to the provincial mint of Jiangxi at the official price. Due to the still prevailing copper scarcity in 1744 they were thus granted to sell only 40 percent of the procured copper in the open market.[92] The first time the private merchants had to meet a quota was in 1749 (QL 14). According to archival material the total annual quota for Japanese copper was set at 2.0+ million *jin*. The quota merchants were supposed to import 1.6+ million *jin* annually and the Fan merchant 0.4+ million *jin*.[93] The stipulated quota for the state merchant gives evidence for the sometimes great gap between anticipated and actual performance. Although at that time he was supposed to hand over 800,000 *jin* of Japanese copper to provincial mints annually[94], his annual import quota was set at a mere half of this amount.

The total copper demand of the Zhejiang mint after the opening in 1740 (QL 5) amounted to 450,000 to 460,000 *jin* of copper.[95] In 1763 (QL 28) the annual copper demand of the Zhejiang mint had risen to 530,000+ *jin*.[96] At that time the private merchants procured annually 1 million of Japanese copper. According to Suo Lin索琳, Provincial treasurer of Zhejiang, 500,000 *jin* was equally divided between the mints of Jiangsu and Zhejiang. Consequently, the annual quota of Japanese copper for Zhejiang in 1763 (QL 28) was 316,666+ *jin*: 66,666+ *jin* were delivered by the state merchant[97] and 250,000 *jin* by the private merchants.[98] Taking the figures mentioned by Suo Lin, the annual quota of Japanese copper of Jiangsu must have been 317,523+ *jin*: 67,523+ *jin* were delivered by the state merchant[99] and 250,000 *jin* by the private merchants.[100] The total annual copper quota of the

[92] QCWXTK 16: 5001b; ZPZZ 1234-005, reel 60/9, QL 9/1/21, Saileng'e 塞楞額; ZPZZ 1235-004, reel 60/10, QL 9/9/17, Kaerjishan 喀爾吉善; ZPZZ 1237-009, reel 60/12, QL 11/閏3/14, Saileng'e 塞楞額.
[93] ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等.
[94] See table with annual quotas of provincial mints below.
[95] ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德.
[96] GZD 19-842, QL 28/12/8, Suo Lin 索琳.
[97] NGHKTB 5.14/5, QL 32/3/2, Ying Lian 英廉.
[98] GZD 19-842, QL 28/12/8, Suo Lin 索琳.
[99] NGHKTB 5.11/12, QL 31/6/28, Fu Heng傅恒.
[100] GZD 19-842, QL 28/12/8, Suo Lin 索琳.

Jiangsu mint in 1762 (QL 27), including Yunnan copper, amounted to 460,800+ *jin* of copper.[101]

When in 1766 (QL 31) the ship quota of the private merchants was reduced to 6 ships annually[102], the copper quota of the private merchants was at first also reduced to 600,000 *jin* of Japanese copper, as the Chinese authorities calculated 100,000 *jin* of copper for one ship.[103] However, Ming De 明德, Provincial Governor of Jiangsu, promptly brought forward an objection against the reduction of the annual copper quota. He argued that the annual quota of 600,000 *jin* of copper would not suffice the annual copper demand of the provincial mints of Jiangsu, Jiangxi and Zhejiang as, according to the regulations, only 360,000 *jin* would remain for official purchase. He argued furthermore that the quota merchants since their inauguration had procured 130,000+ *jin* per ship at an average and therefore the quota should remain at an annual 800,000 *jin* as before.[104] This request was granted and the quota of 800,000 *jin* per year remained in effect until the Daoguang reign (1821-1850) and probably until the end of the copper trade in 1861.[105] As before the provincial mints of Jiangsu, Jiangxi, and Zhejiang had preemptive rights over 60 percent of the annual quota of 800,000 *jin*: Jiangsu and Zhejiang received 200,000 *jin* each and Jiangxi received 80,000 *jin*. Yet, although the annual quota from 1766 (QL 31) was not subjected to changes anymore the actual annual copper imports by the quota merchants declined in the course of time.

The annual quota of Japanese copper for Jiangsu was set at 255,906 *jin* in 1771 (QL 36): 55,906 *jin* were delivered by the state merchant and 200,000 *jin* by the private merchant Wang Lüjie 王履階.[106] The total annual copper demand of the Jiangsu mint in 1769 (QL 34) amounted to 460,000+ *jin*.[107] Accordingly, the annual quota of Japanese copper for Zhejiang in 1771 must have been 250,000 *jin*: 50,000 *jin* were delivered by the state merchant and 200,000 *jin* by the private merchants.

[101] ZPZZ 1264-050, reel 61/6, QL 27/11/29, Zhuang Yougong 莊有恭.
[102] Suzhou fuzhi, chap. 19: 13b.
[103] ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德; ZPZZ 1273-006, reel 61/10, QL 34/11/17, Gao Jin 高晉.
[104] ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等.
[105] Suzhou fuzhi, chap. 19: 18a.
[106] NGHKTB 6.11/4, QL 37/3/27, Sa Zai 薩載; ZPZZ 1302-011, reel 62/6, QL 41/9/18, Yang Kui 楊魁.
[107] ZPZZ 1272-031, reel 61/10, QL 34/10/11, Gao Jin 高晉.

Table 41: Total annual quotas of Japanese copper for Chinese merchants

Date	Total copper quota of private merchants in *jin*	Total copper quota of state merchant in *jin*	Total annual copper quota	Sources
1749 (QL 14)	1.6+ million	0.4+ million	2.0+ million	ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等
1755 (QL 20)	1.5+ million	0.5 million	2.0 million	QCWXTK 17: 5010c
1763 (QL 28)	1 million	535,902+	1,5+ million	GZD 19-842f., QL 28/12/8, Suo Lin 索琳 NGHKTB 5.7/6, QL 30/閏 2/19, Fang Qincheng 方親承
After 1764 (QL 29)	0.8 million	505,906+	1.3+ million	ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德 ZPZZ 1273-006, reel 61/10, QL 34/11/17, Gao Jin 高晉

Between 1767 (QL 32) and 1771 (QL 36) the quota merchants imported 4,381,100 *jin* of copper from Japan. During these five years they handed 2,848,814+ *jin* of the imported copper over to provincial and metropolitan mints and sold 1,532,280+ *jin* privately. This means that although the quota merchants, according to the regulations, were granted to sell 40 percent of the imported copper on their own behalf, in reality they sold only around 35 percent privately

Table 42: Annual imports of Japanese copper by the quota merchants from 1767 to 1771

1767 (QL 32) until 1771 (QL 36)	Copper for Jiangsu mint in *jin*	Copper for Zhejiang mint in *jin*	Copper for Jiangxi mint in *jin*	Copper for metropolitan mints in *jin*
Quota copper (*e'tong* 額銅)	1,000,000	1,000,000	400,000	120,000
Surplus copper (*duojiaoyutong* 多交餘銅)[108]	108,838	52,937	965	---
Quality compensating copper (*busetong* 補色銅)	27,720	26,323	10,024	---
Weighing loss compensating copper (*buqingchengtong* 補輕秤銅)	41,379	40,839+	14,589	5,200
Total amount of copper	**1,177,937**	**1,120,099**	**425,578**	**125,200**

[108] The amount of copper handed over to the mints beyond the regular copper quota.

6.3.2 Annual copper quotas of the provincial mints

In 1744 (QL 9) the Ministry of Revenue stipulated that the state merchants Fan Yubin (范毓賓) was to procure 1.3 million *jin* of copper annually. This regulation was in effect from 1745 (QL 10) onwards. The mints of the five provinces Zhili, Shaanxi, Jiangsu, Jiangxi and Hubei received the following quota of copper: Zhili and Shaanxi[109] received 300,000 *jin* each, Jiangsu 200,000 *jin* and Jiangxi and Hubei received 250,000 each.[110] Fujian province repeatedly complained that only minor amounts of Japanese copper made its way to Fujian as only few ships got carried away by tempests to the coast of Fujian and therefore requested to get a regular share of the annual quota of Fan Yubin of 200,000 *jin*, a request that was not complied with.[111] Even Zhejiang province in 1744 (QL 9) complained about insufficient copper supply by the merchants. It needed 600,000 *jin* copper each year for its minting but only received an annual share of about 300,000 *jin* of Japanese copper from the private merchants. The Financial Treasurer of Zhejiang, Pan Siju 潘思, therefore requested the permission to purchase the copper of Fan Yubin, which he procured beyond the quota of 1.3 million *jin*. Yet his request was also not complied with as Fan Yubin did not even manage to procure the required official quota.[112]

From 1747 (QL 12) onwards the quota of the imperial Fan merchant was reduced to 800,000 *jin* of copper annually because he did not manage to procure the stipulated quota of 1.3 million *jin*. The annual quota of the various provincial mints had to be reduced accordingly in 1747 (QL 12). Due to the reduced annual quota the arrangement for the repayment of arrears of the Fan clan was rescheduled. From 1747 (QL 12) onwards, they were ordered to procure the annual quota of 800,000 *jin* for seven years until 1753 (QL 18) and deliver the remainder of 251,787+ *jin* to the mint of Zhili in 1754 (QL 19).[113]

When in 1750 (QL 15) the Ministry of Revenue recommended to reduce the annual quota once more, it was reduced to 500,000 *jin*. This quota was in effect from 1751 (QL 16) to 1760 (QL 25).[114]

After the inauguration of the state merchant Fan Qinghong (范清洪) in 1763 (QL 28) he was ordered to procure 10,718,061+ *jin* of copper from Japan over a period of 20 years. For this reason the annual quota for Japanese copper was set at 535,902 *jin*. The annual quota consisted of a regular copper quota (*zheng'etong* 正額銅) of 402,569+ *jin* and additional

[109] Although the quota was stipulated in 1744 (QL 9) the mint of Shaanxi was not opened until 1748 (QL 13). QCWXTK 17: 5006b.
[110] QCWXTK 16: 5000c; ZPZZ 1234-007, reel 60/9, QL 9/1/29, Neqin and others 訥親等
[111] NGHKTB 2.1/4, QL 9/8/7, Nuosutu 那蘇圖; NGHKTB 2.1/7, QL 9/10/26, Neqin 訥親; ZPZZ 1234-013, reel 60/9, QL 9/3/19, Nuosutu and others 那蘇圖等; ZPZZ 1234-018, reel 60/9, QL 9/4/23, Hai Wang and others 海望等.
[112] ZPZZ 1234-024, reel 60/9, QL 9/6/9, Pan Siju.
[113] NGHKTB 3.10/1, QL 18/10/4, Zhong Yin 鐘音.
[114] QCWXTK 16: 5000c; ZPZZ 1264-041, reel 61/6, QL 27/10/13, Tang Pin 湯聘.

"profit copper" (*xitong* 息銅) amounting to 133,333 *jin*. The "profit copper" was apparently purchased with funds that stemmed from the profit from other business branches, mainly from the salt business. 200,000 *jin* of the regular quota was received by Zhili. According to archival evidence the remaining 202,569+ *jin* were equally distributed between Hubei, Jiangsu[115] and Shaanxi as was the "profit copper" that was delivered to Jiangxi and Zhejiang[116].

As Fan Qinghong proved to be incapable to manage the salt business[117], which, as a matter of fact, was crucial to be able to purchase the additional "profit copper" he was replaced by Fan Qingji 范清濟 already in 1765 (QL 30). Fan Qingji was committed to deliver the remaining 9,646,257+ *jin* of Japanese copper over the next 18 years. In addition, he was obliged to use profits by the Fan family from the branches in Beijing and Tianjin, amounting to 268,590+ *jin*, to purchase additional 1,989,581+ *jin* of Japanese copper, which meant an actual copper price of 7.4+ *tael*/100 *jin* of copper. The total amount of 11,635,838+ *jin* of Japanese copper that had to be delivered over a period of 23 years beginning in 1765 (QL 30). 250,000 *jin* of the annual quota of 505,906+ *jin* had to be delivered to Zhili, which used exclusively copper from Japan. The remainder was delivered to the 5 provinces Hubei, Jiangsu, Jiangxi, Shaanxi and Zhejiang. The 4 provinces Hubei, Jiangxi, Shaanxi and Zhejiang received 50,000 *jin* each; the remaining 55,906+ *jin* were delivered to Jiangsu.[118]

In 1797 (JQ 2) the state merchant Wang Lüjie 王履階 from Changlu 長蘆 was commissioned to procure a quota of 500,000 *jin* of copper in Japan. This copper was distributed to the mints of six provinces as before.[119]

In 1799 (JQ 4) the annual quotas of the mints were once again revised as the mint of Zhili reported an insufficient supply with copper and requested additionally 50,000 *jin* of copper to its quota of 250,000 *jin*. Therefore the quota of the other five provinces was reduced by 10,000 *jin* each.[120] The annual quotas were again revised in 1818 and during the Daoguang period.

Changes in the allotment of annual quotas of copper from Japan to the provinces are shown in the following tables:

[115] NGHKTB 5.11/12, QL 31/6/28, Fu Heng傅恒.
[116] NGHKTB 5.14/5, QL 32/3/2, Ying Lian 英廉.
[117] NGHKTB 5.7/6, QL 30/閏2/19, Fang Qincheng 方親承: *banli yanwu bu shan* 辦理鹽務不善.
[118] NGHKTB 5.7/6, QL 30/閏2/19, Fang Qincheng 方親承; NGHKTB 5.8/8, QL 30/5/24, Fu Heng 傅恒.
[119] GX-HDSL vol. 10, 218: 17b+18a, p. 7998; JQ-HDSL 175: 17b-18b.
[120] GX-HDSL vol. 10, 218: 19b, p. 7999; JQ-HDSL 175: 19b

Table 43: Quotas of the provincial mints between 1745 and 1763

Name of the province	**Location of the provincial mint**	**Annual Quota in 1745 (QL 10) in *jin***	**Annual Quota in 1747 (QL 12) in *jin***	**Annual Quota in 1751 (QL 16) in *jin***	**Annual Quota in 1763 (QL 28 in *jin*[121]**
Zhili	Baoding (保定)	300,000	200,000	[200,000]	200,000
Shaanxi	Xi'an (西安)	300,000	200,000	[140,007]	67,523+
Jiangsu	Suzhou (蘇州)	200,000	114,285+	53,331+[122]	67,523+[123]
Jiangxi	Nanchang (南昌)	250,000	142,857+	53,331+[124]	66,666+
Hubei	Wuchang (武昌)	250,000	142,857+	53,331+[125]	67,523+
Zhejiang	Hangzhou (杭州)	---	---	---	66,666+[126]
Total amount		**1,300,000**	**800,000**	**500,000**	**535,902+**

Table 44: Annual Quotas of the provincial mints between 1765 and 1850

Name of the province	**Annual Quota in 1765 (QL 30) in *jin*[127]**	**Annual Quota in 1799 (JQ 4)**	**Annual Quota in 1818 (JQ 23) in *jin***	**Annual Quota in the Daoguang period (1821-1850)[128]**
Zhili	250,000	300,000	290,000	270,000
Shaanxi	50,000	40,000	40,000	40,000
Jiangsu	55,906	45,960	250,000	290,906
Jiangxi	50,000	40,000	120,000	105,000
Hubei	50,000	40,000	40,000	40,000
Zhejiang	50,000	40,000	400,000	240,000
Shanxi	---	---	120,000	---
Total amount	**505,906**	**505,960**	**1,260,000**	**985,906**

[121] NGHKTB 5.7/6, QL 30/閏2/19, Fang Qincheng 方親承.
[122] NGHKTB 4.17/4, QL 27/11/19, Fu Heng 傅恒; NGHKTB 4.13/6, QL 26/9/4, Lai Bao 來保; ZPZZ 1264-050, reel 61/6, QL 27/11/29, Zhuang Yougong 莊有恭.
[123] NGHKTB 5.11/12, QL 31/6/28, Fu Heng傅恒.
[124] ZPZZ 1264-041, reel 61/6, QL 27/10/13, Tang Pin 湯聘.
[125] NGHKTB 3.13/1, QL 19/12/6, Fu Heng 傅恒; NGHKTB 4.2/2, QL 21/10/29, Zhang Ruozhen 張若震; ZPZZ 1256-008, reel 61/2, QL 24/閏6/6, Zhou Wan 周琬.
[126] NGHKTB 5.14/5, QL 32/3/2, Ying Lian 英廉.
[127] NGHKTB 5.7/6, QL 30/閏2/19, Fang Qincheng 方親承; NGHKTB 5.8/8, QL 30/5/24, Fu Heng 傅恒.
[128] Suzhou fuzhi, chap. 19: 18a+b. The excact beginning of this regulation is unknown.

6.3.3 Ship quota

In 1749 (QL 14) the Qing government set the annual quota for ships sailing for Japan in order to procure copper at 15.[129] The state merchant Fan Qingzhu 范清注 annually sent off 3 ships while the private merchants sent of 12 ships per annum. For this reason the number of the private merchants was reduced to 12 merchants. The ship quota remained the same in 1755 (QL 20) but the newly inaugurated quota merchants had to meet a fixed quota. For the procurement of about 1.5 million *jin* of copper they contributed own capital amounting to about 2.88 million *tael* silver. Before leaving for Japan, the merchants, as had been done before, bought Chinese commodities with their capital and exchanged them for Japanese copper at Nagasaki.[130]

When in 1764 (QL 29) the ship quota due to Japanese trade restrictions was reduced to 13 ships per year, both the state merchant as well as the quota merchants lost one ship. According to Yong De 永德, Governor of Zhejiang, the Japanese had cut the amount of copper allocated to each Chinese ship from 100,000 to 88,000 *jin* in 1764 (QL 29). For this reason the Ministry of Revenue reduced the annual ship quota by two ships to 13 ships per annum.[131] According to Japanese sources, however, the Japanese authorities had just cut down the annual ship quota to 13 ships and the annual export copper amount accordingly to 1.3 million *jin* from 1765 onwards.[132]

In 1766 (QL 31) two ships of the quota merchants were given to the Fan merchants. As the Fan family had still not cleared their debts they petitioned to the Imperial Houshold department for additional ships. They argued that they would be unable to settle the debts with only five ships. As a result they were allowed to launch annually 7 ships of the quota of 13 ships, while the private merchants sent off only 6 ships annually.[133]

In 1791 (QL 56) the Nagasaki port authorities reduced the Chinese ship quota once again by three ships to a total of 10 ships per year. This quota entered the Chinese regulations in 1800 (JQ 5) and remained at 10 ships probably until the end of the Sino-Japanese copper trade in 1861.[134] Yet although the quota remained fixed at 10 ships the number of ship sailing to Nagasaki in order to trade for copper declined slowly but surely in the course of time.

[129] The introduction of an annual quota for ships sailing to Nagasaki on the Chinese side was due to the Japanese limitation of copper exports to China to an annual quota of 1,500,000 jin. Liu 1999a: 111; Dunstan 1992: 72.
[130] QCWXTK 17: 5010c.
[131] ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德.
[132] Liu 1999a: 143; Feng 2001:247.
[133] Suzhou fuzhi, chap. 19: 13b.
[134] Suzhou fuzhi, chap. 19: 18a; GZD 1359-049, JQ 25/6/13, Chen Guisheng 陳桂生.

Table 45: Ship quotas

Date	Ship quota state merchant	Ship quota private merchants	Overall ship quota	Source
1749 (QL 14)	3	12	15	QCWXTK 17: 5010c; ZPZZ 1284-018, reel 61/16, QL 37/6/7, Gao Jin and others 高晉等
1755 (QL 20)	3	12	15	QCWXTK 17: 5010c; ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德
1760 (QL 25)	?	?	16	QCWXTK 17: 5011a; QCWXTK 33: 5164c
1763 (QL 28)	6	9	15	GZD 19-842f., QL 28/12/8, Suo Lin 索琳
1764 (QL 29)	5	8	13	ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德; ZPZZ 1273-006, reel 61/10, QL 34/11/17, Gao Jin 高晉; Wei and Wu 1981: 49; Suzhou fuzhi, chap. 19: 13b, p. 473.
1766 (QL 31)	7	6	13	ZPZZ 1273-008, reel 61/10, QL 34/11/22, Yong De 永德; ZPZZ 1273-006, reel 61/10, QL 34/11/17, Gao Jin 高晉; Suzhou fuzhi, chap. 19: 13b.
1800 (JQ 5)	5	5	10	Suzhou fuzhi, chap. 19: 18a, p. 475; GZD, vol. 3, 1359-049, JQ 25/6/13, Chen Guisheng 陳桂生

6.3.4 The transport routes of Japanese copper

Japanese copper was exported from Japan via the port of Nagasaki and imported to China via ports in the Lower Yangzi region. In the early years of the Qianlong period (1736-1795) the two ports of Ningbo 寧波 in Zhejiang and Shanghai 上海 in Jiangsu have been the main ports for copper imports from Japan.[135] From the twenties of the same reign period onwards the port of Zhapu 乍浦 in Pinghu district of Jiaxing prefecture 嘉興府平湖縣 in Zhejiang, however, according to archival materials, became the all-dominant port for copper imports from Japan. Reportedly all ships, launched by the state merchant between 1763 and 1793 (QL 28-QL 58) entered the port of Zhapu upon their return from Japan and from the 30 ships of the quota merchants launched between 1767 and 1771 (QL 32-QL 36) only 3 ships called at the port of Shanghai.[136]

[135] QCWXTK 16: 4993a; ZPZZ 1226-030, reel 60/1, QL 1/2/25; Gu Cong 顧琮; ZPZZ 1226-006, reel 60/1, YZ 2/10/15, Shi Wenchao 石文焯.

