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Translating Statistics into 20th Century China: A Glimpse on Early Institutions and Manuals

ANDREA BRÉARD *

Résumé

L'introduction des statistiques à la fin de la période impériale en Chine a eu lieu dans un contexte de réformes administratives, inspirées du modèle politique japonais, après la défaite de la première guerre sino-japonaise. Ces réformes ont fourni un terrain pour l'implantation de nouvelles institutions statistiques dans le gouvernement central et dans les provinces, et pour l'introduction des statistiques dans les établissements d'enseignement supérieur. La première génération de statisticiens – administrateurs, traducteurs et enseignants – fut principalement formée dans les écoles de droit et sciences politique au Japon, où ils s'aliénaient de plus en plus des politiques conservateurs du gouvernement des Qing.

Abstract

The introduction of statistics in late Imperial China took place in the context of administrative and educational reforms, which followed mainly Meiji Japan's political model after the Chinese defeat in the first Sino Japanese War. Constitutional and educational reform provided a territory to implant statistical institutions in the capital and the provinces and to introduce statistical education in the curriculum of newly created modern style schools. The first generation of 'statisticians' – administrators, translators and teachers – were mostly trained in schools for law and politics in Japan, where they became increasingly alienated with China's traditional past.

*Université des Sciences et Technologies de Lille, U.F.R de Mathématiques, Laboratoire Paul Painlevé, 59655 Villeneuve d'Ascq Cédex, France.

Part I: REFORM AS CONTEXT

1 Introduction

Migrations of knowledge are evident in instances of translation, an activity conceived broadly as involving not only the linguistic process of rendering an expression in one language into another but also the transfer of organizational and administrative practices and the transmission of institutional models. Such breadth of definition to the concept of translation is appropriate and useful in an examination of the historical process of modernization in late imperial China. Following the opening of China to the outside world after the First Opium War (1839-1842), the Self-Strengthening Movement (1860-1894) focused on the introduction of “Western Learning” through translation of modern scientific treatises and on the transfer of military and naval technologies into China. With China’s defeat in the Sino-Japanese War (1894-1895), influential Chinese reformers recognized the inadequacies of this movement and the significance of political institutions and social theories that had fostered Western and Japanese advances. The Chinese government, employing administrative, political and educational reforms, subsequently worked to transform the Emperor’s subjects into a constitutional monarch’s citizens following the Japanese model.¹ Among many programs aimed at state-building, a central statistical bureau was established for the first time in 1907, following reports sent back from Japan by consitutional commissioners who investigated Japan’s statistical institutions.²

In Japan itself, Dutch influence had played a significant role in early modernization. Translations of statistical knowledge began during the Dutch Learning (*Rangaku* 蘭學) movement, when two teachers from the Institute for the Examination of Barbarian Books (*Bansho Shirabesho* 蕃書調所, 1856-1862) and Tsuda Mamichi 津田真道 (1829-1903), along with Nishi Amane 西周 (1829-1897), went to Leiden University in 1863 to study law and *Staatswetenschappen* (“sciences of the state”) under Simon Vissering (1818-1888). Mamichi’s manuscripts show his translation work in progress, as he struggles to find appropriate new terms. For *Statistiek*, different terms were proposed, crossed out, or amended with *seihyō* 政表 (lit. political tables),³ which was ultimately the expression retained to identify the first central Japanese statistical institution (*Seihyō ka* 政表課) created in 1871.

¹See [Reynolds 1993].

²See their report in [Anonymous], presumably published in 1904/1905.

³In his manuscript, Nishi discards the expression 政誌學 (lit. the science of political annals) and suggests others, like 政表 (lit. political tables) or 計誌學 (lit. the science of accounts and registers). See [Nishi 1945] vol. 1, p. 480.

In Japanese, when Nishi Amane first wrote on statistics in the 1860's, there was no word yet for this new field of knowledge.

The Chinese historical situation briefly described above presents an opportunity to examine what happens in the realm of education when administrative practice is decidedly ahead of social and mathematical theory. China, since antiquity, had its own tradition of recording and reporting to the throne population numbers, land measurements, astronomical and meteorological observations, grain harvests, commodity prices, and jurisprudential data. And yet, the introduction of statistical knowledge and institutions from Japan, Europe and America, through translations by overseas students and reports written by Constitutional Commissioners, marked a turning point in the Chinese government's treatment and use of statistical information.