[136] See tables at the end of this chapter.

The predominant status of this port, situated in the Hangzhou bay, was not changed until the Opium wars (1839-1842 and 1856-1860), when it was bombed and destroyed, and unfortunately all archives were destroyed as well.[137]

Why did Zhapu port rise to predominance? Firstly, one of the most important reasons was that Suzhou was in its hinterland. In the Qing era, Suzhou was an important hub for Chinese commerce. Hence, the Jiangnan delta region was a convenient location for collecting together fine silks and other handicrafts ideal for shipping, as well as for selling products imported from Japan. The geographic location of Zhapu fostered a close relationship with the major commercial center of Suzhou. In addition, situated on the coast of the continent, Zhapu was a port of call for coastal trading ships from Fujian and Guangdong in China's southeastern region. Sugar, for example, which was produced along China's southeastern coastal region, was transported by coastal sailing ships to Zhapu, transferred to trading ships heading for Japan,and then taken to Nagasaki. Of the goods transported by Chinese junks to Nagasaki, sugar produced in southeastern China was important as an inexpensive cargo.[138]

Secondly, due to excellent natural conditions: it was not affected by the tidal water of the Qiantang river (錢塘江), it was spacious and deep and was unlikely to silt up. Furthermore, from Zhapu it was close to Nagasaki as well as to the Grand Canal and ships could enter port all year long because it did not freeze up.

Thirdly, the concentration on one port made the control over merchants and Japanese copper easier and more effective. As a strategically important place for maritime defence Zhapu also became a base of the Manchu navy in 1728 (YZ 6), which was even inspected by the Qianlong emperor during his second Southern Tour (*nanxun* 南巡) in 1757.[139]

For these reasons it was only natural that Zhapu became the predominate port for the Sino-Japanese copper trade from the middle of the eighteenth to the middle of the nineteenth centuries. When the British navy attacked Zhapu in 1842, during the Opium War, it was destroyed and with it many ships and all the archives.[140]

In the age of sail all depended on favourable wind conditions. Therefore the ships of the copper merchants had to set sail for Japan during winter and summer of each year. The ships that had left in winter usually returned during the 4th month of the next year. The ships that had sailed to Japan during the summer were back until the 10th month. As the wind conditions changed all the time between favourable and adverse (*fengchao lidun* 風潮利鈍) there were no fixed time limits for the merchants.[141]

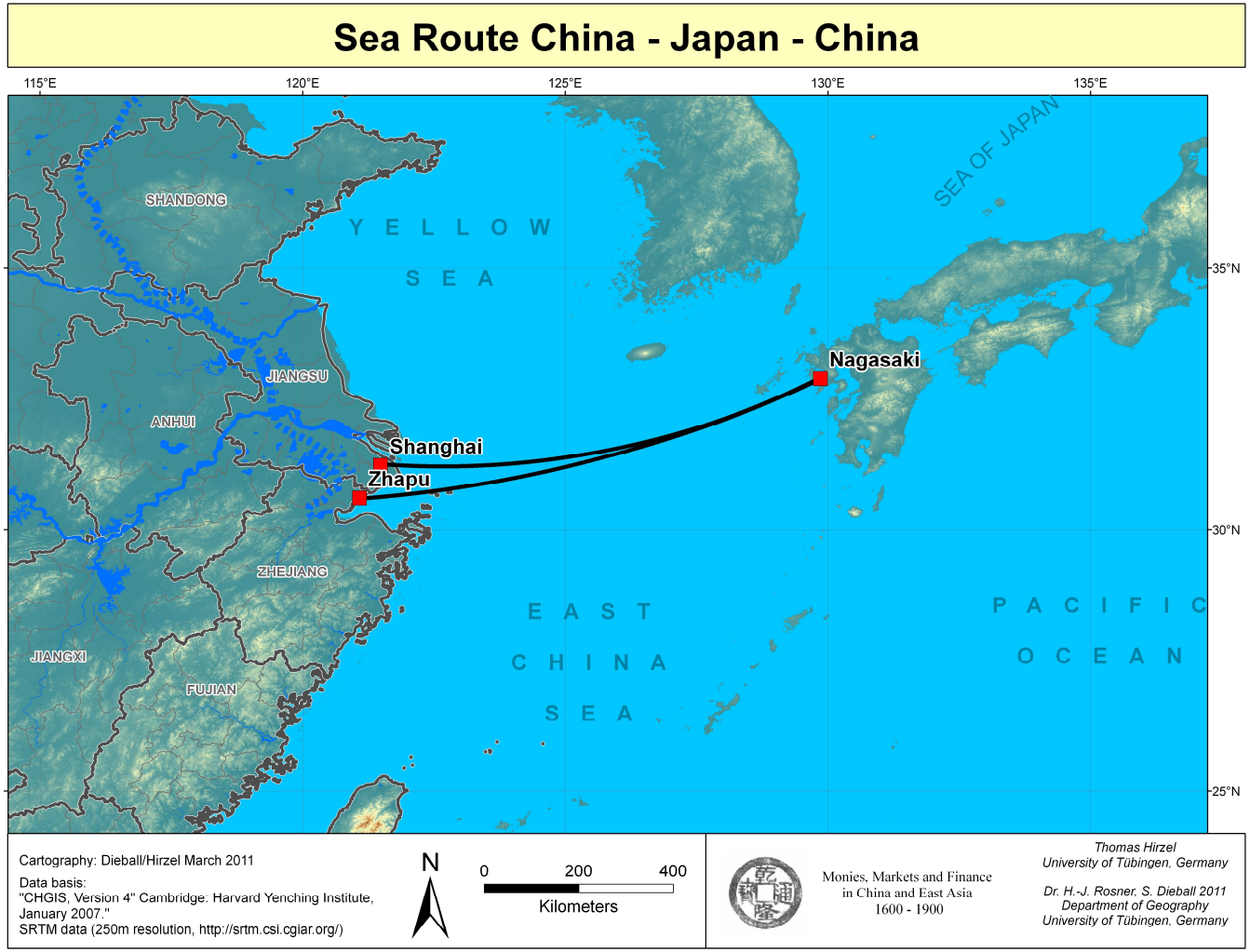
[137] Feng 2001: 245.
[138] Matsuura Akira, 2002: 382-402; 2010:64f.
[139] Liu 1999a: 118; Feng 2001: 245f.
[140] Ôba Osamu 2000a: 64.
[141] ZPZZ 1226-005, reel 60/1, YZ 1/9/28, Li Fu 李馥.

Upon arrival of the ships at Zhapu the copper was transported to Suzhou, from where it was distributed to the provincial mints of Zhili, Shaanxi, Jiangxi and Hubei. From 1797 (JQ 2) onwards the state merchant transported copper from Japan to the mints of Jiangsu in Suzhou as well as to Zhejiang in Hangzhou. The transport to Zhejiang only included the annual quota, the bigger part of the copper, however, was forwarded to the Suzhou mint. Upon arrival at the mint, the mint deducted its annual quota and transferred the remaining copper to its storage (*baosujuku* 寶蘇局庫).

Whereas in 1765 (QL 30) the state merchant delivered Japanese copper to the mint of Zhili at Baoding[142], in 1797 (JQ 2) appointed transport officials of the provinces of Zhili, Shaanxi, Hubei and Jiangxi received it at Suzhou and transported it back to Baoding, Xi'an, Nanchang and Wuchang respectively.[143] The transport official of Zhili came annually and the transport official of Shaanxi, Hubei and Jiangxi once in every two years to Suzhou. Because the supply of the mint of Zhili had priority, it was favoured over the other three provinces and received its copper at first. Contrary to the state merchants, these transport officials had to pay taxes at the internal customs duties.[144]

[142] GX-HDSL vol. 10, 219: 2a+b, p. 8002; JQ-HDSL 175: 22b-23a.
[143] GX-HDSL vol. 10, 218: 17b-19a, pp. 7998f.; JQ-HDSL 175: 17b-19a. For Zhili: NGHKTB 11.1/2, JQ 20/10/1, Nayancheng 那彥成.
[144] GX-HDSL vol. 10, 218: 17b-19a, pp. 7998f.; JQ-HDSL 175: 17b-19a.

Map 5: Sea route China – Japan -China



6.3.5 Time limits

According to a regulation in 1765 (QL 30), each time the ships of the state merchant with Japanese copper arrived in Jiangsu he had to hand over the stipulated quota to the mint of Zhili at Baoding within the next 108 days.[1]

The time limits for the transport from Suzhou to the provincial mints by the state merchant in 1781 (QL 46) were as follows[2]:

Table 46: Time limits for the transport of Japanese copper

Mint of destination	**Time limit**
Shaanxi	134 days 22 hours
Jiangxi	56 days 14 hours
Hubei	64 days 14 hours

6.3.6 Transport funds for the procurement and transport of Japanese copper

According to the regulations in 1740 (QL 5) the self-funding private merchants received 17.5 *tael*/100 *jin* for the copper they procured at Nagasaki for the mints of Fujian, Jiangsu, Jiangxi and Zhejiang. Such high funds for the procurement of Japanese copper had never been given out during the previous reign periods of the Qing dynasty before.[3] The expenses of the private merchants for the transport of the copper to the mints of Fujian, Jiangsu and Zhejiang were included in the price of 17.5 *tael* paid for each 100 *jin*.[4] Jiangxi province, however, had to appoint an official who collected the copper for its mint at Suzhou. For the transport of 100 *jin* of copper, some 0.305 *tael* for fluvial transport, some 0.21 *tael* for miscellaneous expenses and 0.006 *tael* for porterage, a total of 0.521 *tael*/100 *jin*, were allocated.[5] If the metropolitan mints, in case of bottlenecks in the supply with copper from Yunnan, needed Japanese copper, funds were given out one year in advance. These funds included 14.5 *tael* for the procurement of 100 *jin* of copper and 3 *tael* for its transport to the mints.[6]

The Ministry of Revenue permitted these merchants to sell half of the procured copper amount on the open market in anticipation that this measure would amply satiate market demands and level down the market price of copper. The Ministry therefore urged the provincial officials to request for a reduction of the official price as soon as they noticed a fall of the market price.[7] Eventually in 1784 (QL 49) the funds allocated for the copper procured by the private merchants were cut down from 17.5 *tael* to 15.3 *tael*/100 *jin*. The reason, however, was not a lower market price of copper but the proposal of the private merchant Wu

[1] According to ZPZZ 1266-041, reel 61/7, QL 31/6/26, Fang Guancheng 方觀承 the original time limit was 4 month or 120 days. This limit was reduced to 108 days upon request by Zhili. GX-HDSL vol. 10, 219: 2a+b, p. 8002; JQ-HDSL 175: 22b-23a.
[2] GX-HDSL vol. 10, 219: 4a, p. 8003; JQ-HDSL 175: 24b.
[3] See the table with the official prices for copper in the Kangxi and the Yongzheng reigns in: Liu 1999a: 142.
[4] GX-HDSL vol. 10, 218: 1a, p. 7990; JQ-HDSL 175: 1a.
[5] GX-HDSL vol. 10, 218: 1b, p. 7990; JQ-HDSL 175: 1b.
[6] GX-HDSL vol. 10, 218: 1b, p. 7990; JQ-HDSL 175: 1b.
[7] GX-HDSL vol. 10, 218: 1a, p. 7990; JQ-HDSL 175: 1a.

Mingluan 吳鳴鸞 and his partners to reduce the funds by 2,2 *tael*. Reportedly this was to serve as a contribution to the state (*baoxiao* 報效) as they had become affluent and gained high financial power during the past years.[8]

When in 1744 (QL 9) the state merchant Fan Yubin 范毓賓, in addition to the private merchants, was commissioned to procure copper in Japan, he was committed to distribute the procured copper to the mints of the five provinces of Zhili, Shaanxi, Jiangsu, Jiangxi and Hubei. For the copper destined for the mints of Zhili and Shaanxi procurement funds were 1 *tael* higher than for the other four mints because the copper had to be transported to the mints overland instead of fluvial transport.[9] Funds for the procurement of the Japanese copper, including transportation to those mints, were as follows:

Table 47: Funds for the procurement and transport of Japanese copper in 1744

Year	Mint of destination	Location of mint	Funds for procurement (*tael*/100 *jin*)	
1744 (QL 9)	Zhili	Baoding (保定)	14	overland transport
	Shaanxi	Xi'an (西安)	14	
	Jiangsu	Suzhou (蘇州)	13	fluvial transport
	Jiangxi	Nanchang (南昌)	13	
	Hubei	Wuchang (武昌)	13	

Although there were no changes in the prices given to the state merchant Wang Lüjie 王履階 in 1797 (JQ 2), like the state merchants before he received between 13 and 14 *tael*/100 *jin*, the copper, however, had only to be transported to the mints of Jiangsu and Zhejiang. The other four provinces were obliged to collect their annual copper quotas at the Suzhou mint and transport it back by themselves. The private merchants, who procured copper for the mints of Jiangsu, Zhejiang and Jianxi, received 15.3 *tael*/100 *jin*.[10] This price for imported copper remained the same until the end of the copper trade in 1861.

[8] GX-HDSL vol. 10, 218: 15b, p. 7997; JQ-HDSL 175: 15a+b; GZD 60/75f., QL 49/4/12, Min Eyuan 閔鶚元.
[9] QCWXTK 16: 5000c; ZPZZ 1234-007, reel 60/9, QL 9/1/29, Neqin and others 訥親等
[10] GX-HDSL vol. 10, 218: 18a+b, p. 7998; JQ-HDSL 175: 17b-18b.

Table 48: Funds for the procurement and transport of Japanese copper in 1797

Year	Mint of destination	Price in *tael*/100 *jin*	
		State merchant	Private merchants
1797 (JQ 2)	Zhili	14	---
	Shaanxi	14	---
	Jiangsu	13	15.3
	Zhejiang	13	15.3
	Jiangxi	13	15.3
	Hubei	13	---

In the years 1802 (JQ 7) and 1808 (JQ 13) some changes took place that had a sustained repercussion on the business of the state merchant. At that time he still supplied the mints of the six provinces of Jiangsu, Jiangxi, Hubei, Shaanxi, Zhejiang and Zhili.[11] In 1802 the Ministry of Revenue stipulated the following[12]:

a) the mints of Jiangsu and Zhejiang are to receive 2 *jin* 10 *liang* additional copper (*yutong* 餘銅) for each 100 *jin* of regular copper (*zhengtong* 正銅)

b) the mints of Zhili, Hubei and Jiangxi are to receive 2 *jin* 10 *liang* of quality compensating copper (*haotong* 耗銅) for each 100 *jin* of regular copper

c) the mint of Shaanxi is to receive 13 *jin* of quality compensating copper (*busehaotong* 補色耗銅) for each 100 *jin* of regular copper

The additional copper should be weighed into the storehouses of the Suzhou mint with the scales given out by the Ministry to the provincial treasury and, as before, picked up by the transport officials from the provinces there.

For the state merchant this meant to deliver more copper with the same funds, and from 1808 (JQ 13) it even meant more copper for less funds, as the funds given to the merchants were reduced to 12 *tael*/100 *jin*.[13] Granted that the merchant received the whole amount it was still a price that hit rock-bottom when compared with the market price of about 24 *tael*/100 *jin* at that time. When in 1835 (DG 15) the price regulation of 1797 (JQ 2) was reinstated it was the first time since 1738 that the funds were not reduced but increased.[14]

6.3.7 Customs duties

Although the customs duties were relatively low, the bondservants and indentured servants (*jiaren* 家人) at the customs bureaus were constantly embezzling funds and making illegal demands on merchants for extra contributions. Although these practices became known to the

[11] GX-HDSL vol. 10, 218: 18a+b, p. 7998; JQ-HDSL 175: 17b-18b.
[12] GX-HDSL vol. 10, 218: 20a, p. 7999; JQ-HDSL 175: 20a.
[13] GX-HDSL vol. 10, 218: 21a, p. 8000; JQ-HDSL 175: 20b.
[14] MQDA 11-150882, DG15/4/?, no author.

Qianlong emperor he was persuaded not to push for abolition of the small illegal excactions which the yamen underlings pinched from the merchants when collection taxes.[15]

The taxation of the Canton trade by the Customs Bureau of Canton, however, shows that the extra exactions were not small at all but surmounted the regular tax quota by far. In 1727, as an example, the regular quota was 43,750 *tael*, while the extra tax quota amounted to 48,000 and the illegal squeeze to 38,000 *tael*. The squeeze went to the pockets of the customs intendant, his indentured servants, clerks, and lesser workmen connected with the trade. The regular quota was sent to the provincial treasury, but the excess quota was forwarded to the "Inner Board", that is, the Imperial Household Department.[16]

6.4 Concluding remarks

The monopoly of Jiangsu and Zhejiang over Japanese copper lasted only the four years from 1740 to 1744. Jiangxi was the first province to get its share and after the inauguration of the imperial Fan merchant family Japanese copper became an indispensable source also for other provincial mints. The quantitative assessment of the role of copper imports from Japan for the provincial mints of Jiangsu and Zhejiang will be undertaken in the following chapter.

To Hall "it appears that whatever profit Fan Yubin made on the trade was by virtue of his exemption from customs duties and his ability to sell on the open market what was left of his cargoes after fulfilling his quota".[17] Liu takes another stance. He argues that the petition of Fan Yuji in 1746 for a reduction of the copper quota of his brother Fan Yubin[18] shows that the Fan family made no profit with the import of Japanese copper, but followed the imperial order to procure copper in order to settle their debts.[19]

Acceding with the stance of Liu this chapter shows that the Fan family was not given funds to procure copper in Japan but was supposed to settle former debts by procuring copper in Japan. As the Fan merchants paid back imperial favours by accepting a very low price for the procured copper they were very unlikely to settle their debts within a short time and very unlikely yielded any significant profits. This is further substantiated by the circumstance that the Fan merchants were supposed to use profits from other different branches, mainly the salt business, to procure copper from Japan for an even lower price, in some cases only around 7 *tael* for 100 *jin* of copper. This co-optation into the imperial bureaucracy obviously was a very delicate matter with a fragile balance between imperial favours and the paying back of these

[15] Torbert 1977: 58 and 79.
[16] Torbert 1977; 98f.
[17] Hall 1949: 459.
[18] ZPZZ 1237–002, reel 60/12, QL 11/2/15, 范毓(香+奇).; NGHKTB 2.13/9, QL 15/4/25, Yaerhashan 雅爾哈善; NGHKTB 3.3/2; QL 15/12/8, Fu Heng 傅恒.
[19] Liu 1999a: 134, footnote 70.

favours. For the Fan family and also for some of the other merchants involved in the copper trade with Japan it did not turn out well in the end.