This article will approach the modernization of statistics in China as a case study in complex modes of translation, instigated by political and social change and involving both the adoption of foreign institutional models and the emergence of new areas of knowledge in the curriculum of higher education institutions. Of particular interest is the legitimating strategy of appealing to the authority of a native past. Official and unofficial discourse during the reforms at the end of the Qing dynasty abounds in justifications of the new by referencing the old. In a memorial of March 11, 1909 for example, the Commission to Draw up Regulations for Constitutional Government (*Xianzheng biancha guan* 憲政編查館) proposes general rules for designing statistical tables:⁴

In ancient times there was no such expression as 'statistics', but there were statistical methods. The Yu Gong of the Zhou dynasty officials is the oldest tradition.⁵ Zhang Cang from Han Dynasty presided over the compilation of registers in the prefectures and principalities. . . . Now, taking statistics and combining them with investigation, is certainly not entirely inherited from Western culture. It is also an extension of ancient methods.

Similar claims regarding the Chinese origins of Western methods—"China discovered, and the men of the West appropriated it"⁶—are well documented from

⁴Translated by the author following the text in [Xuantong] n° 2 (1910), p. 2a: *Xianzheng bianchaguan you zou ding tongji biao shi zongli* 憲政編查館又奏定統計表式總例 (The Commission for Constitutional Government further memorializes to fix general rules for the design of statistical tables), article (*tiao* 條) 1.

⁵The "Yu Gong" 禹貢 chapter (ca. 5th-4th centuries B.C., probably even as late as the 3rd century B.C.) of the BOOK OF DOCUMENTS (*Shang shu* 尚書) is the most authoritative ancient Chinese terrestrial description.

⁶*Memorial of the Yamen of Foreign Affairs, in continuation of one earlier presented, submit-*

the first introduction of Western science in China by Jesuit missionaries during the early 17th century. But the modernization of Chinese politics at the end of the imperial era, oriented towards the Japanese model, was a more revolutionary confrontation with foreign thought and institutions. Translators during the late imperial era were not merely agents of emerging new fields of inquiry and of a series of linguistic innovations, they also found themselves confronting their own cultural past and their translations became an inspiration to rediscover and reinterpret the ancient tradition. Terminological choices made by translators of scientific texts at this time—fluctuating between transliteration and the borrowing of loan-words from Japanese or from the classical Chinese nomenclature—reveal an urgent desire to strike a balance between authentic tradition and foreign modernity during this period of rapid transition.

Scientific and institutional translation has been dismissed as an activity of relatively little cultural importance.⁷ Suggesting instead that translation was central to the emergence of a new statistical culture, my paper will sketch out the beginnings of statistical administration and education in the context of reforms during the last years of the Qing (1644-1911) dynasty. I will focus in the following on the institutional framework that provided a territory for the implantation of statistical agencies and actors in the administrative and educational realm.

2 Educational Reform

Education reform and the abolishment of the traditional state examination system⁸ related to general change in early 20th century China. Changes in education were only one part of a broad program promoted by a group of reformers in Chinese society particularly after China's defeat in the first Sino-Japanese War.

In 1898 Zhang Zhidong 張之洞 (1837—1909), then Governor General of Hunan Province, wrote EXHORTATION TO STUDY (*Quanxue pian* 勸學篇), one of the most influential essays of reformist literature in late Qing China. Zhang presented this treatise to the throne during the midst of the One Hundred Days Reform, and the Emperor Guangxu was so pleased that he ordered it to be distributed throughout the empire. Zhang's basic philosophy was summed up in the famous slogan 'Chi-

ting further reasons for the education of Chinese in foreign science and languages, and proposing rules for the selection and encouragement of students. Received 29th Jan. 1867 (12th moon of the 5th year Tongzhi reign).

⁷[Newmark 1988] p. 151.