However, the Fan clan was not the first and also not the last of wealthy merchant families to be declared bankrupt and consequently had their properties, including salt monopolies and real estate expropriated. In 1911 Wang Xianbin 王賢賓, Tianjin's "single indispensable person", also a head merchant of the Changlu salt division and ten other salt merchants met the same fate. A ryhmed poem on the salt merchants of Tianjin that captures their inevitable fate goes a follows:

They purchased official titels, became head merchants,
Celebrated for their opulence.
But riches and status never lasted three generations in our city.
Be patient and see the ephemeral fate awaiting them.[20]

Obviously the merchants were never strong enough to convert their wealth to enduring political power, and consequently their bankruptcy and expropriation were common, if not routine, under an efficient and flexible, yet underfinanced bureaucracy that depended on additional private capital for sufficient funding of its commercial operations. As a result, a strong state presence for the salt merchants always meant exploitation through squeezes and donations. Yet, in the opinion of Kwan, as the salt merchants in pursuit of profit circumvented state regulations by sharing their gains with rent-seeking emperors and officials their relationship with the state cannot be accurately characterized as collusion nor can it be called exploitation by a flexible and efficient bureaucracy.[21]

An analysis of the reports on the transports of Japanese copper by the Fan family between 1763 (QL 30) and 1782 (QL 47) shows clearly that the reason for the decline should not be sought in its performance as Fan Qingji had managed the copper procurement duties capably.

In conclusion it becomes clear that also after the demise of the Fan family the Qing state showed remarkable flexibility and in forging advantageous forms of cooperation not only with the succeeding state merchants but also with the private merchants. By integrating merchant capital, manpower and organizational skills in mint metal procurement it enhanced its organizational capacity and fincancial sustainability. The circumstance that the Qing state managed the copper trade with Japan and achieved its goals using a minimum of financial, labour and organizational input gives evidence to its efficiency in handling the "private sector". It is even more remarkable that under these conditions most copper from Japan cost the Qing state even less than the indigenous high quality copper from Yunnan.

[20] Kwan 2001:1.
[21] Kwan 2001:32.

Graph 13 : Copper transports by state merchant between 1761 and 1793

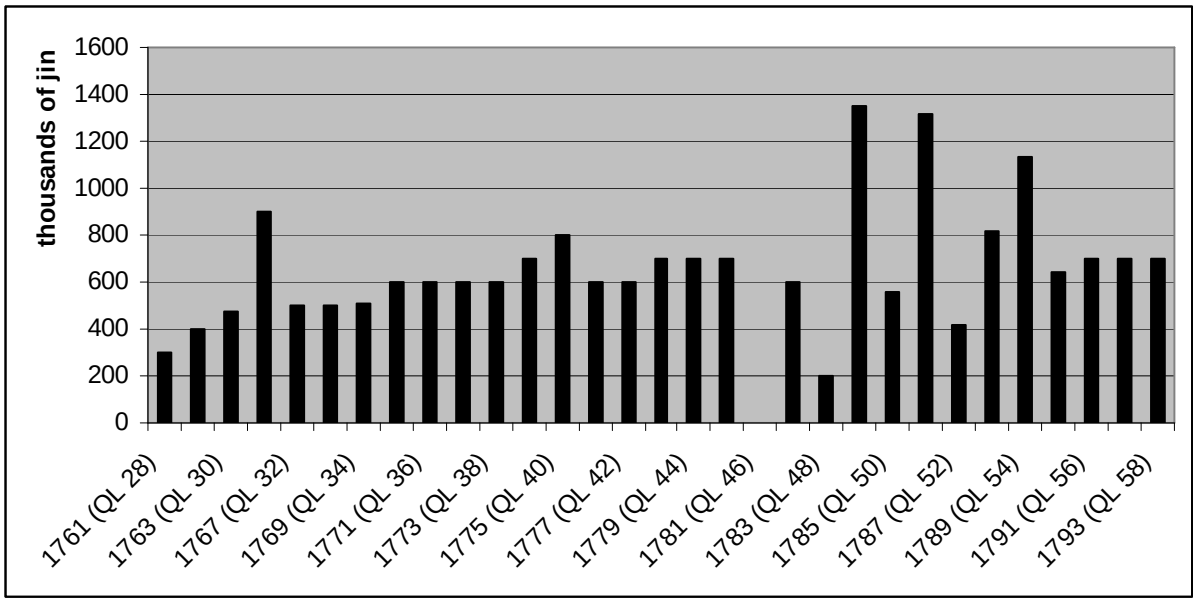


Table 49: Comparison of official funds for copper from Yunnan and from Japan

Name of the province	Price of high quality copper from Yunnan in *tael*	Price of Japanese copper from private merchants in *tael*	Price of Japanese copper from state merchant in *tael*
Zhili	---	---	14 (until 1808 and again from 1835) 12 (from 1808)
Shaanxi	15.86	---	
Hubei	14.32+ up to 14.87	---	13 (until 1808 and again from 1835) 12 (from 1808)
Jiangxi	15.45+ up to 15.82+	17.5 (plus transport) 15.3 plus transport (from 1797)	
Jiangsu	14.7+	17.5 15.3 (from 1797)	
Zhejiang	14.62+ up to 15.64+		
Fujian	16.57+ up to 16.89+		---

Table 50: Copper ships arriving at Fujian due to shipwrecks and storms

Year	Total ship load in *jin*	Copper sold to Fujian mint in *jin*	Price of copper in *tael*	Name of merchant	Source
1742(QL 7)	70,420[1]	70,420	17.5	Xu Weihuai 徐惟懷	ZPZZ 1233-003, reel 60/8, QL 7/9/16, Nuosutu and others 那蘇圖等
1743(QL 8)	---	10,900+	---	漁民在洋撈獲條銅	ZPZZ 1233-021, reel 60/8, QL 8/11/11, Zhou Xuejian 周學健
		1,500		He Wenwei 浙商何文威	
1743(QL 8) (Used for minting in QL 9)	244,100 (950 chests of 坐商毛元盛 and 1491 chests of other merchants)	118,932+	17.5	Lin Junji 林君績	ZPZZ 1234-006, reel 60/9, QL 9/1/24, Nuosutu and others 那蘇圖等. ZPZZ 1234-022, reel 60/9, QL 9/5/20, Nuosutu and others 那蘇圖等
1745(QL 10)	138,477+	138,477+	17.5	Merchant You Zhongmou 銅商游仲謀 and his companion Cheng Zhanghua and others 程章華等	ZPZZ 1236-022, reel 60/11, QL 10/12/30, Maertai and others 馬爾泰等
1746(QL 11)	109,000	104,957+	17.5	船戶: Chen Fuxing 陳福興 Merchant: Chen Tianyuan 陳天元	ZPZZ 1237-015, reel 60/12, QL 11/4/29, Maertai and others 馬爾泰等.
1748(QL 13)	99,000+	96,120+	17.5	船戶: Lin Jiesheng 林捷勝 Merchant: Chen Xin 陳馨 ship returning from Siam (*Xianluoguo* 暹羅國)	ZPZZ 1239-006, reel 60/14,QL 13/4/27, Kaerjishan and others 喀爾吉善等
1749(QL 14)	111,900+ [and scrap copper (*feitong* 廢銅) 25 包]	107,402+ (438.5+ *tael* customs duties: 2505+ *jin*	17.5	船戶: Lin Fachun 林發春 Merchant: Wu Sizhe 吳思哲	ZPZZ 1240-002, reel 60/15, QL 14/5/8, Maerbai 馬爾拜 ZPZZ 1240-007, reel 60/15, QL 14/6/22, Kaerjishan and others 喀爾吉善等

[1] According to another source in Liu 1999a: 125 the total ship amounted to 77,499 jin.

		copper and another 1,000 *jin* used elsewhere)			ZPZZ 1241-009, reel 60/15, QL 14/9/6, Kaerjishan and others 喀爾吉善等
1752(QL 17)	---	125,184 (of 97% purity) only 121,537+ 淨銅	17.5	坐商: Qian Mingcui 錢鳴翠 行商: Wang Tianshun 汪天順	GZD 2-688f, QL 17/4/15, Kaerjishan 喀爾吉善 .
1753(QL 18)	151,000+	148,242		Merchant: Wu Xiuruo 吳秀若	GZD 5-861
1756 (QL 21)	170,000+ (converted in 100% purity: 167,100+)	167,100+		Merchant: Gao Shanhui 高山輝	ZPZZ 1249-013, reel 60/20, QL 22/3/14, Zhong Yin 鐘音
	126,585+	126,585+		Merchant: Xia Lürui 夏履瑞 from Suzhou 坐商: Yang Yuhe 楊裕和	
1763 (QL 28)	171,500 (apparently 168,000+ *jin* of copper recovered)	120,000[2]	17.5	Zhejiang merchant: Wang Zhaoyang 王兆楊	GZD 20-292f., QL 29/1/10. Yang Tingzhang and others 楊廷璋
1770 (QL 35)	90,000 (converted in 100% purity 85,319+ *jin*)	85,319+	17.5	船戶: Wang Antai 汪安泰 Fujian Merchants: Zheng Kongyang 鄭孔陽 and others	ZPZZ 1276-008, reel 61/12, QL 35/6/26, Cui Yingjie 崔應階

[2] The merchant was allowed to sell 48,000+ jin of copper on the market.

Table 51: Annual copper imports by state merchant between 1763 and 1793

Year		Name of state merchant	Name of ship entrepreneur (*chuanhu* 船戶)	Copper amount (*jin*)	Port	Number of ships	Total amount (*jin*)	Source
QL 28	1763	Fan Qingzhu 范清注	He Tingbao 何廷寶	100,000	Zhapu	3	300,000	GZD 20-260f., QL 29/1/6, Xiong Xuepeng 熊學鵬
			Yang Shihe 楊士合	100,000				
			Wang Yongqing 王永慶	100,000				
QL 29	1764	Fan Qinghong 范清洪	Shi Shunxing史順興	100,000[3]	Zhapu	4	400,000	GZD 23-734f., QL 30/1/22, Xiong Xuepeng 熊學鵬
			Jin Yuntai 金允泰	110,000[4]				
			Yang Shihe 楊士合	90,000[5]				
			He Tingbao 何廷寶	100,000				
QL 30	1765	Fan Qingji	Wei Yuansheng魏元盛	100,000[6]	Zhapu	4	471,200	ZPZZ 1265-006, reel 61/6,

[3] 100 boxes or 10,000 jin of the copper procured by Shi Shunxing in 1764 (QL 29) were left behind for Zhejiang province, the other 900 boxes were transported to Suzhou. Thereupon, Jin Yuntai transported his 1100 boxes and the 100 boxes left behind for Zhejiang by Shi Shunxing, altogether 1200 boxes or 120,000 jin, to Suzhou.

[4] Jin Yuntai delivered 100 boxes of Japanese copper of Yang Shihe.

[5] 350 boxes or 35,000 jin of the copper procured by Yang Shihe in 1764 (QL 29) were left behind for Zhejiang province, the other 550 boxes were transported to Suzhou.

[6] 350 boxes or 35,000 jin of the copper procured by Wei Yuansheng in 1765 (QL 30) were left behind for Zhejiang province, the other 650 boxes were transported to Suzhou.

		范清濟	Lin Yongshun 林永順	121,200[7]				QL 31/1/7, Xiong Xuepeng 熊學鵬
			Wan Youshun 萬友順	100,000				
			Wei Yuansheng魏元盛	150,000[8]				
QL 31	1766	Fan Qingji 范清濟	Jin Yuntai 金允泰	100,000[9]	Zhapu	9	900,000	ZPZZ 1268-016, reel 61/8, QL 32/1/4, Xiong Xuepeng 熊學鵬
			Shi Shunxing史順興	100,000				
			Lin Yongshun 林永順	100,000[10]				
			Wei Yuansheng 魏元盛	100,000				
			He Tingbao 何廷寶	100,000				
			Yang Shihe 楊士合	100,000				
			Zhou Shunxing 周順興	100,000				
			Shi Shunxing史順興	100,000[11]				
			Wei Yuansheng 魏元盛	100,000[12]				

[7] The merchant Lin Yongshun transported 712 boxes on behalf of the merchant Wang Yongqing 王永慶. 350 boxes or 35,000 jin of the copper procured by Lin Yongshun in 1765 (QL 30) were left behind for Zhejiang province, the other 862 boxes were transported to Suzhou.

[8] The merchant Wei Yuansheng transported 500 boxes on behalf of the merchant Lin Yongshun.

[9] 257 boxes or 25,700 jin of the copper procured by Jin Yuntai in 1766 (QL 31) were left behind for Zhejiang province, the other 743 boxes were transported to Suzhou.

[10] 260 boxes or 26,000 jin of the copper procured by Lin Yongshun in 1766 (QL 31) were left behind for Zhejiang province, the other 740 boxes were transported to Suzhou.

[11] 7 boxes or 700 jin of the copper procured by Shi Shunxing and Wei Yuansheng in 1766 (QL 31) were left behind for Zhejiang province, the other 1993 boxes were transported to Suzhou.

[12] 7 boxes or 700 jin of the copper procured by Shi Shunxing and Wei Yuansheng in 1766 (QL 31) were left behind for Zhejiang province, the other 1993 boxes were transported to Suzhou.

QL 32	1767	Fan Qingji 范清濟	Jin Yuntai 金允泰	100,000[13]	Zhapu	5	500,000	GZD 29-255, QL 33/1/3, Xiong Xuepeng 熊學鵬
			Xu Xianchun 許咸春	100,000[14]				
			Jin Wanyu 金萬裕	100,000				
			Wan Rixin 萬日新	100,000				
			Wei Yuansheng 魏元盛	100,000				
QL 33	1768	Fan Qingji 范清濟	Wan Rixin 萬日新	100,000[15]	Zhapu	5	500,000	ZPZZ 1270–004, reel 61/9, QL 34/1/27, Yong De 永德
			Lin Yongshun 林永順	100,000				
			He Tingbao 何廷寶	100,000				
			Jin Wanyu 金萬裕	100,000[16]				
			Xu Xianchun 許咸春	100,000				
QL 34	1769	Fan Qingji 范清濟	Yang Shihe 楊士合	100,000[17]	Zhapu	5	506,500	ZPZZ 1273-028, reel 61/10, QL 35/1/7, Xiong Xuepeng 熊學鵬
			Shi Shunxing 史順興	100,000				
			Wei Yuansheng 魏元盛	106,500				

[13] 519 boxes or 51,900 jin of the copper procured by Jin Yutai in 1767 (QL 32) were left behind for Zhejiang province, the other 481 boxes were transported to Suzhou.

[14] 6 boxes or 600 jin of the copper procured by Xu Xianchun in 1767 (QL 32) were left behind for Zhejiang province, the other 994 boxes were transported to Suzhou.

[15] 520 boxes or 52,000 jin of the copper procured by Wang Rixin in 1768 (QL 33) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

[16] 8 boxes or 800 jin of the copper procured by Jin Wanyu in 1768 (QL 33) were left behind for Zhejiang province, the other 992 boxes were transported to Suzhou.

[17] 520 boxes or 52,000 jin of the copper procured by Yang Shihe in 1769 (QL 34) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

			Jin Wanyu 金萬裕	100,000				
			He Tingbao 何廷寶	100,000				
QL 35	1770	Fan Qingji 范清濟	Wan Rixin 萬日新	100,000[18]	Zhapu	6	600,000	ZPZZ 1278-025, reel 61/13, QL 36/1/10, Fulehun富勒渾
			Xu Xianchun 許咸春	100,000				
			Yang Shihe 楊士合	100,000				
			Lin Yongshun 林永順	100,000				
			Jin Wanyu 金萬裕	100,000				
			He Tingbao 何廷寶	100,000				
QL 36	1771	Fan Qingji 范清濟	Wan Rixin萬日新	100,000	Zhapu	6	600,000	ZPZZ 1282-012, reel 61/15, QL 36/12/11, Fulehun 富勒渾
			Shi Shunxing 史順興	100,000				
			Jin Wanyu 金萬裕	100,000				
			Zhou Yong'an 周永安	100,000				
			Yue Shunxing 岳順興	100,000[19]				
			Fan Jizong 范繼宗	100,000[20]				
QL 37	1772	Fan Qingji 范清濟	Lin Yongshun 林永順	100,000	Zhapu	6	600,000	ZPZZ 1287-002, reel 61/17, QL 38/1/6, Xiong Xuepeng
			He Tingbao 何廷寶	100,000				

[18] 520 boxes or 52,000 jin of the copper procured by Wang Rixin in 1769 (QL 34) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

[19] 520 boxes or 52,000 jin of the copper procured by Yue Shunxing and Fan Jizong were left behind for Zhejiang province, the other 1480 boxes were transported to Suzhou.

[20] 520 boxes or 52,000 jin of the copper procured by Yue Shunxing and Fan Jizong were left behind for Zhejiang province, the other 1480 boxes were transported to Suzhou.

			Wei Yuansheng 魏元盛	100,000				熊學鵬
			Shi Shunxing 史順興	100,000[21]				
			Wan Rixin萬日新	100,000[22]				
			Fan Jizong 范繼宗	100,000				
QL 38	1773	Fan Qingji 范清濟	Zhou Yong'an 周永安	100,000	Zhapu	6	600,000	GZD 33-555, QL 38/12/1, San Bao 三寶
			Jin Wanyu 金萬裕	100,000				
			Lin Yongshun 林永順	100,000				
			Jiang Xiangtai 江祥泰	100,000[23]				
			He Tingbao 何廷寶	100,000				
			Wan Rixin 萬日新	100,000				
QL 39	1774	Fan Qingji 范清濟	Wei Yuansheng 魏元盛	100,000	Zhapu	7	700,000	ZPZZ 1292-002, reel 62/1, QL 39/12/6, San Bao 三寶
			Shi Shunxing 史順興	100,000				
			Fan Jizong 范繼宗	100,000				
			Jin Yuanbao 金源寶	100,000				
			Zhou Shunli 周順利	100,000				

[21] 520 boxes or 52,000 jin of the copper procured by Shi Shunxing and Wan Rixin in 1772 (QL 37) were left behind for Zhejiang province, the other 1480 boxes were transported to Suzhou.

[22] 520 boxes or 52,000 jin of the copper procured by Shi Shunxing and Wan Rixin in 1772 (QL 37) were left behind for Zhejiang province, the other 1480 boxes were transported to Suzhou.

[23] 520 boxes or 52,000 jin of the copper procured by Jiang Xiangtai in 1773 (QL 38) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

			He Tingbao 何廷寶	100,000[24]				
			Lin Yongshun 林永順	100,000				
QL 40	1775	Fan Qingji 范清濟	Wan Rixin 萬日新	100,000	Zhapu	8	800,000	ZPZZ 1298-015, reel 62/4, QL 40/12/27, San Bao 三寶
			Wei Yuansheng 魏元盛	100,000				
			Hong Chengtai 洪成泰	100,000				
			Fan Jizong 范繼宗	100,000				
			Jin Yuanbao 金源寶	100,000				
			Zhou Shunli 周順利	100,000				
			He Tingbao 何廷寶	100,000[25]				
			Jin Yuanbao 金源寶	100,000				
QL 41	1776	Fan Qingji 范清濟	Lin Yongshun林永順	100,000	Zhapu	6	600,000	ZPZZ 1303-029, reel 62/7, QL 41/12/12, San Bao 三寶
			Wei Yuansheng 魏元盛	100,000				
			Hong Chengtai 洪成泰	100,000[26]				
			Fan Jizong 范繼宗	100,000[27]				

[24] 520 boxes or 52,000 jin of the copper procured by He Tingbao in 1774 (QL 39) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

[25] 520 boxes or 52,000 jin of the copper procured by He Tingbao in 1775 (QL 40) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

[26] 520 boxes or 52,000 jin of the copper procured by Hong Chengtai, Fan Jizong and Wan Rixin in 1776 (QL 41) were left behind for Zhejiang province, the other 2480 boxes were transported to Suzhou.

[27] 520 boxes or 52,000 jin of the copper procured by Hong Chengtai, Fan Jizong and Wan Rixin in 1776 (QL 41) were left behind for Zhejiang province, the other 2480 boxes were transported to Suzhou.

			Wan Rixin 萬日新	100,000[28]				
			Jin Yuanbao 金源寶	100,000				
QL 42	1777	Fan Qingji 范清濟	Shi Shunxing 史順興	100,000	Zhapu	6	600,000	GZD 41-151, QL 42/11/24, Wang Danwang 王亶望
			Zhou Shunli 周順利	100,000[29]				
			Wan Rixin 萬日新	100,000[30]				
			Wei Yuansheng 魏元盛	100,000				
			Lin Yongshun 林永順	100,000				
			He Tingbao 何廷寶	100,000				
QL 43	1778	Fan Qingji 范清濟	Hong Chengtai 洪成泰	100,000	Zhapu	7	700,000	GZD 45-801, QL 43/12/4, Wang Danwang 王亶望
			Jin Yuanbao 金源寶	100,000				
			Wan Rixin 萬日新	100,000				
			Shi Shunxing 史順興	100,000[31]				
			Fan Jizong 范繼宗	100,000				
			Zhou Shunli 周順利	100,000				

[28] 520 boxes or 52,000 jin of the copper procured by Hong Chengtai, Fan Jizong and Wan Rixin in 1776 (QL 41) were left behind for Zhejiang province, the other 2480 boxes were transported to Suzhou.