⁸The civil service examinations consisted of compositions of essays on topics selected from the Confucian *Four Books* and the *Five Classics*, and policy questions on mainly philological issues. See [Miyazaki 1981] and for many more details [Elman 2001].

nese learning for the essential principles (*ti* 體); Western learning for the practical applications (*yong* 用)'. He advocated the adoption of Western-style industries and modification of the traditional educational and examination system, but he vehemently opposed the adoption of Western democratic institutions or concepts of social egalitarianism that would not allow the survival and strengthening of the Chinese tradition.⁹

The main targets of China's education reform were overseas studies and higher education in replacement of the civil-service examination system. The introduction of statistics in the curricula of New Schools for Law and Politics (*Fa zheng xuetang* 法政學堂), eventually taught and practiced by Chinese officials after they had returned from their studies in Japan, was one of the by-products of educational reform. I will discuss in more detail the problems relating to statistical education during the late Qing in [section 5](#).

3 Constitutional Reform

As mentioned above, education reform was just part of a broader reform movement in late Qing China that called for institutional changes. The transformation of state institutions though, could only be envisaged if the political power was left intact. Reform minded officials, like Huang Zunxian 黃尊憲 (1848-1905) dreamed of seeing the establishment of a constitutional monarchy in China following Meiji Japan's example.¹⁰ Huang was appointed Counselor to the Imperial Chinese Legation in Tokyo in 1877. During his stay in Japan until 1882 he composed POEMS ON MISCELLANEOUS SUBJECTS FROM JAPAN (*Riben zashi shi* 日本雜事詩, 1879) and TREATISES ON JAPAN (*Riben guozhi* 日本國志, published 1898), of which the Emperor Guangxu subsequently requested copies for Huang's progressive attitudes and eye-witness accounts of Japanese modernization.¹¹ Both, a poem on statistical tables and a short account of the Japanese Statistical Bureau (*Dajokan Tokeiin* 大政官統計院) are included.¹² Huang stated that statistical tables revealed the power of the nation (*guoshi* 國勢) and extensively cited statistical tables in the TREATISES. The poem parallels statistical annals which Huang had seen in Japan

⁹[Bays 1978].

¹⁰[Kamachi 1981].

¹¹Huang joined Zhang Zhidong in 1895, and served in Zhang's Office of Foreign Affairs (*Yangwuju* 洋務局) as officer in charge of cases concerning missionaries and other foreigners.

¹²Both reprinted in [Huang 1985] p. 639-40. The editor's commentaries gleaned from Huang's *Riben guozhi* expand upon Huang's poems and his original commentaries and are thus more explicit about the Jesuits and the *Yu Gong*. I am particularly grateful to Iwo Amelung for pointing this reference out to me.

with the work of Ancient China's annalists, implying that the beginnings of modern statistical tables can be found as early as in the compilations of the first official dynastic histories:

On Statistical Tables

Grasping the essential point of a matter, calculations do not vary.

Collecting the bits and pieces, how the quantities compare !

Horizontal writing of occidental languages equals the methods of the Zhou.

Who would have thought that the regularization of register books is based upon [ancient China's] historiographers ?¹³

Huang Zunxian's official career ended with the crushing of the 1898 reform movement which he had joined enthusiastically, but his writings might have had an influence beyond the Hundred Days Reform. Book registers in the Beijing archives show that Huang's TREATISES ON JAPAN have circulated within the central government agencies in Beijing concerned with constitutional reform.¹⁴ When in 1907, constitutional commissioners suggested the creation of a first central Statistical Bureau within the Commission to Draw up Regulations for Constitutional Government (*Xianzheng biancha guan* 憲政編查館)¹⁵, we do find similar allusions to the most ancient Chinese administrative traditions of compiling numerical data. Referencing the old in a proposal to reform allowed to justify the adoption of a Western institution and underlined its compatibility with Chinese traditional administrative practices.¹⁶ The Emperor indeed had no objection to the commissioners' suggestions and endorsed the memorial with a simple 'Let it be done as recommended' (*ru suo yi xing* 如所議行).

¹³The editor points out that the version in the first edition of the poems is different for the last four sentences:

Horizontal writing of occidental languages equals the record books of the Zhou.

Who would have thought that the origin of their excellent methods is based upon [ancient China's] historiographers ?