[29] 520 boxes or 52,000 jin of the copper procured by Zhou Shunli and Wan Rixin in 1777 (QL 42) were left behind for Zhejiang province, the other 1480 boxes were transported to Suzhou.

[30] 520 boxes or 52,000 jin of the copper procured by Zhou Shunli and Wan Rixin in 1777 (QL 42) were left behind for Zhejiang province, the other 1480 boxes were transported to Suzhou.

[31] 520 boxes or 52,000 jin of the copper procured by Shi Shunxing in 1778 (QL 43) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

			Wei Yuansheng 魏元盛	100000				
QL 44	1779	Fan Qingji 范清濟	He Tingbao 何廷寶	100,000	Zhapu	7	700,000	ZPZZ 1308-008, reel 62/10, QL 44/12/10, Wang Danwang 王亶望
			Lin Yongshun 林永順	100,000				
			Fan Changtai 范常泰	100,000				
			Jin Yuanbao 金源寶	100,000				
			Zhou Wanshun 周萬順	100,000[32]				
			Wan Rixin 萬日新	100,000				
			Shi Shunxing 史順興	100,000				
QL 45	1780	Fan Qingji 范清濟	Wei Hongsheng 魏宏勝	100,000	Zhapu	7	700,000	ZPZZ 1314-004, reel 62/12, QL 45/11/28, Fulehun 富勒渾
			Fan Jizong 范繼宗	100,000				
			Jin Yuanbao 金源寶	100,000				
			He Tingbao 何廷寶	100,000				
			Lin Yongshun 林永順	100,000[33]				
			Zhou Wanshun 周萬順	100,000				
			Wan Rixin 萬日新	100,000				

[32] 520 boxes or 52,000 jin of the copper procured by Zhou Wanshun in 1779 (QL 44) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

[33] 520 boxes or 52,000 jin of the copper procured by Lin Yongshun in 1780 (QL 45) were left behind for Zhejiang province, the other 480 boxes were transported to Suzhou.

QL 46	1781	Fan Qingji 范清濟	?	?	?	?	?	---
QL 47	1782	Fan Qingji 范清濟	Zhou Wanshun 周萬順	100,000	Zhapu	6	600,000	GZD 54-169, QL 47/11/27, Fulehun 富勒渾
			Wei Hongsheng 魏宏勝	100,000				
			He Tingbao 何廷寶	100,000				
			Jin Yuanbao 金源寶	100,000[34]				
			Wan Rixin 萬日新	100,000[35]				
			Fan Changji 范常吉	100,000[36]				
QL 48	1783	Fan Qingji 范清濟	Lin Yongshun 林永順	100,000	Zhapu	2	200,000	GZD 56-62, QL 48/5/2, Fu Song 福崧 GZD 58-554, QL 48/12/5, Fu Song 福崧
		王世榮	Wan Rixin 萬日新	100,000				GZD 58-554, QL 48/12/5, Fu Song 福崧
QL 49	1784	Wang Shirong 王世榮	---	---	Zhapu	---	1,350,000	ZPZZ 1318–029

[34] 520 boxes or 52,000 jin of the copper procured by Jin Yuanbao, Wan Rixin and Fan Changji in 1782 (QL 47) were left behind for Zhejiang province, the other 2480 boxes were transported to Suzhou.

[35] 520 boxes or 52,000 jin of the copper procured by Jin Yuanbao, Wan Rixin and Fan Changji in 1782 (QL 47) were left behind for Zhejiang province, the other 2480 boxes were transported to Suzhou.

[36] 520 boxes or 52,000 jin of the copper procured by Jin Yuanbao, Wan Rixin and Fan Changji in 1782 (QL 47) were left behind for Zhejiang province, the other 2480 boxes were transported to Suzhou.

QL 50	1785	Wang Shirong 王世榮	---	---	Zhapu	---	560,000	ZPZZ 1322-033, reel 62/16, QL 50/12/28, Fu Song 福崧
QL 51	1786	Wang Shirong 王世榮	---	---	Zhapu	----	1,320,300[37]	GZD 62-739, QL 51/12/26, Lang Gan 琅玕
QL 52	1787	Wang Shirong 王世榮	---	---	Zhapu	---	420,000[38]	GZD 66-743, QL 52/12/19, Lang Gan 琅玕
QL 53	1788	Qian Mingcui and others 錢鳴翠等	---	---	Zhapu	---	818,900[39]	GZD 70-696, QL 53/12/20, Lang Gan 琅玕
QL 54	1789	Qian Mingcui 錢鳴翠	---	---	Zhapu	---	1,131,700	GZD 74-485
QL 55	1790	Qian Mingcui 錢鳴翠	---	---	Zhapu	---	640,000[40]	ZPZZ 1330-008, reel 62/20, QL 55/12/5, Fu Song 福崧

[37] 104,000 jin of the copper procured in 1786 (QL 51) were left behind for Zhejiang province, the other 1,216,300 jin were transported to Suzhou.
[38] 52,900 jin of the copper procured in 1787 (QL 52) were left behind for Zhejiang province, the other 367,100 jin were transported to Suzhou.
[39] 52,000 jin of the copper procured in 1788 (QL 53) were left behind for Zhejiang province, the other 766,900 jin were transported to Suzhou.
[40] 52,000 jin of the copper procured in 1790 (QL 55) were left behind for Zhejiang province, the other 588,000 jin were transported to Suzhou.

QL 56	1791	Qian Mingcui 錢鳴翠	---	---	Zhapu	---	700,000[41]	ZPZZ 1334-041, reel 63/2, QL 56/12/12, Fu Song 福崧
QL 57	1792	Qian Mingcui 錢鳴翠	---	---	Zhapu	---	700,000[42]	ZPZZ 1338-005, reel 63/4, QL 57/12/8, Fu Song 福崧
QL 58	1793	Qian Mingcui 錢鳴翠	---	---	Zhapu	---	700,000[43]	ZPZZ 1341-023, reel 63/5, QL 58/12/12, Ji Qing 吉慶

[41] 52,000 jin of the copper procured in 1791 (QL 56) were left behind for Zhejiang province, the other 648,000 jin were transported to Suzhou.
[42] 52,000 jin of the copper procured in 1792 (QL 57) were left behind for Zhejiang province, the other 648,000 jin were transported to Suzhou.
[43] 52,000 jin of the copper procured in 1793 (QL 58) were left behind for Zhejiang province, the other 648,000 jin were transported to Suzhou.

Chapter 7: The Sino-Japanese copper trade from the Qianlong to the Daoguang Reigns (1736-1850): A quantitative reconstruction

It is the main objective of this chapter to reconstruct all mint transports of Japanese copper to the provincial mints of Jiangsu and Zhejiang between 1740 and 1840 and to determine the role of this copper in the minting of copper cash of those provinces. Building up on this investigation we venture a reconstruction of the total annual amounts of Japanese copper imported to China between 1740 and 1755 in order to arrive at data that has so far been unavailable. In the first section of this chapter we will give a short account of the used sources. In the following section we explain our method of reconstruction. The last section deals with the results of the quantitative reconstruction and its analysis.

7.1 Sources of quantitative data for reconstruction

The sources of the quantitative data for reconstruction are the same that were used and introduced in chapter 4. For the quantitative reconstruction of the Sino-Japanese copper trade between 1740 and 1755, however, the regulations for the distribution of the copper to the different provinicial mints were of crucial importance. Some of these regulations, investigated into in the previous chapter, are a research result of this study and have not been available in the relevant literature on the topic so far.

7.2 Method of reconstruction

According to the regulations in the previous two chapters, Japanese copper for the provincial mints of Jiangsu and Zhejiang was mainly imported by private merchants. As there are only reports on these transports for the five years from 1767 (QL 32) until 1771 (QL 36) and as the annual data in the routine memorials on newly arrived copper at those mints are only scattered, a reconstruction of annual deliveries of Japanese copper to the mints of Jiangsu and Zhejiang proved to be infeasible.

For this reason we focused on the annual consumption figures of Japanese copper. These data were much more abundant.[1] Building up on the results of the quantitative reconstruction of the transport and the annual consumption of Yunnan copper and the research by Burger on cash production by Jiangsu and Zhejiang we were able to reconstruct the data of the missing years.[2] The reconstructed amounts were compared then with the figures of the consumption of zinc, tin and lead in those years to verify and recheck the reconstructed data.

All additional information was also taken into account like the following in memorial to the emperor in 1777 (QL 42) on the shares of the copper from Japan and Yunnan between 1741 and 1776 for the provincial mint of Jiangsu[3]:

[1] See tables in the appendix.
[2] These tables are appended to the following chapter.
[3] GZD 37-819ff., QL 42/2/24, Yang Kui 楊魁.

Table 52: Composition of copper of the Jiangsu mint between 1741 and 1776

Minting Years	Percentage Japanese copper	Percentage Yunnan copper
1741 (QL 6)	100	0
1742 – 1744 (QL 7 –QL 9)	70	30
1745 – 1752 (QL 10 – 17)	80	20
1753 – 1765 (QL 18 – 30)	100	0
1766 – 1770 (QL 31 – 35)	50	50
1771 – 1776 (QL 36 – 41)	80	20

The reconstruction of missing data of the other mints between 1740 and 1755 was carried out on basis of the regulated annual quotas. In order to arrive at the total amount of annually imported copper to China we added 50 percent and from 1744 onwards 40 percent to the imported copper of the private merchants as they were allowed to sell this percentage of Japanese copper on the open market. A reconstruction of the total amount of Japanese copper imported to China between 1755 and 1850 would have gone beyond the scope of this study. For this period we reconstructed the amounts of Japanese copper consumed by the mints of Jiangsu and Zhejiang. All available consumption and transport data of the other mints were added to these amounts in a final statistic. We generally assumed that the copper from Japan consumed in a certain year must have been imported and transported to the respective mint the year before. A comparison between the reconstructed annual copper imports and the annual number of ships in the Japanese sources showed better results and more consistency when based on this assumption.

7.3 Results of the quantitative reconstruction

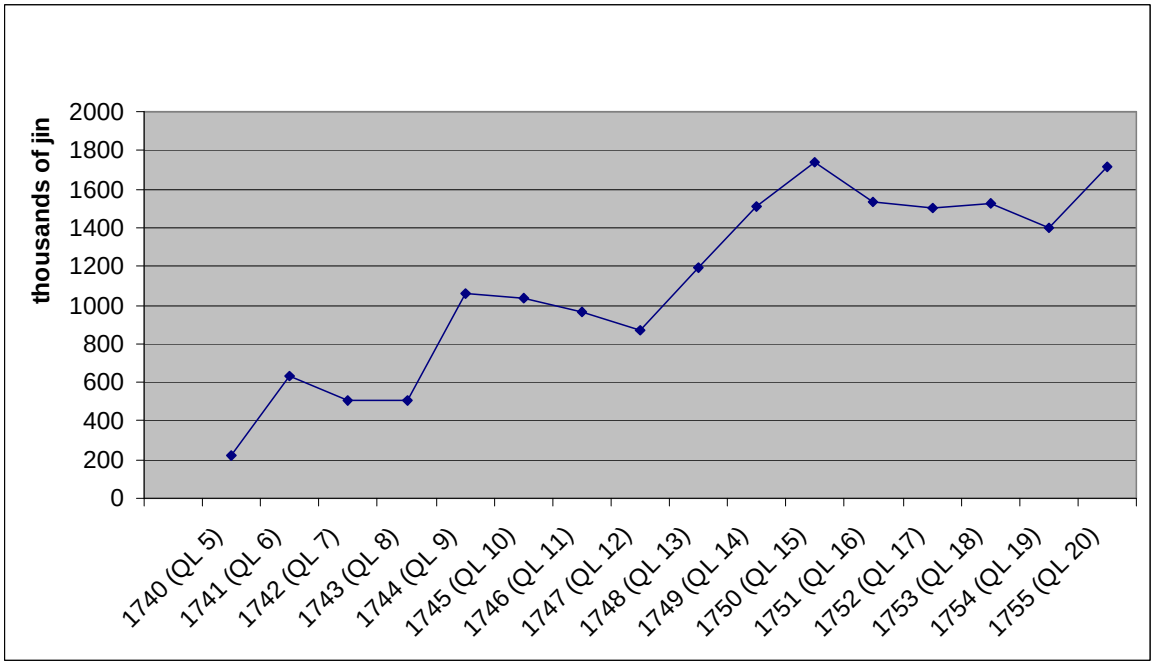
The results of the quantitative reconstruction will be presented in two parts. The first part deals with imports of Japanese copper between 1740 and 1755 and second with imports from 1755 to 1850.

7.3.1 Chinese imports of Japanese copper between 1740 and 1755

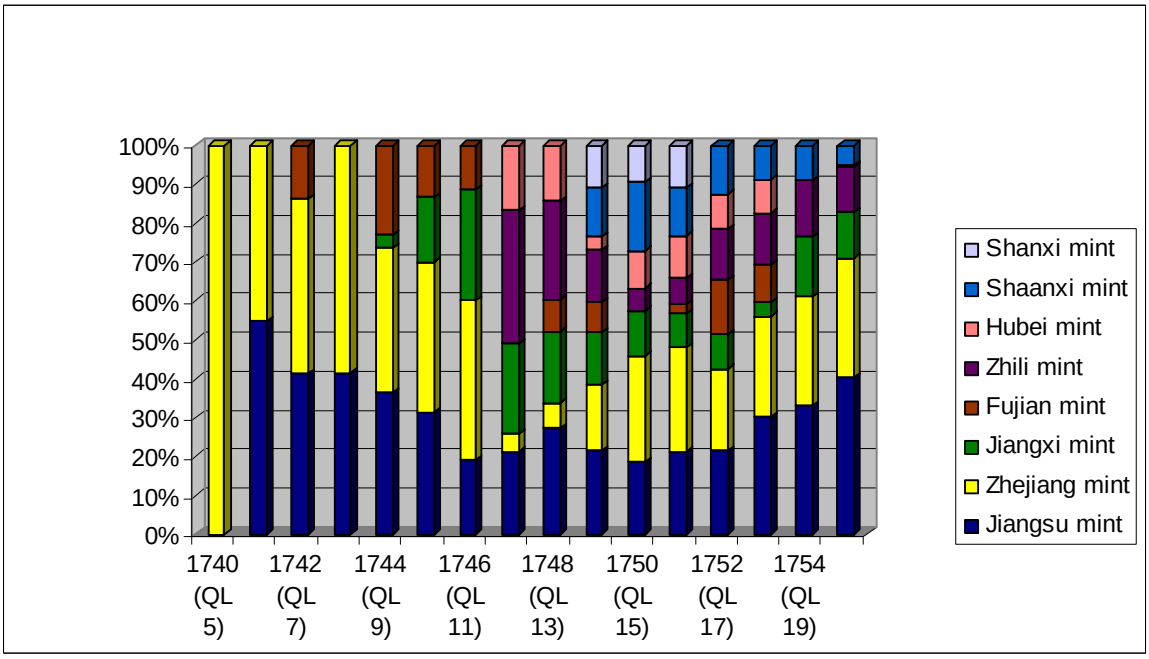
So far any scholar concerned with Qing maritime history and the Sino-Japanese trade is confronted with a "black hole" concerning amounts of copper exported from Japan and imported to China between 1736 and 1755. In order to produce relief to this serious deficit we stroke a new path and investigated into the annual consumption of Japanese copper by Chinese mints between 1740 and 1755. After Jiangsu, Zhejiang and Jiangxi the mints of Fujian, Hubei, Shaanxi, Shanxi, Zhili and from time to time the metropolitan mints of the Ministry of Revenue received copper from Japan. The following table shows the ascertained

amounts for the period under investigation. The reconstructed annual consumption amounts of Japanese copper between 1740 and 1755 may also be designated as minimum annual imports.

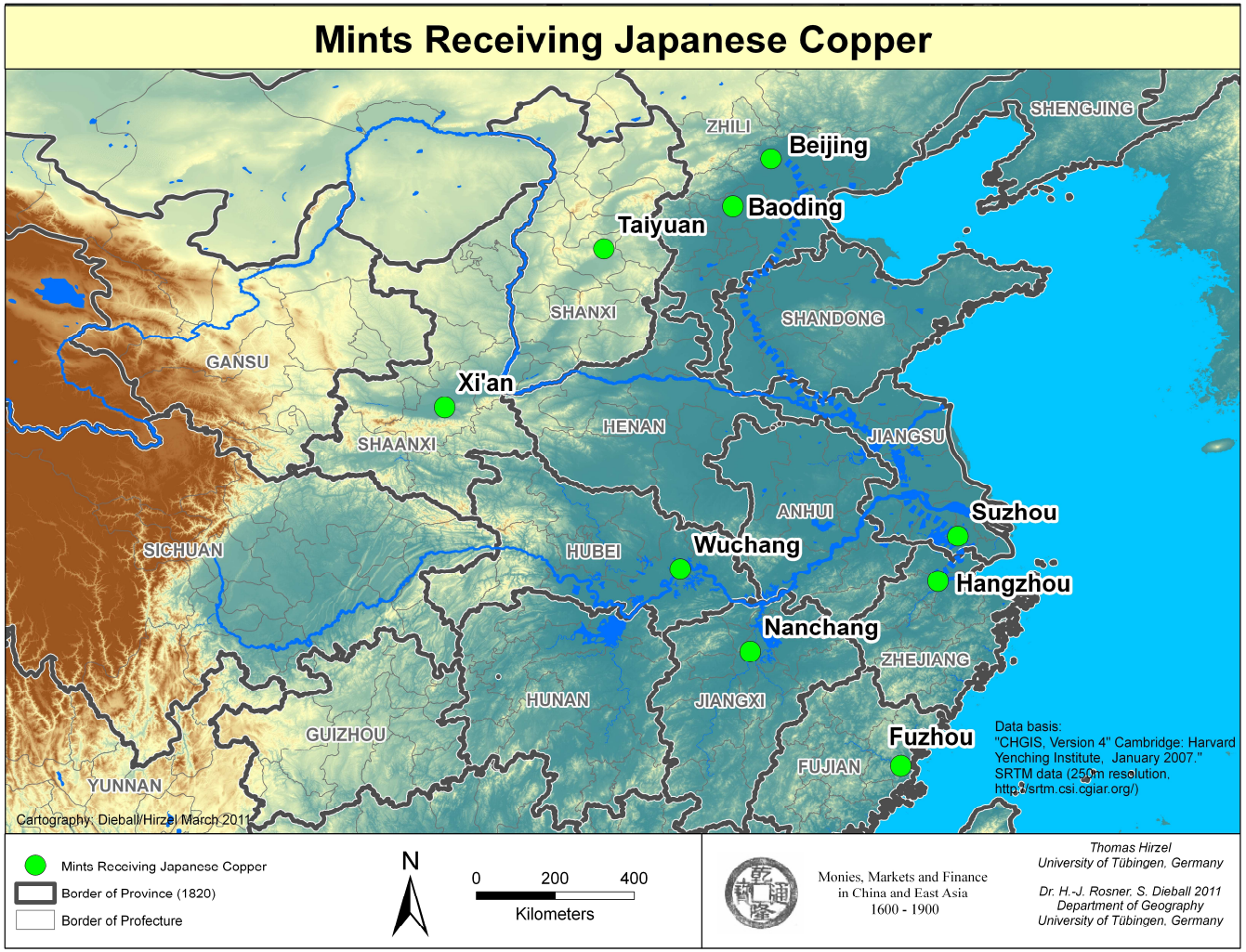
Graph 14: Minimum annual imports and consumption of Japanese copper by Chinese mints, 1740 - 1755



Graph 15: Annual consumption of Japanese copper by Chinese mints, 1740 - 1755



Map 6: Mints receiving Japanese copper



Graph 15 shows that between 1740 and 1755 more than half of the imported copper was consumed by the mints of Jiangsu and Zhejiang. Fujian did not receive a regular quota of Japanese copper but it was allowed to buy up the copper of the ships that had shipwrecked on their way back from Japan and drifted to the coast of Fujian. Between 1742 (QL 7) and 1756 (QL 21) reportedly 13 of such ships arrived at the coast of Fujian[1] (see table at the end of previous chapter)