¹⁴See the REGISTER BOOK OF WRITTEN MATERIAL (*Shuji ce* 書籍冊), XT 2/2 (March 1911). Beijing N° 1 Historical Archives, *Xianzheng choubeichu* 憲政籌備處 *zaji* 雜記 174.

¹⁵Even if traditionally translated as 'Constitutional Commission', a vast amount of work of this commission concerned larger questions of public administration. Official Chinese documents referred to the commissioners with the expression 'commissioners sent to divers countries to investigate their governments' (*chu shi geguo kaocha zhengzhi dachen* 出使各國考察政治大臣). See [Horowitz 2003].

¹⁶For a detailed discussion of early Chinese administrative statistics, see [Bréard 2006b].

Part II: INSTITUTIONS

4 Statistical Administration

This first institutionalization of the compilation of statistics at the turn of the 20th century in China illustrates a shift in the doctrine of the Self-Strengthening Movement from theoretical science and technology to the institutional changes required for effective Chinese government organization. Statistical institutions, practices and theories, with their close relation to politics, society, economy and mathematical theory, received particular focus during the modernization processes of the constitutional reform period (1898-1911). Reforms of this time led to the extension of Chinese administrative bureaucracy through the foundation of statistical administrative structures whose task it was to describe the actual state of the empire. By Imperial decree a first central Statistical Bureau (*Tongji ju* 統計局) was created in August 1907, followed two months later by the establishment of Statistical Offices (*Tongji chu* 統計處) at all the Ministries in the capital, and Information Bureaus (*Diaocha ju* 調查局) at the provincial level. The Commission to Draw up Regulations for Constitutional Government, in a memorial to the throne, described the mission of the Statistical Bureau, responsible for centralizing statistical information communicated by the statistical offices of the Ministries and the provincial bureaus.¹⁷

As to statistics, they are a method with which to examine the state of affairs of our fiscal administration and fathom our national strength so that comparisons can be made and appropriate policies developed. Therefore, the state of the Empire has to be analysed internally, and the competition of the world has to be observed externally. From now on, the Boards and Ministries at the Capital and the provinces shall establish detailed tables on their domain of activity and submit these regularly for consultation to our office. Our office will synthesize all the tables for the purpose of estimation of the actual state of the Empire. Examination of all the states, which publish statistical annals, showed that statistics are compiled in each domain in order to be informed about its population at a single stroke.

The interesting question to analyze for our purposes is the question of personnel, responsible to fulfill the tasks outlined in the above memorial. Who was this first generation of “statisticians” employed in the newly established network

¹⁷[Qingmo 1981] vol. 1, pp. 47-51.

of statistical agencies? What was their educational background, which were their career patterns, and their political positions ?

First of all, the personnel of the central bureau were not only “statisticians”, but they held concurrent positions in other government institutions as is the case for all the positions of the Grand Council (*Junji chu* 軍機處). Lin Qi for example, Head of one of the three sections ¹⁸ of the Bureau (*tongji ju zhengkeyuan* 統計局正科員) was Adjunct Secretary of the Ministry of Education (*xuebu canshi* 學部參事). He also taught at the Metropolitan University (*Jingshi daxuetang* 京師大學堂).¹⁹ As Prefect of Hangzhou (1896 - ??), he was an important representative of the New Politics Movement. Together with the Governor of Zhejiang Province Liao Shoufeng 廖壽丰, he founded in May 1897 the School for Seeking the Truth (*Qiushi shuyuan* 求是書院) in Hangzhou, where Western sciences were taught.²⁰ Two of his most talented students, Qian Chengzhi 錢承誌 and Wu Zhenlin 吳振鱗 were sent to Japan in 1898. They later also served in the Statistical Bureau: Qian as Vice-Director (*tongji ju fu juzhang* 統計局副局長) and Wu as Adjunct Section Head (*fukeyuan* 副科員). Lin Qi, during his stay in Japan, translated several works on constitutional law,²¹ but he seems not to have written anything on statistics, which is the case for all members of the Statistical Bureau. They were recruited not specifically for some statistical expertise, but for their knowledge in the domains of law and political science.²²

¹⁸The three sections of the Bureau were:

- First section: responsible for affairs on diplomacy, civil administration and finances.
- Second section: in charge of affairs on education, military and civil law.
- Third section: responsible for industry, communication and matters concerning Tibet and Mongolia.