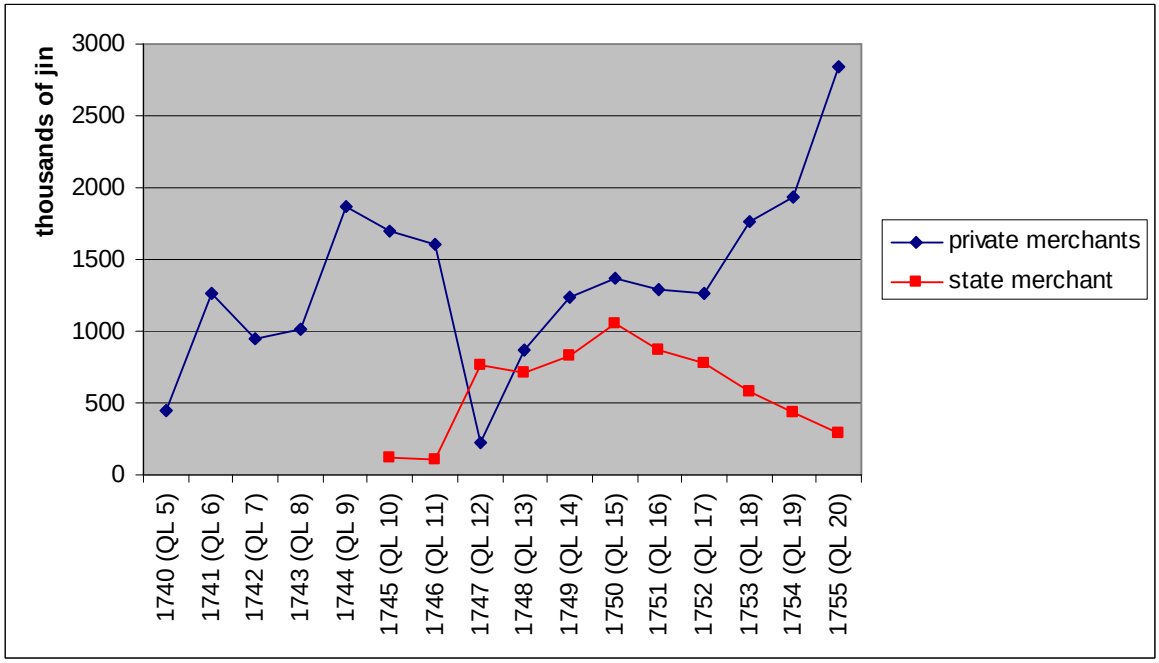
The Provincial Governor of Fujian and Zhejiang, Kaerjishan 喀爾吉善, suspected the merchants of intentionally drifting away [and shipwrecking] in order to seek profit. According to him transport costs were lower in case of entering port at Fujian than in Jiangsu, which he determines as a motivating factor for the merchants to deliberately divert their course. In order to prevent this fraudulent practice he requests to lower the official price for copper purchases by Fujian.[2] In my opinion, the high market price for copper in Fujian[3] might also have been an incentive to intentionally sail to Fujian, sell some of the copper illegally to local merchants and conceal the abuse by deliberately destroying the ship and feigning shipwreck afterwards. This was an allegedly common practice employed by transporters during inland waterborne transports.[4] However, in case of the shipwrecked merchants no evidence of abuses was detected and therefore the same copper price of 17.5 *tael*/100 *jin* was paid as before.[5]

Although Guangdong also used Japanese copper for its minting, this copper derived not from Chinese merchants but from the ships of foreign merchants, purchased at a price of 17 *tael*/100 *jin*.[6] As the purchased amounts were insignificant we omitted this copper in our reconstruction.

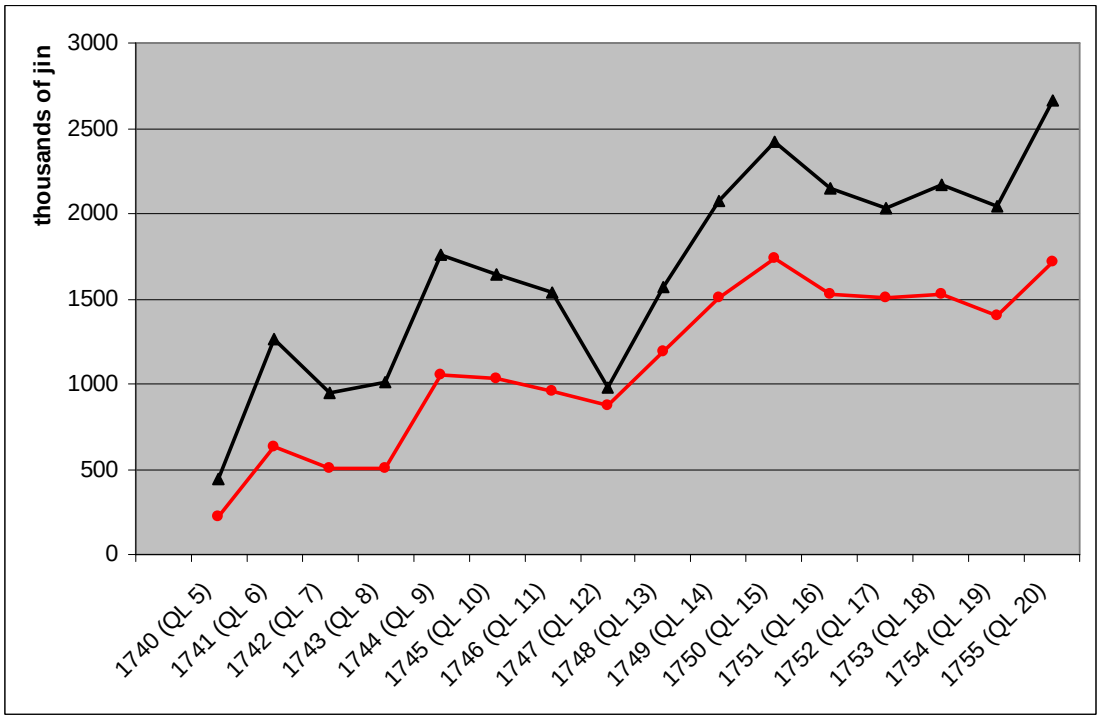
The advantageous distribution of the Japanese copper from the perspective of Jiangsu and Zhejiang was mainly due to the capable management of the copper business by the private merchants as is clearly evident from the table above.

[1] ZPZZ 1249-037, reel 60/20, QL 22/5/25, Kaerjishan 喀爾吉善.
[2] ZPZZ 1249-019, reel 60/20, QL 22/4/8, Kaerjishan 喀爾吉善.
[3] In 1740 (QL 5) Copper yielded a price of up to 28 *tael*/100 jin. ZPZZ 1230-011, reel 60/5, QL 5/2/13, De Pei and others 德沛等.
[4] ZPZZ 1249-021, reel 60/20, QL 22/4/15, Bai Zhongshan and others 白鍾山等.
[5] ZPZZ 1249-037, reel 60/20, QL 22/5/25, Kaerjishan 喀爾吉善.
[6] (*yangyichuan zaidao zhi tong* 洋夷船載到之銅). QCWXTK 17: 5006c; NGHKTB 2.12/7, QL 14/10/14 Fu Heng傅恒.

Graph 16: Composition of total annual amounts of Japanese copper imported by Chinese merchants, 1740-1755



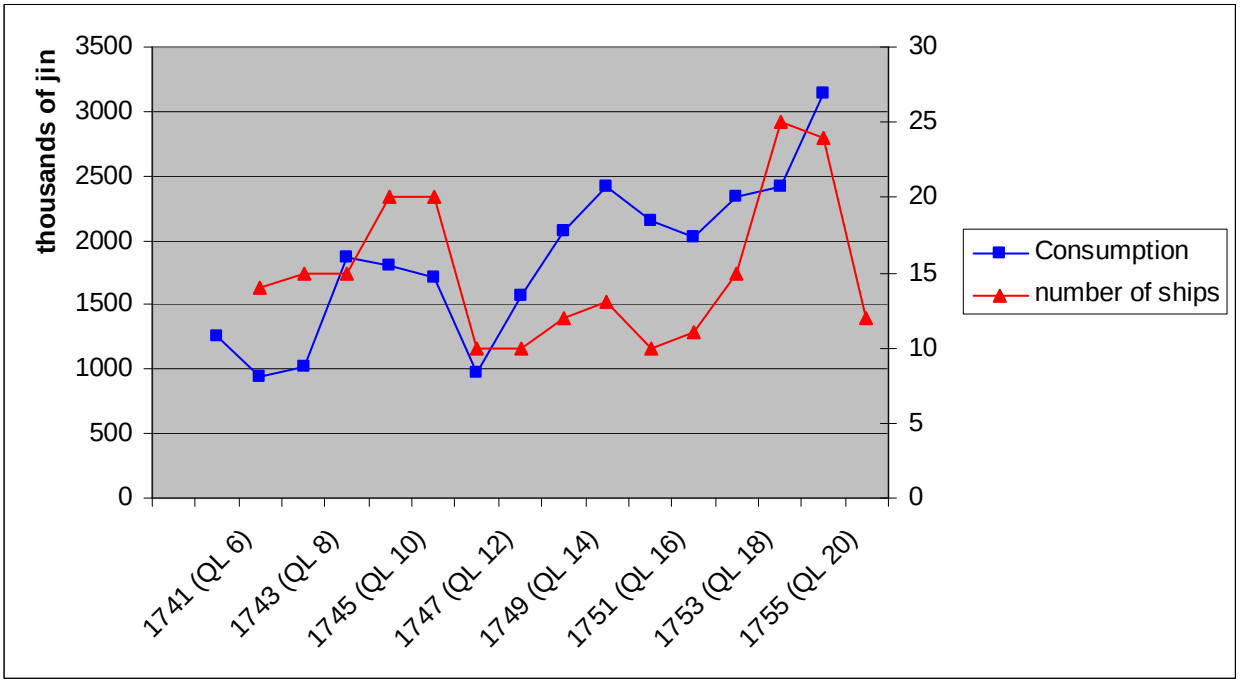
Graph 17: Total reconstructed annual amounts of Japanese copper imported into China, 1740 – 1755 (Estimated and minimum amounts)



The lower line in the table above represents the annual consumption of Japanese copper of the provincial mints of China. The upper line shows the final result of our reconstruction: the estimated annual imports of Japanese copper to China between 1740 and 1755.

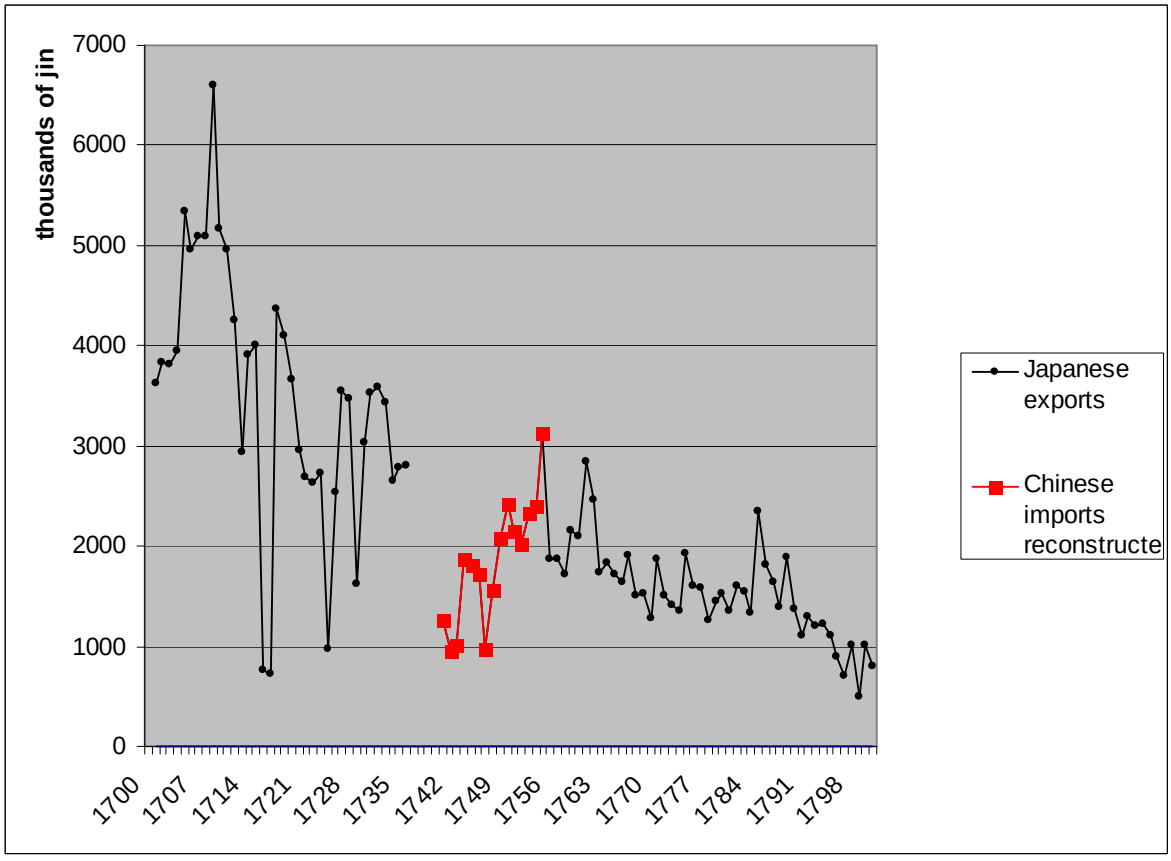
A comparison of the reconstructed figures with the number of Chinese ships according to Japanese sources shows a high congruence.[7] As the annually consumed copper had to have been imported some time before the actual consumption, the congruence was even better when shifted one year in advance as had been done in the table below:

Graph 18: Frequency and number of ships and Chinese market and state consumption of imported copper, 1740 - 1755



[7] Shimada 2006, 197.

Graph 19: Japanese exports and reconstructed imports by China, 1700-1800

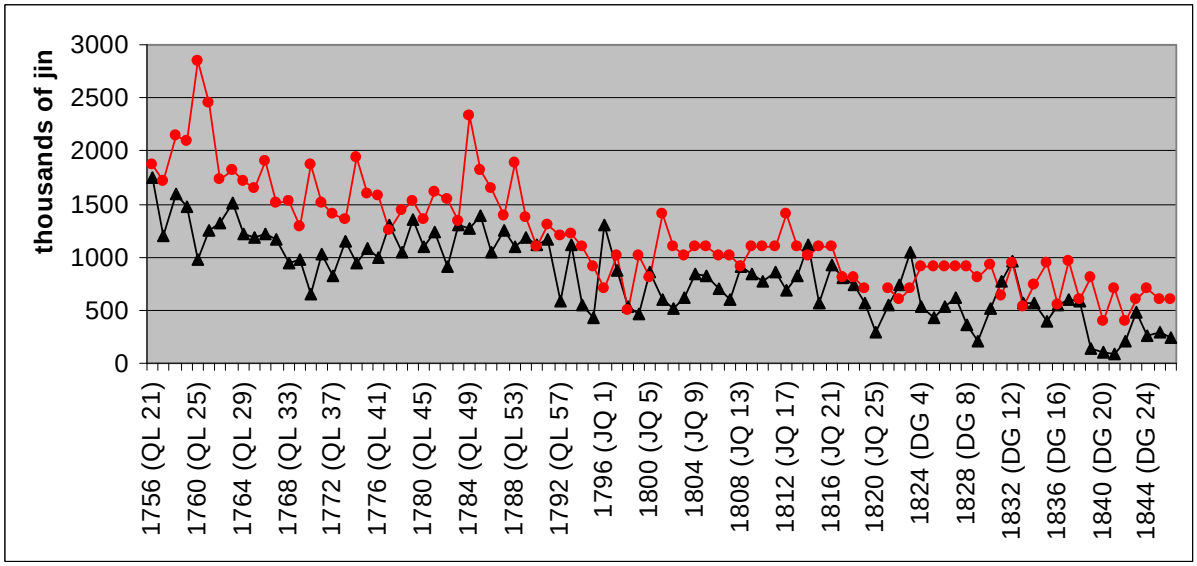


7.3.2 Chinese imports of Japanese copper between 1756 and 1846

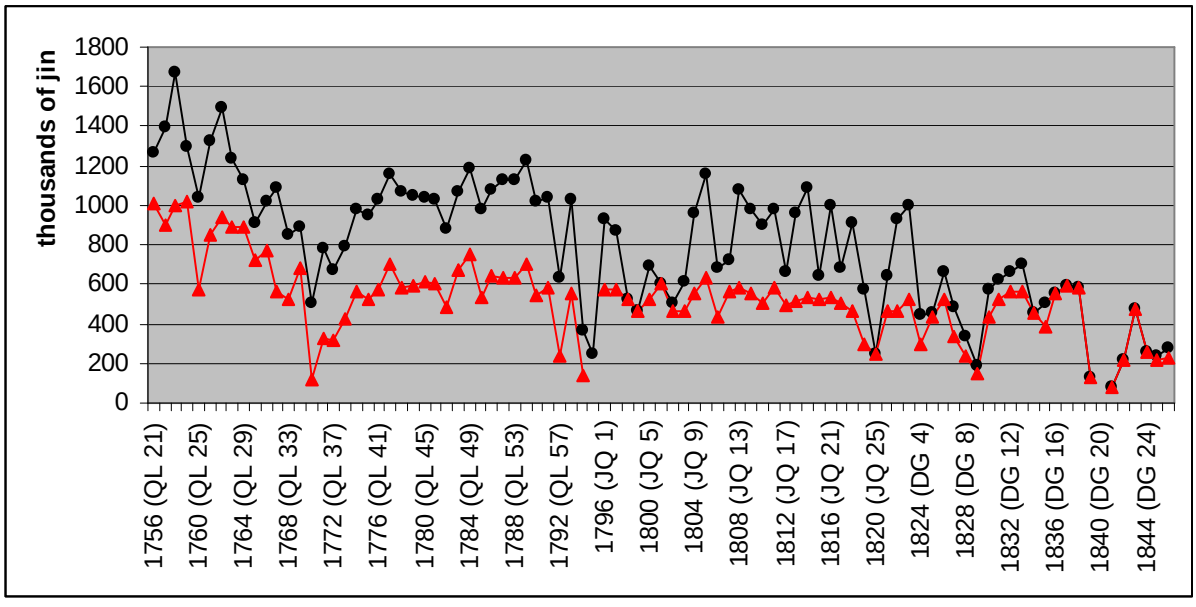
The second part of our reconstruction deals with the consumption of Japanese copper by Chinese provincial mints between 1756 and 1846.

Although the statistical series on the consumption of Japanese copper by the different provincial mints are not complete the quantitative analysis shows that over the whole period under investigation the mints of Jiangsu and Zhejiang alone consumed half of the imported Japanese copper.

Graph 20: Japanese exports and Chinese imports of Japanese copper between 1756 and 1846



Graph 21: Consumption figures of the mints of Zhejiang and Jiangsu in comparison to the total consumption of Japanese copper between 1756 and 1846



7.4 Concluding remarks

As a further research result of this chapter the total annual imports of copper from Japan to China between 1740 and 1755 and the minimum annual imports of Japanese copper between 1756 and 1840 could be reconstructed.

This analysis shows that the Sino-Japanese copper trade was of vital importance for Chinese provincial minting, in particular the minting of the coastal provinces of Jiangsu and Zhejiang in the Lower Yangzi region, the economic heart of the Chinese empire.More than half of the imported Japanese copper was consumed by the mints of Jiangsu and Zhejiang after the reform of the Sino-Japanese trade at the beginning of the Qianlong period.

Building on our findings in chapter 4 we reconstructed the annual consumption of Japanese copper by Jiangsu and Zhejiang. This was the second step in our quantitative analysis. In the following concluding chapter we will bring together all the reconstructed data in order to arrive at solid and reliable statements about the organisational capability of Jiangsu and Zhejiang in particular and the Qing state in general.

Table 53: Consumption and transport amounts of Japanese copper of provincial mints

Year	**Zhejiang**	**Jiangsu**	**Jiangxi**		**Shanxi**	**Fujian**
	consumption	consumption	consumption	transport	transport	transport
1740 (QL 5)	222939					
1741 (QL 6)	285659	345599				
1742 (QL 7)	228708	149078				70420
1743 (QL 8)	328424	149078				256500
1744 (QL 9)	280622	385960	33600			
1745 (QL 10)	398900	107170	170400			138477
1746 (QL 11)	318131	184319	273600			109000
1747 (QL 12)	40620	184319				
1748 (QL 13)	77142	107170	218400			99000
1749 (QL 14)	257267	107170	201600		135000	111900
1750 (QL 15)	274130	524382	201600		180000	
1751 (QL 16)	395603	392727	131400		185000	

1752 (QL 17	314505	392727	134400			125184
1753 (QL 18)	395604	460800				151000
1754 (QL 19)	392900	460800	218400			
1755 (QL 20)	371199	691200	201600			
1756 (QL 21)	550548	460799				296585
1757 (QL 22)	442306	460799	201600			
1758 (QL 23)	534065	460799	201600			
1759 (QL 24)	556318	460799				
1760 (QL 25)	361324	210799	201600			
1761 (QL 26)	389822	460799	201600			
1762 (QL 27)	483487	460799	218400			
1763 (QL 28)	425250	460799	115200		127412	171500
1764 (QL 29)	432691	460799			124120	
1765 (QL 30)	258856	460799	193200			
1766 (QL 31)	378544	392597	184800			
1767 (QL 32)	333790	230400	218400		72984	
1768 (QL 33)	289285	230400	50400			
1769 (QL 34)	289285	389802				
1770 (QL 35)	122271			49655		90000
1771 (QL 36)	194073	131657		264973		
1772 (QL 37)	185949	131657		50000	58716	
1773 (QL 38)	289242	131657		163810	17796	
1774 (QL 39)	436072	131657		51489	14586	
1775 (QL 40)	390065	131657		199125		
1776 (QL 41)	443989	131657		52020		
1777 (QL 42)	338065	368640		216192	18685	
1778 (QL 43)	216034	368640		50289		

1779 (QL 44)	228432	368640		216429	17160	
1780 (QL 45)	292054	322560		54046		
1781 (QL 46)	280885	322560		215754		
1782 (QL 47)	164770	322560		51067		
1783 (QL 48)	304192	368640		216562	55683	
1784 (QL 49)	202794	552960			55814	
1785 (QL 50)	164770	368640		368604		
1786 (QL 51	272380	368640		53331		
1787 (QL 52)	262038	368640		164102	54539	
1788 (QL 53)	171437	460800		102777	53789	
1789 (QL 54)	237797	460800			77000	
1790 (QL 55)	222664	322560		266506		
1791 (QL 56)	261285	322560		164819		
1792 (QL 57)	234980			103334		
1793 (QL 58)	226385	322560		164819		
1794 (QL 59)	134274			103265		
1795 (QL 60)						
1796 (JQ 1)	186922	387072				
1797 (JQ 2)	186922	387072				
1798 (JQ 3)	140667	387072				
1799 (JQ 4)	80109	387072				
1800 (JQ 5)	186922	335462		259644		
1801 (JQ 6)	271499	335462				
1802 (JQ 7)	127127	335462				
1803 (JQ 8)	127657	335462				
1804 (JQ 9)	219856	335462				
1805 (JQ 10)	300856	335462				

1806 (JQ 11)	104142	335462				
1807 (JQ 12)	277725	287539				
1808 (JQ 13)	300856	287539				
1809 (JQ 14)	261514	287539				
1810 (JQ 15)	212721	287539				
1811 (JQ 16)	300856	287539				
1812 (JQ 17)	210214	287539		164102		
1813 (JQ 18)	222171	287539				
1814 (JQ 19)	249855	287539		164102		
1815 (JQ 20)	234514	287539				
1816 (JQ 21)	249855	287539				
1817 (JQ 22)	215164	287539		215352		
1818 (JQ 23)	173570	287539				
1819 (JQ 24)	300856					
1820 (JQ 25)	249446					
1821 (DG 1)	173570	287539				
1822 (DG 2)	173570	287539				
1823 (DG 3)	233356	287539		215352		
1824 (DG 4)	233356	63630		186251		
1825 (DG 5)	146571	287539				
1826 (DG 6)	239528	287539		1304		
1827 (DG 7)	257271	82153		149858		
1828 (DG 8)	239528					
1829 (DG 9)	144464					
1830 (DG 10)	144464	287539		81619		
1831 (DG 11)	239528	287539		246534		
1832 (DG 12)	275013	287539		246102		

1833 (DG 13)	186299	378783				
1834 (DG 14)	79842	378783		107771		
1835 (DG 15)	390342					
1836 (DG 16)	178277	378783				
1837 (DG 17)	212914	383385				
1838 (DG 18)	204042	383385				
1839 (DG 19)	133071					
1840 (DG 20)						
1841 (DG 21)	79842					
1842 (DG 22)	212914					
1843 (DG 23)	259112	219075				
1844 (DG 24)	259112					
1845 (DG 25)	212914					
1846 (DG 26)	230656			1477		

Table 54: Consumption and transport amounts of Japanese copper of provincial and metropolitan mints

Year	**Shaanxi**	**Hubei**		**Zhili**		**Metropolitan mints**
	transport	consumption	transport	consumption	transport	transport
1747 (QL 12)			250000		277013	
1748 (QL 13)	300000		121593		271901	
1749 (QL 14)			142800		194899	
1750 (QL 15)			142857		156185	
1751 (QL 16)			141766		200000	
1752 (QL 17	130792		53861		200000	
1753 (QL 18)					100000	
1754 (QL 19)	251272		53331		320161	

1755 (QL 20)						
1756 (QL 21)			53131		390774	
1757 (QL 22)	96304					
1758 (QL 23)			106262		289065	
1759 (QL 24)	104589		52997		300000	
1760 (QL 25)					200000	
1761 (QL 26)					200000	
1762 (QL 27)			53331		100000	
1763 (QL 28)					200000	5124
1764 (QL 29)					200000	
1765 (QL 30)	66676				200000	
1766 (QL 31)			66944		200000	
1767 (QL 32)	64898				250000	
1768 (QL 33)	48175		66501		250000	
1769 (QL 34)	48255				250000	
1770 (QL 35)	50000		50000		250000	40000
1771 (QL 36)	50000		50000		250000	83200
1772 (QL 37)	80379		50000		262500	
1773 (QL 38)	103068		98750		263760	83200
1774 (QL 39)			50927		263224	1988
1775 (QL 40)	51811		51252		262909	
1776 (QL 41)	51618		51569		262526	
1777 (QL 42)	51379		51065		262621	
1778 (QL 43)	51758		50825		262527	52000
1779 (QL 44)	52556		51911		262500	156000
1780 (QL 45)	53644		51658		262500	54146
1781 (QL 46)	50115		50266		262533	52000

1782 (QL 47)	51484		50500		262500	
1783 (QL 48)	51648		50185		250942	
1784 (QL 49)	98089		102400		262500	
1785 (QL 50)	107668		101600		282216	
1786 (QL 51	51250		51380		251705	
1787 (QL 52)	102906		50800		252500	
1788 (QL 53)			50800		252500	
1789 (QL 54)	101906		50800		252500	
1790 (QL 55)			50800		252500	
1791 (QL 56)	104740		59519		252500	
1792 (QL 57)					252500	
1793 (QL 58)	103142		50800		252500	
1794 (QL 59)			50800		252500	
1795 (QL 60)	103137					328134
1796 (JQ 1)		59317		300000		369045
1797 (JQ 2)				300000		
1800 (JQ 5)		81940				
1802 (JQ 7)	47565					
1803 (JQ 8)	161310					
1804 (JQ 9)				285000		
1805 (JQ 10)		40000		142500		
1806 (JQ 11)	80655	40000		142500		
1807 (JQ 12)		40000				
1808 (JQ 13)		40000		285000		
1809 (JQ 14)				285000		
1810 (JQ 15)				270000		
1811 (JQ 16)				270000		

1812 (JQ 17)	26541					
1813 (JQ 18)		40000		270000		
1814 (JQ 19)		140950		270000		
1815 (JQ 20)		40000				
1816 (JQ 21)	79347	40000		270000		
1817 (JQ 22)	81963					
1818 (JQ 23)				270000		
1819 (JQ 24)				270000		
1820 (JQ 25)	47652					
1821 (DG 1)	80655					
1822 (DG 2)				270000		
1823 (DG 3)		40000		270000		
1824 (DG 4)		40000				
1827 (DG 7)	119384					
1828 (DG 8)	80655	40000				
1829 (DG 9)	21773	40000				
1832 (DG 12)						150000
1845 (DG 25)	80655					
1846 (DG 26)						

Chapter 8: Conclusion

Archival sources, namely palace and routine memorials, were of central importance to this study and are therefore subjected to evaluation in the first section of this concluding chapter. Results of the qualitative analysis will be followed by a final quantitative analysis and a concluding evaluation of the organisational capability of the Qing state in the field of monetary mint metal procurement.

8.1 Evaluation of archival sources

It was one of the aims of this study to establish the scope and the value of the archival documents on mint metal transports as historical sources. For this purpose we subjected the archival documents to two separate, yet closely interrelated investigations:

1. The quantitative information provided in the palace memorials, the set of memorials from the various provinces, which were passed through by one and the same mint metal transport, were examined side by side, with paying special attention to any divergencies, showed a high validity and reliability.

According to these archival materials, cases of shipwreck, theft, manipulating of reports and other abuses occurred very rarely during mint metal transports to Jiangsu and Zhejiang. Although no divergencies could be made out in respect to those occurrences they revealed some faint hints about certain intentions and motives of the author. Especially in the case of the manipulated reports of the transport official Zhang Lüguan some questions and problems were left unanswered and unclear. The intentionality of palace memorials as well as other historical sources and the necessity for critical analysis has been aptly demonstrated by Dai Yingcong in her study of the Burma war.[1] In addition, the blatant discrepancy between the minor transport losses by Jiangsu and Zhejiang and the many problems and abuses within the mint metal transport system as described by Tong Hua suggest the existence of some kind of "shadow bureaucracy" that does not come up in the memorials.

2. By contrasting the information on mint metal procurement for Jiangsu and Zhejiang, which is found in historical sources of the traditional type such as, for example, the prescribed transport quotas in the regulations, the specifity of the selected archival documents was assessed. The differences between the regulatory code that described a kind of ideal or norm how the procurement systems should have worked and the actual performance and implementation are in some instances remarkable, in particular in case of the Sino-Japanese trade. Here the striking gaps between the central government's expectations and actual implementation effected by the provincial governments became clearly visible. For an appropriate and meaningful reconstruction archival documents are therefore of crucial and decisive importance. Routine memorials were especially important for this study as they, in contrast to the palace memorials, provide rich quantitative data beyond the Qianlong reign. Without this so far largely negclected source this study would not have been possible. In

[1] Dai 2004.

addition to quantitative data provides also information on regulations and quotas that have not been available so far.

8.2. Concluding qualitative analysis

In this study the normative and administrative framework for mint metal transports to the provincial mints of Jiangsu and Zhejiang, as well as for the Sino-Japanese copper trade could be reconstructed in considerable detail. This regulatory code that contains stipulations on transport routes, time limits, annual quotas and others was especially elaborate for the copper transports out of Yunnan. For this reason these regulations were specifically apt for closer investigations.

Setting out from the analytic framework of Thomas Metzger we ascertained a high presence of the Qing state, namely the Ministry of Revenue in setting up authorative guidelines for the provincial procurement of copper from Yunnan. When provincial minting started in the 40s of the Qianlong reign the Ministry of Revenue could resort to an already established copper administration for metropolitan mint metal transports. But nevertheless throughout the Qianlong reign major and many minor revisions were carried out to adjust the administration to provincial requirements, to keep the administrative system up to date with changing circumstances or in reaction to emerging problems.

In addition, a high grade of uniformity could be discerned concerning regulations for the different copper procuring provinces, in particular Jiangsu and Zhejiang. This goal of the Ministry of Revenue, explicity articulated in the preface to the edited regulatory code, was evidently aptly set into practice.

It appears that the antagonism between the political need for a stable system and the practical need for adjustments, between rigidity and flexibility, was resolved in a successful and suitable way. Very few adjustments were undertaken during the Jiaqing and Daoguang reigns, which would indicate a declining power and withdrawal of central institutions. However, our quantitative analysis shows that the mint metal procurement system kept on working very well into the nineteenth century and possibly rendered further revisions, adjustments and other state interventions unnecessary. On the other hand it might also indicate a continuing flexible and capable handling of monetary metal procurement and transport by provincial governments instead of a withdrawal of the central government and a shifting of the balance of power in favour of these provincial governments. The sudden cessation of detailed reporting on mint metal transports to the throne with the end of the Qianlong reign would also rather support this conclusion.

The case with the copper trade with Japan was different and it revealed the limitation of the Ministry of Revenue in seeing to its narrowly defined normative goals being carried through

when facing market forces that had their own rules and cycles and merchant interests that were rarely consistent with the interests of the Qing state. In any case, the prescribed quotas for the Fan merchants between 1745 and 1755 were not even fulfilled in approximation and had to be reduced over and over again. The liberalized and relatively unrestrained copper trade run by private merchants on the other hand proved to be very effective and productive.

Although the negotiations to work out conditions of cooperation after 1738 had been intricate, these private merchants had managed to articulate and put through their interests against those of the Ministry of Revenue for the copper price was raised to 17.5 *tael* silver and they were allowed to sell half of the import copper on the free market. However, already in 1744 the state's right of pre-emption was enlarged to 60 percent of the imported copper and the free share was even further whittled down to only 20 percent in the course of the following years. The same was true for the official purchase price that was reduced to 15.3 *tael*.

An analysis of the reports on the transports of Japanese copper by the Fan family between 1763 (QL 30) and 1782 (QL 47) shows clearly that the reason for the decline should not be sought in its performance as Fan Qingji had managed the copper procurement duties cabably. Co-optation into the imperial bureaucracy apparently was a very delicate matter with a fragile balance between imperial favours and the paying back of these favours. For the Fan family it did not turn out well in the end.

The study of the Sino-Japanese copper trade widens the prospects for understanding the Qing state's relationship with the "private sector". The investigation into the different forms of cooperation and co-optation shows that the procurement system for Japanese copper, in contrast to the regulatory code for the procurement of copper from Yunnan, underwent considerable changes not only in the eighteenth but also in the nineteenth century. The essential reason for these changes must be seen in the Qing state's strenuous efforts at achieving its goals in the field of monetary metal supply by all means. Although obligations to procure copper from Japan were shuffled to merchants state presence and control was always ensured within the limits foreign trade brought with it and again re-intensified after a short period of liberalisation and privatization in the 1740s.

8.3 Concluding quantitative analysis

The mint metal procurement system of Jiangsu and Zhejiang was subjected to a quantitative analysis, with a focus on state capacities in implementing a closely regulated system. In the first part of this analysis the regulatory code was compared with reports in archival documents that relate the actual performance of individual transports from Yunnan and Hankou to the mints between 1760 and 1795. Although a few of these transports were delayed due to transport problems caused by nature and man, transport losses were kept at insignificant

amounts. This first investigation of the archival reports on transports to the mints of Jiangsu and Zhejiang showed this suprising result which in turns suggests that Jiangsu and Zhejiang handled the major challenge of long-distance transports with outstanding ability and a high organisational capability despite low organisational capacities.

As another result all transports of copper from Yunnan to Jiangsu and Zhejiang could be reconstructed. This was the first steps towards this concluding quantitative analysis.

The attempt to reconstruct the annually transported amounts of copper from Japan to the Jiangsu and Zhejiang mints failed due to a lack of data on transports by the private merchants. However, in a second step the annual consumption of Japanese copper from the Qianlong to the Daoguang reigns by the two mints could be reconstructed. These two sets of data that range from the middle of the eighteenth to the middle of the nineteenth century provide a solid statistical basis for a deeper inquiry into the organisational capacity of Jiangsu and Zhejiang in the procurement of the monetary metal copper.

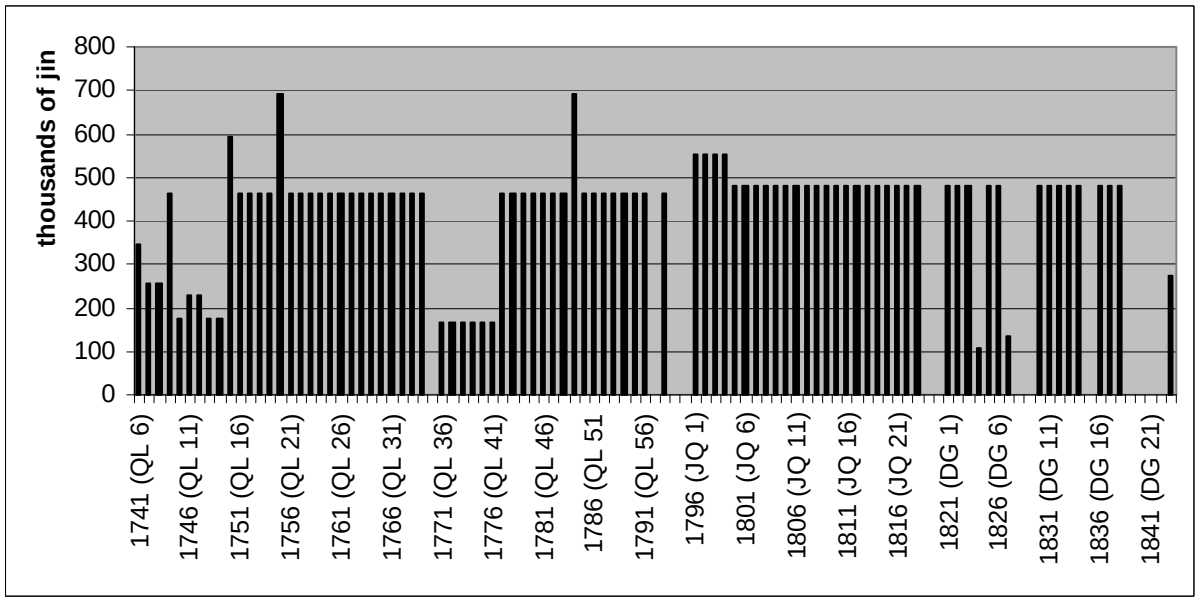
The following section shows the results of the reconstruction of the total annual consumption of copper from Yunnan and Japan by the Jiangsu and Zhejiang mints from the beginning of their provincial minting in the 1740s to the 1840s.

Table 55: Results of the quantitative analysis of the copper consumption of the Jiangsu mint

Period		Total copper consumption/ *jin*	Consumption of copper from Yunnan/ *jin*	Consumption of copper from Japan/ *jin*	Ratio Yunnanese copper/ Japanese copper
Qianlong	1741 (QL 6) to 1795 (QL 60)	20,478,579	3,454,549	17,024,030	17/83
	average per year	372,337	62,809	309,527	
Jiaqing	whole period	11,317,229	3,970,239	7,346,990	35/65
	average per year	452,689	158,809	293,879	
Daoguang	1821 (DG 1) to 1843 (DG 23)	6,746,819	2,178,530	4,568,289	32/68
	average per year	293,339	94,718	198,621	

The annual copper consumption of the Jiangsu mint of around 370,000 *jin* during the Qianlong reign increased during the Jiaqing period to some 450,000 *jin* on average and fell in the Daoquang period to some 290,00 *jin*. If we take the average amount between the annual copper consumption in the Jiaqing and Daoguang reigns of some 373,000 we arrive at a stable annual consumption of the Jiangsu mint from the eighteenth to the nineteenth centuries. Copper from Japan played a decisive role for the mint of Jiangsu especially during the Qianlong period when 83 percent of the annually consumed copper was of that origin. The percentage of Japanese copper did only decrease slightly in the nineteenth centuries when it still amounted to between 65 and 68 percent of the annual consumed copper.

Graph 22: Total annual copper consumption of the Jiangsu mint between 1741 and 1843



In some years the mint of Jiangsu put a stop to minting. This was, however, never due to a shortage in copper as the available amounts in storage show clearly for the end of the Jiaqing and Daoguang reigns. The reason for the temporary cessation in most cases was reportedly due to an oversupply of copper cash. In contrast to the mint of Zhejiang the Jiangsu mint showed a much regularised annual minting which simplified the reconstruction considerably.