See article 5 of the regulations for the Statistical Bureau, attached to a memorial from the Committee for Drawing up Regulations for Constitutional Government to establish a Statistical Bureau and a Revising Bureau, submitted on August, 24th, 1907. Reprinted in [Qingmo 1981] vol. 1, pp. 47-51.

¹⁹In [ZZGB] n° 40 (XT 2/12/27) *zhezou lei* 摺奏類 we learn that Lin Qi started teaching at the Metropolitan University as early as September 1905, that is less than one year after the education reform.

²⁰See [Chen 1999] p. 33.

²¹See [Xiong 1994] pp. 642, 658, 658.

²²Memorial of the Commission for Constitutional Government XT 1/12/29, *Zou pai yuan chong bianzhi ju fukeyuan deng cha pian* 奏派員充編制局副科員等差片 in: [Xuantong] n° 15 (1910), p. 38b. Lin Shitao and Shao Fuying transferred to the Statistical Department, because they «are all officials who understand clearly the essence of politics and are trained in law (*jun shu tongzhi zhengti mingxi falü zhi yuan* 均屬通知政體明習法律之員) ».

Interestingly enough, from its creation in 1907 within the Constitutional Commission until its insertion in Kang Youwei's Grand Secretariat in 1911, the personnel of the Statistical Bureau has scarcely changed.²³ We only observe the ascent of Yang Du 楊度,²⁴ a revolutionary close to Yuan Shikai 袁世凱 who had studied law in Japan, and who took the direction of the Statistical Bureau just before the 1911 Nationalist Revolution. But apart from newly recruited members, there was no significant movement of the personnel between 1907 and 1911. What is striking is the number of members who were returned Chinese students from Japan after their studies of economy, political science or law, which were precisely those departments in which statistics were taught there.²⁵ Upon return, they had to pass special examinations in « law and administration » (*fazheng ke* 法政科) or in « economy » (*shang ke* 商科) at the Chinese Ministry of Education. These special palace examinations were organized in « modern » fields of knowledge, meant to replace the system of civil service examinations abolished in September 1905, and to prepare a new generation of state officials.

Among the better known personalities in the Bureau is the first director, Shen Linyi 沈林一. He neither held the highest degree of Metropolitan Graduate (*jinshi* 進士), nor had he been educated abroad. But he was helped by a vice-director, Chen Lu 陳籙, who was granted the title of « Metropolitan Graduate in law and politics » upon his return from Japan.²⁶ Shen Linyi is one of the rare members of the Bureau for whom the Qing archives in Beijing still hold his RECORDS OF CONDUCT²⁷ which give us a more detailed picture of his career. Shen's records actually are an enumeration of purchased ranks, official titles, and transfers from one province to another. Among his publications are a serious critique of the Self-Strengthening Movement and the results of his comparative research on monetary systems, weights, and measures in ancient China and abroad.²⁸ But Shen probably had no theoretical interest in statistics, since in 1910 he co-signs a petition to

²³See [Juezhi] 1907-1911.

²⁴He appears first as the Chief of the Investigation Bureau (*Kaohe zhuanke zongban* 考核專科總辦) of the Constitutional Commission, created by Imperial edict of January, 2nd, 1909 to survey the progress and the proper mise en oeuvre of constitutional reform schemes, following agitations in the provinces demanding to accelerate its introduction.

²⁵The list of personnel of spring 1908 shows 11 officials returned from abroad, and two more who are hired in 1909. See [Juezhi] spring 1908 and [Juezhi] autumn 1909.

²⁶[Beijing and Zhongguo 2001] n° 352. Imperial Edict of October 15, 1908 (GX 34.9.21) appointing the « Metropolitan Graduate in Law and Politics » (*fazhengke jinshi* 法政科進士) to Chen Lu et al. Checked by the Board of Education after their return from abroad (*Xuebu kaoyan youxue biyesheng* 學部考驗游學畢業生).

²⁷A kind of C.V. for high ranking government officials. See [Qin, Tang and Ye 1996] vol. 6, p. 669 and vol. 8, p. 581.