Graph 23: Consumed amounts of copper from Yunnan (red line with triangles) and Japan (black line with dots) between 1741 and 1843 of the Zhejiang mint

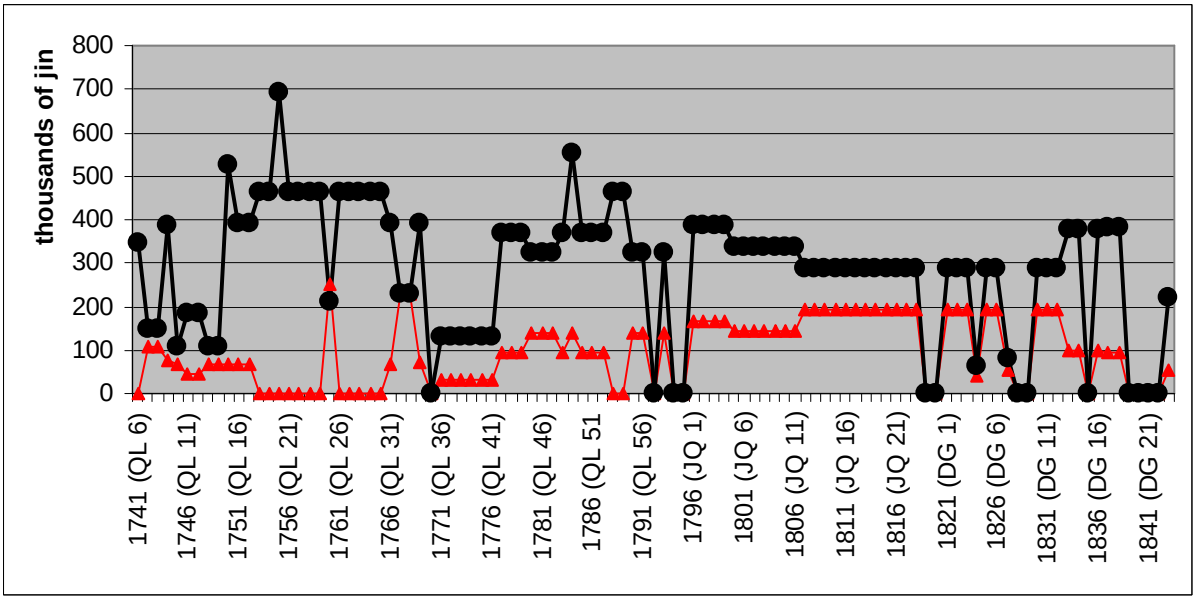


Table 56: Results of the quantitative analysis of the copper consumption of the Zhejiang mint

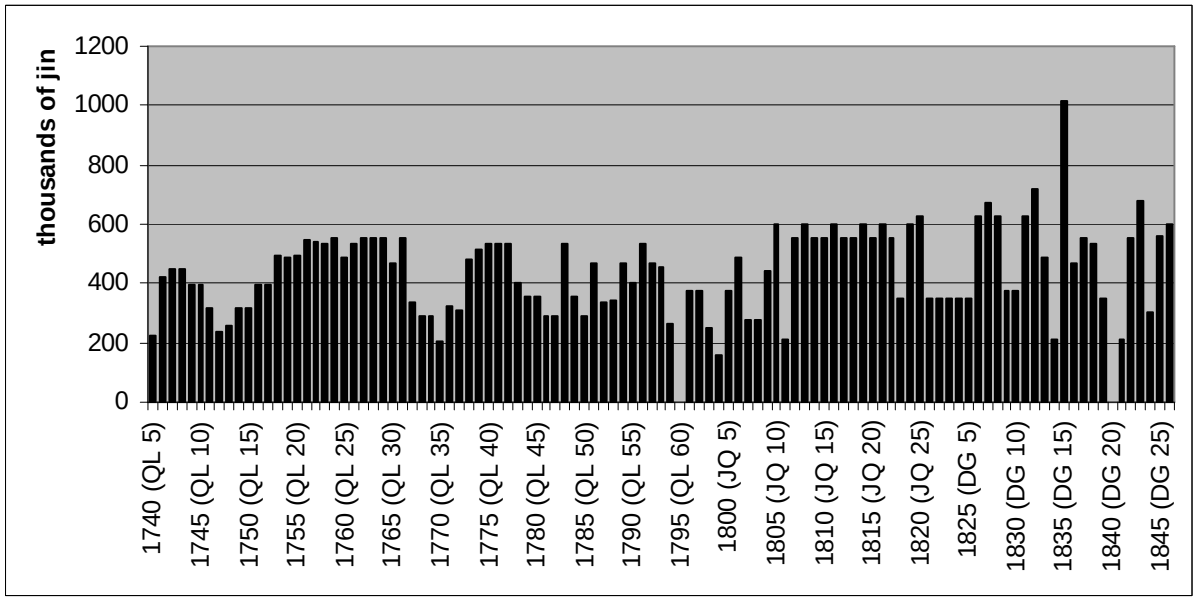
Period		Total copper consumption/ *jin*	Consumption of copper from Yunnan/ *jin*	Consumption of copper from Japan/ *jin*	Ratio Yunnanese copper/ Japanese copper
Qianlong	1741 (QL 6) to 1795 (QL 60)	22,912,357	6,327,536	16,584,821	28/72
	average per year	409,149	112,991	296,157	
Jiaqing	whole period	11,696,120	6,304,124	5,391,996	54/46
	average per year	467,844	252,164	215,679	
Daoguang	1821 (DG 1) to	12,266,845	7,127,289	5,139,556	58/42

	1843 (DG 23)				
	average per year	471,801	274,126	197,675	

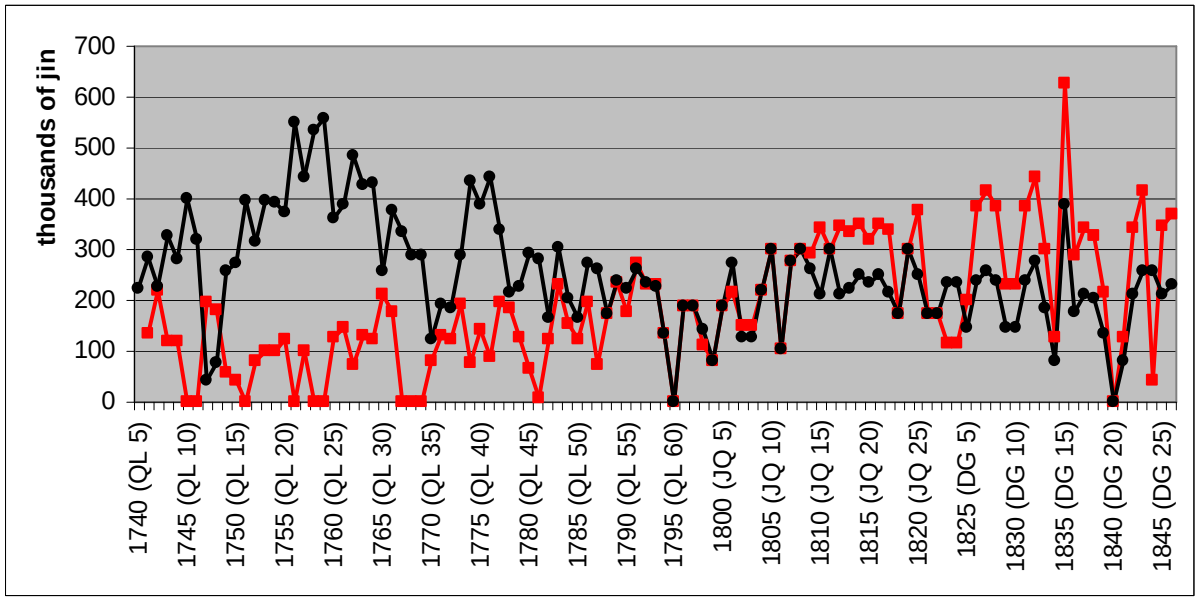
The annual copper consumption of the Zhejiang mint of around 409,000 *jin* during the Qianlong reign increased during the Jiaqing period to some 467,000 *jin* on average and in the Daoquang period even to some 471,00 *jin*. The annual copper consumption of the Zhejiang mint did not decrease in the nineteenth century but increased steadily during the Jiaqing and Daoguang reigns. Copper from Japan played an important role for the mint of Zhejiang during the Qianlong period when 72 percent of the annually consumed copper was of that origin. The percentage of Japanese copper, however, did decrease considerably in the nineteenth century when it only amounted to between 42 and 46 percent of the annual consumed copper.

The coin production of the Zhejiang mint was higher than that of the Jiangsu mint. It was maintained on a high level that even increased during the first half of the nineteenth century. Zhejiang put a stop to minting only in 1795 and 1840. Like in the case of Jiangsu that was not due to a shortage in copper due to an oversupply of copper cash.

Graph 24: Total annual copper consumption of the Zhejiang mint between 1740 and 1846



Graph 25: Consumed amounts of copper from Yunnan (red line with squares) and Japan (black line with dots) between 1740 and 1846 of the Zhejiang mint



Other than anticipated the mints of Jiangsu and Zhejiang managed to procure enough copper to keep its minting on a stable level into the nineteenth century like in the case of Jiangsu or even to increase its production as was the case with Zhejiang. This is even more astonishing in view of the fact that the allocated procurement funds were only slightly increased during the whole period of time and left the provinces with the Herculean task of managing an underfunded and understaffed system efficiently.

This final quantitative analysis again shows the important role that Japanese copper played for the provincial minting of Jiangsu and Zhejiang. They were able to supply their minting with copper from two origins and could thus bridge bottlenecks in Yunnan copper due to delays and other reasons with copper from Japan and vice versa. In this respect these two coastal provinces were certainly more privileged than most of the other copper procuring provinces.

There is no evidence that major crises like the Burma War had a direct influence on the copper procurement of Jiangsu and Zhejiang. It, however, influenced the copper procurement of the metropolitan mints. As a result Jiangsu was ordered to deliver Japanese copper to the mint of the Ministry of Revenue from its storage.

There is strong evidence in the archival documents that hints to the zinc procurement as a major problem in the mint metal procurement system of Jiangsu and Zhejiang but also of the other provinces. According to Jiangsu in 1746 (QL 11) zinc was so expensive that it had to reduce coin production. This was apparently also the case with Zhejiang as is evident from the

graph its annual copper consumption. Because in the nineteenth century Jiangsu used only Yunnan copper from the Jinchai mine which had a high content of lead it needed more zinc than Zhejiang for the same amount of regular copper. When zinc became again expensive at the end of the Daoguang period Jiangsu apparently incurred considerable deficits due to insufficient funding. Although not evident from the routine memorials this circumstance certainly also contributed to reduced coin production at the end of the Daoguang period.

Another major problem in the zinc procurement was bottlenecks in zinc supply from Guizhou to the governmental store at Hankou. According to the transport reports this led to delays and shortage in zinc supply to the mints which had a detrimental effect on the coin production in the 1730s.[2] This is evident from both graphs.

8.4 Final conclusion

On the basis of the qualitative and quantitative data in the archival and other documents we arrive at the conclusion that the mint metal procurement of the provinces of Jiangsu and Zhejiang delivered no evidence for the decline of the Qing administration's organisational capabilities in the course of the eighteenth and nineteenth centuries. It rather indicates that its efficiency and flexibility in the field of monetary policy continued to be in effect into the nineteenth century. The mint metal transport officials were underfunded, understaffed and not trained to perform such organisational tasks. Yet, despite this low organisational capacity and the many problems caused by nature and men these officials managed to keep the transport losses and delays at insignificant rates. In order to guarantee the arrival of the full transport amount within the stipulated time limit, however, they had to contribute substantial amounts of money from their own pockets. In this way the Qing state demonstrated its high efficiency: With a minimum of financial, labor and organizational input it arrived at its stipulated goals in the field of monetary policy. As the transport conditions for the transporting officials rather deteoriorated than improved we argue that the organizational capabilities of the Qing state in the field of monetary policy did not only continue to be in effect into the nineteenth century but potentially increased from 1740 to 1840.

The answer to copper supply problems within the procurement system of Jiangsu and Zhejiang was state **and** merchant. By recruiting merchant capital, manpower and organizational skills to procure copper from Japan the Qing state improved its low organizational capacity and fincancial sustainability. The Manchu showed even more efficiency in handling the copper trade with Japan than managing copper transports from

[2] GZD 42/812 f., QL 43/4/28, Wang Danwang 王亶望.

Yunnan. With an absolute minimum of financial, labour and organizational input it received most of the copper from Japan at about the same price or even cheaper than indigenous copper from Yunnan.

9. References

9.1 Primary Sources

A Residence Among the Chinese: Inland, on the Coast and at Sea: Being a Narrative of Scenes and Adventures during a Third Visit to China from 1853 to 1856. Fortune, Robert. London: J. Murray, 1857. Taipei: Ch'eng Wen, 1971 reprint.

Across Yunnan: A Journey of Surprises, Including an Account of the Remarkable French Railway Line Now Completed to Yunnan-fu. Little, Archibald J. (ed.). London: Sampson Low, Marston & Co., 1910.

Changji jiwen 長崎紀聞 (Recorded Tidings from Nagasaki). Tong Hua 童華, in *Beijing tushuguan guji zhenben congkan* 北京圖書館古籍珍本叢刊 79: 796/801.

Da Qing lichao shilu 大清歷朝實錄 (The Veritable Records of Successive Reigns of the Great Qing Dynasty). Taibei: Huawen shuju, n.d.

Diannan kuangchang tulüe 滇南礦廠圖略 (Illustrated Account of the Mines and Smelters in Yunnan). Wu Qijun 吳其濬 (comp.), illustrations by Xu Jinsheng 徐金生. (n.pl.), 1844. The second chapter also printed under the title Diannan kuangchang yucheng tulüe 滇南礦廠輿程圖略 (An Illustrated Account of the Location and Transportation Routes of the Mines in Yunnan).

Ferdinand von Richthofen's Tagebücher aus China. Richthofen, Ferdinand P., Freiherr von (1833-1905). Ausgewählt und hrsg. von E. Tiessen. 2 Bde. Berlin: Reimer, 1907.

Gongzhong dang Qianlong chao zouzhe 宮中檔乾隆朝奏摺 (Palace Memorials of the Qianlong Reign). Guoli gugong bowuyuan 國立故宮博物院 (Taibei National Palace Museum) (ed.). Taibei, 1982-88. 75 vols.

Gongzhong dang Yongzheng chao zouzhẹ 宮中檔雍正朝奏摺 (Palace Memorials of the Yongcheng Period). Guoli gugong bowuyuan (National Palace Museum) (ed.). Taibei, 1977. 30 vols.

Gongzhong dang zhupi zouzhe, Caizheng lei 宮中檔硃批奏摺財政類 (Palace Memorials with Imperial Vermilion Rescripts, Category Financial Administration). 5 microfilms, reel 60-64. Zhongguo diyi lishi dang'an guan 中国第一历史档案馆 (The Number One Historical Archives of China). Beijing.

Hangzhou fuzhi 杭州府志 (Gazetteer of Hangzhou Prefecture). (n.pl.), 1922.

[*Qianlong*] *Hangzhou fuzhi* 乾隆杭州府志. Shao Jinhan 邵晉涵 et al. (comp.). (N.pl.), 1784.

Huangchao jingshi wenbian 皇朝經世文編 (Collected Essays on Statecraft in the Qing Dynasty). He Changling 賀長齡 (comp.). 1826.

Huangchao zhanggu huibian 皇朝掌故彙編 (Collected Historical Records of the Qing Dynasty). Zhang Shouyong 張壽鏞 (comp.). 1902. Taibei, Wenhai chubanshe, 1964 reprint.

Jiaqing Daoguang liangchao shangyu dang 嘉慶道光兩朝上諭檔 (Archives of the Imperial Edicts of the Jiaqing and Daoguang Reigns). Zhongguo diyi lishi dang'anguan 中國第一歷史檔案館 (First Historical Archives of China) (comp.). Guilin, Guangxi shifan daxue chubanshe, 2000. 55 vols.

Jiangnan tongzhi 江南通志 (Gazetteer of Jiangnan Province). 1737.

Junjichu lufu zhouzhe 軍機處錄副奏摺 (Copies of Palace Memorials in the Grand Council), Categories Huobi 貨幣 (Currency), Yinhang 銀行(Money Exchange), Kuangwu 礦務

(Mining). Microfilms, reels 52-54, 46, 76. Zhongguo diyi lishi dang'an guan 中国第一历史档案馆 (The Number One Historical Archives of China). Beijing.

Mengzi xianzhi 蒙自縣志 (Gazetteer of Mengzi District). 1719.

Ming Qing dang'an 明清檔案 (Ming and Qing Archives). Zhang Weiren 張偉仁 et al. (ed.). Taibei, Zhongyang yanjiuyuan lishi yuyan yanjiusuo, 1986. 98 vols.

Nakagawa Chūei 中川忠英. *Shinzoku kibun* 清俗紀聞 (Records of Qing Customs). 1799, n.p. Reprint Beijing: Zhonghua shuju, 2006.

Neige Huke tiben, Huobi lei 內閣戶科題本。貨幣類 (Routine Memorials of the Grand Secretariat; Category Monetary Matters). 13 reels. Zhongguo diyi lishi dang'an guan 中国第一历史档案馆 (The Number One Historical Archives of China). Beijing.

Qianlong chao shangyu dang 乾隆朝上諭檔 (Archives of the Imprial Edicts of the Qianlong Reign). Zhongguo diyi lishi dang'anguan 中國第一歷史檔案館 (First Historical Archives of China) (comp.). Beijing, Zhongguo dang'an chubanshe, 1991, 1998 reprint. 18 vols.

Qinding Da Qing huidian shili 欽定大清會典事例 (Imperially Endorsed Precedents of the Collected Statutes of the Great Qing Dynasty). Jiaqing edition. 1818.

Qinding Da Qing huidian shili 欽定大清會典事例 (Imperially Endorsed Precedents of the Collected Statutes of the Great Qing Dynasty). Guangxu edition. 1899. Taibei: Zhongwen shuju, 1963 reprint. 24 vols.*Qingchao wenxian tongkao* 清朝文獻通考 (Encyclopedia of the Historical Records of the Qing Dynasty). Compilation ordered in 1767. Repr. Taibei: Xinxing shuju, 1963. Variant edition Hangzhou: Zhejiang guji chubanshe 1988.

Qinding Hubu guzhu zeli 欽定戶部鼓鑄則例 (Imperially Endorsed Regulations and Precedents for Minting of the Ministry of Revenue). Fu Heng 傅恒 et al. (comp.). 1769. Edition *Qingdai zeli* 清代則例 (Regulations and Precedents of the Qing Dynasty). Haikou: Hainan chubanshe, 2000. (*Gugong zhenben congkan*, 287).

Qingchao wenxian tongkao 清朝文獻通考 (Encyclopedia of the Historical Records of the Qing Dynasty). Compilation ordered in 1767. Taibei, Xinxing shuju, 1963 reprint.

Qingchao xu wenxian tongkao 清朝續文獻通考 (Encyclopedia of the Historical Records of the Qing Dynasty, Continued). 1905. Taibei, Xinxing shuju, 1963 reprint.

Qingchao wenxian tongkao 清朝文獻通考 (Encyclopedia of the Historical Records of the Qing Dynasty). Compilation ordered in 1767. Taibei, Xinxing shuju, 1963 reprint. Variant edition Hangzhou, Zhejiang guji chubanshe, 1988.

Qingchao xu wenxian tongkao 清朝續文獻通考 (Encyclopedia of the Historical Records of the Qing Dynasty, sequel). Liu Jinzao 劉錦藻 (ed.) (1915). Hangzhou, Zhejiang guji, 2000.

Suzhou fuzhi 蘇州府志 (Gazetteer of Suzhou prefecture). Guangxu edition. Zhongguo fangzhi congshu 中國方志叢書. Taibei: Chengwen, 1968-.

The Yangtze Valley and beyond: An Account of Journeys in China, chiefly in the Province of Sze Chuan and among the Man-tze of the Somo Territory. Bird (Bishop), Isabella. 1899. London: J. Murray. Reprint Boston: Beacon, 1987.

Three Years Wandering in the Northern Provinces of China, Including a Visit to the Tea, Silk, and Cotton Countries: With an Account of the Agriculture and Horticulture of the Chinese, New Plants, etc. Fortune, Robert. London: Murray, 1847.

Tiangong kaiwu 天工開物 (The Creations of Nature and Man). Song Yingxing 宋應星. Preface 1637. Shanghai, Commercial Press, 1954 reprint.