²⁸See [Shen 1901] and [Shen and Li].

the Ministry of Education to present the works of one his contemporaries, Hua Hengfang 華衡芳, a « specialist in mathematics (*suanxue zhuanjia* 算學專家) ». ²⁹ In the joined list of Hua's publications and Chinese translations of Western mathematical books suggested for classroom use, precisely one work is missing. It is Hua's translation on probability theory and its applications in statistics, by then three editions of Hua's translation were already published. ³⁰

So far, I have concentrated on the events within the central government agencies. Yet, since the 1870's there existed a Statistical Department (*zaoce chu* 造冊處) within the Imperial Maritime Customs Service in Shanghai. Run by foreigners employed in the Chinese bureaucracy, it produced a great variety of tables on China's foreign trade, metrological conditions, and medical reports. Administrative procedures in the Service had been advised by a professional British accounting consultant, but it seems, that when at the beginning of the 20th century statistics came into the focus of the central government reform efforts, the Maritime Customs model of administrative practices had no impact. A transfer of statistical « experts » from the Customs' Statistical Department to the newly created statistical institutions in 1907 neither seems to have taken place. This was partly due to the reluctance of the foreign employees to train Chinese clerks in the field, but also to the quasi autonomous status of the Service under a foreign Inspector General. ³¹ The duties of the Chinese clerks in the Statistical Department were mainly to check with the abacus the accuracy of calculations in the register books – which then again were counterchecked by a foreign employee using written calculation. ³²

What circulates between the Customs Service and the central ministries ³³ are mainly statistical tables, but rarely their employees, in spite of a vivid interest of the newly created Ministries in statistics. ³⁴ In the archives of the Imperial Maritime Customs in Nanjing I have only found a single mention of a project from 1913 to send eight members of the Ministry of Finance to the different ports to study the customs system. ³⁵ For one of them, Mr. Wang Chingfang, we know,

²⁹[Yang 1910].

³⁰See the first edition of 1896 in [Fryer and Hua 1896].

³¹See [Bréard 2006a].

³²See [Hirth 1881] p. 79.

³³The Ministry of Agriculture, Industry and Commerce (*Nong gong shang bu* 農工商部) and the Ministry of Finance (*Duzhi bu* 度支部). The former published after 1908 in its statistical tables numbers concerning China's foreign trade and revenue provided by the Imperial Maritime Customs since the 1860's.

³⁴Wu Zhenlin 吳振鱗, member of the Statistical Bureau for example publishes in the GAZETTE OF THE MINISTRY OF AGRICULTURE, INDUSTRY AND COMMERCE two articles on the customs system (*Haiguan suilun lue* 海關稅論略) which also refer to their statistics. See [SWGB] n° 6 (GX 32), pp. 1a-7b and [SWGB] n° 7 (GX 32), pp. 4a-8a.

³⁵I.G. Circulars n° 2120, 2134, 2213,2243. N° 2 Historical Archives, Nanjing.

that he was supervised by Mr. Ting, who explained to him the significance of tables after his regular working hours.³⁶ Ting then was the first and only Chinese to hold the position of Assistant Statistical Secretary in the Customs Service.

We have seen , that the earliest statistical institutions existed with a personnel of official degree holders, who were either trained in statistics informally by performing the traditional administrative tasks of compiling numbers, or by “experts” who had learned about statistical theories in Japan, where they had studied law, politics or economic sciences. In China, such specialized institutions emerged within the educational reform programs and provided for the first courses on statistics in higher education.

5 Statistical Education

When in Japan a specialized school for statistics was founded in 1881, the Director of the Statistical Bureau 長烏尾 and the statistician Sugi Kōji 杉亨二 (1828-1917)³⁷ were the two professors teaching the first 53 students, of whom 27 graduated in 1886. In China, the situation was quite different. Statistics were certainly not considered part of what then was known as ‘Western studies’, i.e. mathematics, chemistry, physics or mechanics.³⁸ When at the turn of the 20th century the first higher education institutions for law, political or economic sciences were founded, where statistics should exclusively be taught, neither qualified teaching personnel, nor Chinese language manuals were available. In the early phase, Japanese manuals served as a basis for teaching statistics, as did the Customs’ statistics in the Economy Department of the Metropolitan University³⁹ and in the Ministry of Finance’s School of Political Economy.⁴⁰

The Constitution of the former (*Jingshi daxue tang zhangcheng* 京師大學堂章程)⁴¹ mentions statistics as a subject to be taught (next to Banking and Insurance) to future ‘virtuous and talented’ government officials in the third year of

³⁶Semi-official letter n° 104 (Chalmers to Aglen), February, 4th 1914. N° 2 Historical Archives, Nanjing.

³⁷See a collection of his early teachings in [Sugi 1902].

³⁸See for example the curriculum in those fields at the Shanghai Polytechnic Institute in [Fu 1895].

³⁹See the communications between the Ministry of Foreign Affairs and the Metropolitan University on May, 13th and 16th, 1903 on sending the trade volumes of the previous years’ customs for editing textbooks. Reprinted in [Beijing and Zhongguo 2001] pp. 194-5.

⁴⁰Statistical Secretary Despatch n° 940, 1910. N° 2 Historical Archives, Nanjing.

⁴¹Constitution sent on August 15th, 1902 as an attachment to a Palace Memorial by the Chancellor of the Metropolitan University, Zhang Baixi 張百熙, dated August 4th, 1902. Reprint in [Beijing and Zhongguo 2001] pp. 146-173.

a course on techniques of economic management (*licaixue* 理財學) in the faculty of politics and the School for Administration (*Shixue guan* 仕學館). Japanese doctors of law used to teach this course, assisted by Chinese translators. These were Chinese students returning from Japan, who were subsequently held to teach the course autonomously.⁴² In general, it seems that the Metropolitan University had difficulties in finding teachers for the newly introduced Western sciences. For Qian Chengzhi and Lin Qi, both teachers of Metropolitan University and later members of the central Statistical Bureau, the Grand Minister of Educational Affairs (*Xuewu dachen* 學務大臣) submitted a short Palace Memorial, requesting to retain Qian, Lin and others in office and not to send them abroad due to a shortage of teachers in new fields of knowledge.⁴³

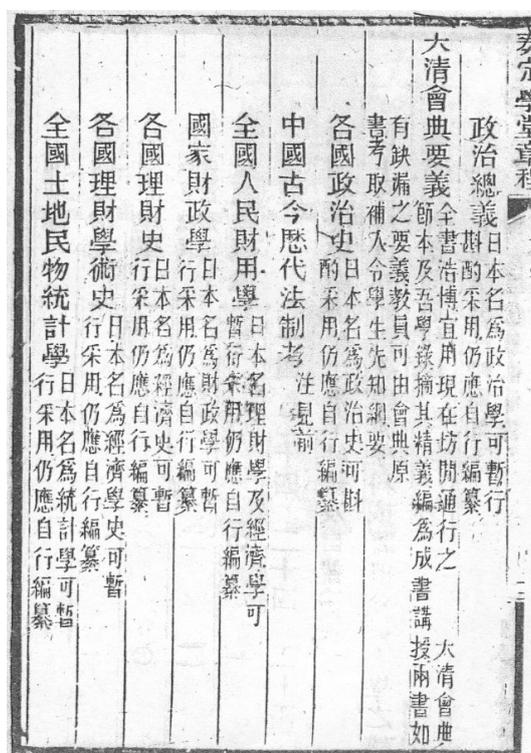


Figure 1: Zhang Zhidong et al., *Memorial to fix the rules and regulations for New Schools* (1904)

⁴²[Ye 1974] p. 37.

⁴³Palace memorial of September 12th, 1905. Reprinted in [Beijing and Zhongguo 2001] p. 287. See also p. 281 for an earlier communication on the same matter.