Tongzheng bianlan 銅政便覽 (A Manual on Copper Administration), 1820s or 1830s, as quoted in *Zhongguo jindai shougongye shi ziliao* 中國近代手工業史資料 (Materials on Modern Chinese Handicraft History), vol. 1, pp. 117-119. Now also available as reprint of Taiwan xuesheng shuju (Student Book Co., Taiwan).

Tongzheng tiaoyi 銅政條議 (Comments on the Copper Administration). Tong Hua 童華, in *Beijing tushuguan guji zhenben congkan* 北京圖書館古籍珍本叢刊 79: 802-806.

Yunnan tongzhi 雲南銅治 (On the Copper of Yunnan). Dai Ruizheng 戴瑞徵 (comp.). Manuscript, (n.pl.), 1819.

9.2 Secondary sources

Antony, Robert J. and Jane Kate Leonard (eds.) (2002). Dragons, Tigers, and Dogs. Qing Crisis Management and the Boundaries of State Power in Late Imperial China. Ithaca: East Asia Program, Cornell University.

Atwell, William S. (1986). “Some Observations on the ‘Seventeenth-Century Crisis’ in China and Japan.” Journal of Asian Studies, 45.2: 223-244.

Audemard, Louis (1957-1965). *Les jonques chinoises*. 10 vols. Rotterdam: Museum voor Land- en Volkenkunde. (Publicaties van het Museum voor Land- en Volkenkunde en het Maritiem Museum 'Prins Hendrik' 5-10).

Brunnert, H.S. and V.V. Hagelstrom (1912). *Present Day Political Organization of China.* Shanghai: Kelly and Walsh. Taibei: Wenxing shudian, 1963 reprint.

Cartier, Carolyn (2002). “Origins and Evolution of a Geographical Idea: The Macro-Region in China.” Modern China 28-1: 79-142.

Cartier, Carolyn (2002). “Origins and Evolution of a Geographical Idea: The Macro-Region in China.” http://acadprojwww.wlu.edu/vol4/BlackmerH/public_html/mypdfs/macroregion.pdf

Ch’en, Jerome (1980). The State Economic Policies of the Ch’ing Government, 1840-1895. New York and London: Garland.

Chan, Wellington K.K. (1977). Merchants, Mandarins and Modern Enterprise in Late Ch'ing China. Cambridge Mass. and London.

Chan, Wellington K.K. (1980). "Government, Merchants and Industry to 1911." The Cambridge History of China: Vol 11 Late Ch'ing, 1800-1911, Part 2 (1980). Cambridge et al., 416-462.

Dai, Yingcong (2004). " A Disguised Defeat: The Myanmar Campaign of the Qing Dynasty." *Modern Asian Studies*, 38.1: 145-189.

Davies, H. R. (1909). *Yün-nan: The Link Between India and the Yangtze*. Cambridge: University Press

Dodgen, Randall A. (2001). Controlling the Dragon. Confucian Engineers and the Yellow River in Late Imperial China. Honolulu: University of Hawai'i Press.

Du Jiaji 杜家骥 (1999), "Qing zhongqi yiqian de zhuqianliang wenti – jianxi suowei qingdai 'qianhuang' xianxiang" 清中期以前的铸钱量问题——兼析所谓清代'钱荒'现象 (The Problem of the Quantity of Cash Production before the Mid-Qing, with an Analysis of the Phenomenon of the So-called 'Copper Famine' during the Qing Dynasty), *Shixue jikan* 史学集刊 (Historical Periodical), 1: 27-31.

Dunstan, Helen (1992). "Safely Supping with the Devil: The Qing State and its Merchant Suppliers of Copper." *Late Imperial China*, 13.2: 42-81.

Dunstan, Helen (1996b). Conflicting Counsels to Confuse the Age: A Documentary Study of Political Economy in Qing China (1644-1840). Ann Arbor: Center for Chinese Studies, Univ. of Michigan.

Edkins, Joseph (1903). *The Revenue and Taxation of the Chinese Empire*. Shanghai: Presbyterian Mission Press.

Edwards, Louise P. (1994). Men and Women in Qing China: Gender in The Dream of the Red Chamber. Leiden: Brill.

Elvin, Mark (1972). "The High-Level Equilibrium Trap: The Causes of the Decline of Invention in the Traditional Chinese Textile Industries," in W.E. Willmott (ed.) (1972).

Elvin, Mark (1973). *The Pattern of the Chinese Past*. Stanford: Stanford University Press.

Fairbank, John King (1970). *Ch'ing Documents: An Introductory Syllabus*. 3rd. ed., rev. and enl. Cambridge (Mass.), Harvard University Press.

Fairbank, John King and Teng Ssu-yü (1960). *Ch'ing Administration: Three Studies*. Cambridge (Mass.), Harvard University Press.

Feng Zuozhe 冯佐哲 (2001). "Zhapugang yu Qingdai ZhongRi maoyi he wenhua jiaoliu" 乍浦港与清代中日贸易和文化交流 (The port of Zhapu and the trade and cultural exchange between China and Japan during the Qing period), *Ming Qing luncong* 明清论丛 (Studies on Ming and Qing History), 2: 245 – 263.

Fu Yiling 傅衣凌 (1980). "Qingdai qianqi dongnan yangtongshang" 清代前期东南洋铜商 (Japanese Copper Merchants in South-East China during the Early Qing Period), in his *Ming Qing shidai shangren ji shangye ziben* 明清时代商人及商业资本 (Merchants and Merchant Capital in the Ming and Qing Periods), pp. 176-97. Beijing.

Hall, John (1949). "Notes on the Early Ch'ing Copper Trade with Japan." *Harvard Journal of Asiatic Studies*, 12: 444-461.

Hirzel, Thomas (2003). "Korruption im China des 18. Jahrhunderts: Der Fall des Yunnan Finanzkommissars Qian Du." MA thesis, University of Tübingen.

Ho Ping-ti (1962). *The Ladder of Success in Imperial China*. New York: Columbia UP.

Hucker, Charles O. (1985). *A Dictionary of Official Titles in Imperial China*. Stanford: Standford University Press.

Innes, Robert LeRoy (1980). The *Door Ajar: Japan´s foreign trade in the seventeenth century*. Volume I & II. Dissertation, University of Michigan.

Ishii Yoneo (1998). *The Junk Trade from Southeast Asia. Translations from the Tosen Fusetsu-gaki, 1674-1723*. Singapore: Seng Lee Press.

Jansen, Marius (1992). *China in the Tokugawa World*. Cambridge: Harvard University Press.

John Lee (1999)."Trade and Economy in Preindustrial East Asia, c. 1500-c. 1800: East Asia in the Age of Global Integration." Journal of Asian Studies 58: 2-26.

Kabagema, Jana (2004). “Münzmetalltransporte zu den Provinzmünzstätten in der Qianlong-Periode. (1736–1795). Die Transporte nach Jiangsu zur Münzstätte Baosuju in Suzhou.” MA thesis, University of Tübingen.

King, Frank H. H. (1965). *Money and Monetary Policy in China 1845-1895*. Cambridge (Mass.): Harvard University Press.

Kreutzer, Peter (1998). *Staat und Wirtschaft in China: die kulturelle Grundlage politischer Steuerung: Verwaltungskultur und Verwaltungsstil der Qing-Administration*. Frankfurt am Main et al..

Kwan, Man Bun (2001). *The Salt Merchants of Tianjin: State Making and Civil Society in Late Imperial China*. Honolulu: University of Hawaii Press.

Leonard, Jane Kate (1996). *Controlling from Afar: The Daoguang Emperor’s Management of the Grand Canal Crisis, 1824-1826*. Ann Arbor: Center for Chinese Studies, Univ. of Michigan.

Leonard, Jane Kate (ed.) (1992). *To Achieve Security and Wealth: The Qing Imperial State and the Economy, 1644-1911*. Ithaca: East Asia Program, Cornell University.

Leonhardi, Dorothea (2002). “Tongyan huyi: Der Salz-Kupfer-Austausch zwischen Guangdong und Yunnan. Münzmetalltransporte zu den Provinzmünzstätten während der Qianlong-Periode.” MA thesis, University of Tübingen.

Liu Xufeng 劉序楓 (1986). 清日貿易の洋銅商について: 乾隆～咸豐期の官商・民商を中心に. (The copper merchants of the Sino-Japanese trade: State and private merchants from the Qianlong to the Xuanfeng reigns) 九州大學東洋史論集，15: 107-152.

Liu Xufeng 劉序楓 (1999a)."Qing Kangxi-Qianlong jiannian yangtong de jinkou yu liutong wenti" 清康熙-乾隆年間洋銅的進口與流通問題 ([The Problem of] Import and Circulation of Japanese Copper from the Kangxi to the Qianlong reigns of the Qing Dynasty). In: *Zhongguo haiyang fazhanshi lunwenji* 中國海洋發展史論文集 (Essays in Chinese Martime History). Taibei: 中央研究院中山人文社會科學研究所 Vol. 7/ Part I, pp. 93–144.

Liu Xufeng 劉序楓 (1999b). "Caishui yu maoyi: Riben (sakoku) qiqian ZhongRi shangpin jiaoyi zhi zhankai" 財稅與貿易: 日本 (鎖國) 期間中日商品交易之展開 (Trade and Customs Duties: The Expansion of the Sino-Japanese Trade in Commodities during the Period of Japanese National Seclusion. In: 中央研究院近代史研究所社會經濟史組編 (ed.), *Caizheng yu jindai lishi: lunwen ji* 財政與近代歷史: 論文集 (Financial Administration and Modern History: A Collection of Articles). Taibei: **中央研究院近代史研究所**, pp. 275–318.

Lufrano, Richard (2002). "Maintaining the Equilibrium: Balancing the Interests of Commerce and Local Government." In Antony, Robert J. and Jane Kate Leonard (eds.), *Dragons, Tigers, and Dogs. Qing Crisis Management and the Boundaries of State Power in Late Imperial China*, pp. 79-101.

Lufrano, Richard John (1997). *Honorable Merchants: Commerce and Self-cultivation in Late Imperial China*. Honolulu: Univ. of Hawai Press.

Mann Jones, Susan (1987). *Local Merchants and the Chinese Bureaucracy, 1750-1950*. Stanford et al..

Matsuura Akira 松浦章 (1979). 長崎貿易における在唐荷主について: 乾隆~ 咸豐期の日清貿易の官商・民商 (A Study on the Chinese Consignors of the Nagasaki trade:

The State and Private Merchants Active in the Sino-Japanese Trade from the Qianlong to the Xianfeng Reigns). *Shakai keizai shigaku* (The Journal of Socio-Economic History) 45(1): 77-95.

Matsuura Akira 松浦章 (2002). *Shindai kaigai bōekishi no kenkyū* 清代海外貿易史の研究 (Research on the History of Foreign Trade in the Qing Era). Kyoto: Hōyū Shoten.

Matsuura Akira 松浦章 (2007). *Edo jidai Tōsen ni yoru Ni-Chū bunka kōryū* 江戸時代唐船による日中文化交流 (Sino-Japanese Cultural Exchange via Chinese Junks in the Edo Period). Kyoto: Shibunkaku Shuppan.

Matsuura Akira 松浦章 (2010). "Sino-Japanese Interaction via Chinese Junks in the Edo Period." *Journal of Cultural Interaction in East Asia*, vol.1: 57-70.

Metzger, Thomas (1966). "Ch'ing Commercial Policy." *Ch'ing-shih wen-t'i*, 1.3: 4-10.

Metzger, Thomas (1970). "The State and Commerce in Imperial China." *Asian and African Studies*, 6: 23-46.

Metzger, Thomas (1972). "The Organizational Capabilities of the Ch'ing State in the Field of Commerce: The Liang-huai Salt Monopoly, 1740-1840." In W.E. Willmott (ed.), *Economic Organization in Chinese Society*, pp. 9-45.

Metzger, Thomas (1973). *The Internal Organization of Ch'ing Bureaucracy. Legal, Normative, and Communication Aspects*. Cambridge: Harvard Univ. Press.

Nagase-Reimer, Keiko (2009). The Copper Trade between China and Japan in the First Half of the Eighteenth Century: The "Irrational" Price Structure of the Copper Trade. Paper presented at the AAS conference in Chicago, March 26–29, 2009.

Naquin, Susan, and Evelyn Rawski (1987). *Chinese Society in the Eighteenth Century*. New Haven: Yale University Press.

Ôba Osamu (1995). "Sino-Japanese Relations in the Edo Period (Part One: Forgotten Sino-Japanese Contacts)". *Sino-Japanese Studies*, Vol.8, No.1: 40–52. Transl. by J. A. Fogel.

Ôba Osamu (1996). "Sino-Japanese Relations in the Edo Period (Part Two: The Nagasaki Trade Was the Chinese Trade)". *Sino-Japanese Studies*, Vol.8, No.2: 50–61. Transl. by J. A. Fogel.

Ôba Osamu (1996). "Sino-Japanese Relations in the Edo Period (Part Four: The Inspectorate of Books)". *Sino-Japanese Studies*, Vol.9, No.2: 3–12. Transl. by J. A. Fogel.

Ôba Osamu (1997). "Sino-Japanese Relations in the Edo Period (Part Five: Arai Hakuseki, the New Shôtoku Laws, and the Ming Legal Codes)". *Sino-Japanese Studies*, Vol.10, No.1: 33–53. Transl. by J. A. Fogel.

Ôba Osamu (1998a). "Sino-Japanese Relations in the Edo Period (Part Six: A Profileof the Unruly Shôgun Yoshimune)". *Sino-Japanese Studies*, Vol.10, No.2: 43–59. Transl. by J. A. Fogel.

Ôba Osamu (1998b). "Sino-Japanese Relations in the Edo Period (Part Seven: The Voyages of Mr. Shen Xie'an)". *Sino-Japanese Studies*, Vol.11, No.1: 21–38. Transl. by J. A. Fogel.

Ôba Osamu (1999). "Sino-Japanese Relations in the Edo Period (Part Eight: The Travel of the Elephants)". *Sino-Japanese Studies*, Vol.11, No.2: 50–68. Transl. by J. A. Fogel.

Ôba Osamu (2000a). "Sino-Japanese Relations in the Edo Period (Part Ten: On the Matter of Vessels Sailing to Japan)". *Sino-Japanese Studies*, Vol.12, No.2: 51-64. Transl. by J. A. Fogel.

Ôba Osamu (2000b). "Sino-Japanese Relations in the Edo Period. Part Eleven. Shipmasters and Crewmen". *Sino-Japanese Studies*, Vol.13, No.1: 34-46.

Peng Xinwei 彭信威 (1954, 1958, 1965). *Zhongguo huobi shi* 中國貨幣史 (A Monetary History of China). Shanghai: Shanghai renmin chubanshe. Translated by Edward H. Kaplan (1994). A Monetary History of China. Bellingham, WA: Western Washington University Press.

Pomeranz, Kenneth (2000). *The Great Divergence: China, Europe and the Making of the Modern World Economy*. New Jersey: Princeton University Press.

Rawski, Thomas G. and Lillian M. Li (eds.) (1992). *Chinese History in Economic Perspective*. Berkeley and Los Angeles: Univ. of California Press.

Reiser, Andreas (1996). "Der Transport von Kupfer, Zink, Zinn und Blei zu den Münzereien Pekings in der Qianlong-Periode (1736-1795)." MA thesis, University of Tübingen.

Rowe, William T. (1984). *Hankow. Commerce and Society in a Chinese City, 1796-1889*. Stanford: Stanford University Press.

Rowe, William T. (1993). "State and Market in Mid-Qing Economic Thought: The Career of Chen Hongmou." *Etudes chinoises* 12.1: 7-40.

Rowe, William T. (1997). "Economics and Culture in Eighteenth-Century China." In Kenneth Lieberthal et al. (eds.), *Constructing China: The Interaction of Culture and Economics*, pp. 7-23.

Rowe, William T. (2001). *Saving the World. Chen Hongmou and Elite Consciousness in Eighteenth-Century China*. Stanford: Stanford University Press.

Shimada Ryûto (2003a). "Japanese Copper in Eighteenth-Century Asia", *Proceedings*, The 6th International Mining History Congress, September 26-29, 2003, Akabira City, Hokkaido, Japan, http//:www.e-convention.org/imhc/paper.html: 126-133.

Shimada Ryûto (2003b). "Dancing around the Bride: The Interasian Competition for Japanese Copper". In: *Itinerario: European Journal of Overseas History*, Vol. 27, No.2: 37-60.

Shimada Ryûto (2006). *The Intra-Asian Trade in Japanese Copper by the Dutch East India Company during the Eighteenth Century*. Leiden: Brill.

Schön, Michael (1996). "Der Versuch der Schiffbarmachung des Goldsandflusses, Yunnan 1740-1749." MA thesis, University of Heidelberg. Shulman, Anna (1989). "Copper, Copper Cash, and Government Controls in Ch'ing China (1644-1795)." Ph.D. Diss., University of Maryland, College Park.

Schottenhammer, Angela (ed.) (2008). *The East Asian Mediterranean – Crossroads of Knowledge, Commerce, and Human Migration*. East Asian Maritime History, vol.6. Wiesbaden: Otto Harrassowitz 2008.

Skinner, William G. (ed.) (1977). *The City in Late Imperial China*. Stanford: Stanford University Press.

Sun, E-tu Zen (1961). *Ch'ing Administrative Terms*. Cambridge (Mass.): Harvard University Press.

Sun, E-tu Zen (1971). "The Transportation of Yunnan Copper to Peking in the Ch'ing Period." *Journal of Oriental Studies*, 9: 132-148.

Sun, E-tu Zen (1981). *Selected essays in Chinese economic history*. Taibei: Student Book.

Sun, E-tu Zen (1992). "The Finance Ministry (hubu) and its Relation to the Private Economy." In Jane Kate Leonard (ed.), *To Achieve Security and Wealth: The Qing Imperial State and the Economy, 1644-1911*, pp. 9-20.

Torbert, Preston M. (1977). *The Ch'ing Imperial Household Department: A Study of its Organization and Principal Functions, 1662-1796*. Cambridge (Mass.): Harvard Univ. Press.

Vogel, Hans Ulrich (1987). "Chinese Central Monetary Policy, 1644-1800." *Late Imperial China*, 8.2: 1-52.

Vogel, Hans Ulrich (1989a). "Chinese Central Monetary Policy and the Yunnan Copper Mining Industry in the Early Qing (1644-1800)." Ph. D. Dissertation, University of Zürich, 1983. Revised version of 1989.

von Glahn, Richard (1996). *Fountain of Fortune: Money and Monetary Policy in China, 1000-1700*. Berkeley: University of California Press.

Wei Qingyuan 韦庆远 and Wu Qiyan 吴奇衍 (1981). "Qingdai zhuming huangshang Fanshi de xingshuai" 清代著名皇商范氏的兴衰 (The Rise and Fall of Fan: a Famous Qing Imperial Merchant Family). *Lishi yanjiu* 3: 127-144.

Will, Pierre-Etienne (1980). *Bureaucratie et famine en Chine au 18e siècle*. Paris: École des Hautes Etudes en Sciences Sociales. Translated by Elborg Forster as Bureaucracy and Famine in Eighteenth-Century China (Stanford: Stanford University Press, 1990).

Will, Pierre-Etienne et al. (1991). *Nourish the People: The State Civilian Granary System in China, 1650-1850*. Ann Arbor: Center for Chinese Studies.

Willmott, W. E. (ed.) (1972). *Economic Organization in Chinese Society*. Stanford: Stanford University Press.

Zhang Yonghai 張永海 (1986). "Qingdai jingtong jingqian churu Chuanjiang luxian yu zhuanyun zuzhi zhidu" 清代京銅京鉛出入川江路綫與轉運組織制度 (Transport Organisation System and the Transport of the Peking Mints' Copper and Zinc on the Yangtzekiang in Sichuan), in Sichuansheng Zhongguo jingjishi xuehui 四川省中國經濟史學會 (Institute of Chinese Economic History of Sichuan Province), ed., *Zhongguo jingjishi yanjiu luncong* 中國經濟研究論叢 (Collected Articles on Research on Chinese Economic History), pp. 203-212.

Zhang Yonghai 張永海 and Liu Jun 刘君 (1988). "Qingdai Chuanjiang tongqian yunshu jianlun" 清代川江铜铅运输简论 (About the Copper and Zinc Transport on the Yangtzekiang in Sichuan during the Qing Period), *Lishi dang'an* 1:87-91.