In specialized Schools of Law and Politics (*Fazheng xuetaang* 法政學堂), the regulations equally provided for a course on statistics. Zhang Zhidong's 張之洞 memorial of 1904 on the Regulations for New Schools (*Xuetaang zhangcheng* 學堂章程) refers in particular to a weekly one hour course on "Statistics on Civil Affairs and Land of the Whole Empire" during the third and fourth year of study of political science (see [Figure 1](#)). He suggests, that "temporarily Japanese language manuals may be used, but subsequently Chinese teaching material should be compiled."⁴⁴

When the curriculum of Schools of Law and Politics was revised in 1910 in the course of the constitutional reforms, statistics became a weekly two hour course in the first year of study in the political and the economic section.⁴⁵ This underlines the growing importance attached to statistical education for expectant state officials. One pressing issue for example was the task of counting the population for an adequate organization of elections of local councils.⁴⁶ Another was the study of the Japanese language, since the problem of Chinese language manuals did persist in many specialized fields of knowledge.

Part III: MANUALS

6 Social Statistics: Translations from Japanese

In Japan itself the first translated manual on social statistics was available since 1874, when Mitsukuri Rinshō 箕作麟祥 (1846-1897), a pioneer student of French law, had translated Moreau's *ELÉMENTS DE STATISTIQUE*.⁴⁷ The article on statistics from the 8th edition of the *ENCYCLOPAEDIA BRITANNICA* was translated by Momata Shigeaki 百田重明 in 1875 and distributed to government offices. By the end of the 19th century Kure Ayatoshi [Bunsō] 吳文聰 (1851-1918), who was functional for implanting statistics in modern Japan, had translated several works by Mayo-Smith, Richmond (1854-1901). He was familiar with German theories

⁴⁴Memorial, received on January 16th, 1904 by the Grand Secretariat (GX 29/11/29 內閣奉). Reprint in [Zhang 1970] pp. 109-304, here in particular section 2 pp. 133-141 (*di er jie zhengfa ke daxue* 第二節 政法科大學)

⁴⁵[Ye 1974] pp. 238, 242.

⁴⁶On the idea of local self-government in late Qing China see [Thompson 1995].

⁴⁷[Moreau 1847].

of social statistics, in particular those of Georg v. Mayr⁴⁸ under whom Takano Iwasaburō 高野三岩郎 (1871-1949) studied in Munich.⁴⁹ Many Japanese statisticians of that time also published their lecture notes. Yokoyama Masao's lectures which he gave during six months from October 1899 to March 1900 at a second series of statistical conferences organized by the Ministry of War (*Rikugunshō* 陸軍省) were distributed within the ministries, and even translated into Chinese in 1903.⁵⁰ But so far, I have not found a single reference to this Chinese translation in the archives or book catalogues from the end of Qing dynasty.

There is another manual though, that certainly circulated widely, not only in government circles but also in institutions where statistics were taught. It is Meng Sen's 孟森 Chinese translation of Yokoyama's GENERAL DISCUSSION OF STATISTICS (see [Figure 2](#)).⁵¹ Both, the original and the translation were reprinted and edited many times until the 1930's. The Constitutional Commission lists the translation in its book inventory, and the 1923 book catalogue of the library of the School for Law and Politics of Jiangsu Province reflects well the fact that even by then Meng's translation was the only widely available manual in Chinese.⁵² The manual is divided into nine chapters, starting with a historical outlook on the evolution of statistics and a chapter on statistical theory and methods. The following chapters – all equally descriptive in nature – are dedicated to more specific topics dealing with statistical institutions, population statistics, economic, political, social, moral, educational and religious statistics. Among mathematical methods one finds only three short sections on summation, proportions and mean values.

The translator Meng Sen, an activist in the constitutional movement and China's education reform had studied law and politics in Japan and translated several other works on constitutional government and law. Upon his return he was in charge of the courses on Politics and Law organized by the Jiangsu Educa-

⁴⁸[[Kuré 1902](#)] lists several titles by Georg v. Mayr, A. Meitzen and others in his bibliography.

⁴⁹Takano studied in Munich under Georg v. Mayr from 1899 on and translated after 1919 Western works on social statistics by Knoes, Quetelet, Mayr and Süßmilch for the Ohara Social Research Institute (*Ohara shakai mondai kenkyujo* 大原社會問題研究所). See also [[Seiji 1911](#)] for research on Quetelet in Japan.

⁵⁰See [[Niu and Lin 1903](#)]. The translator Niu Yongjian 鈕永建 was a republican revolutionary and military associate of Sun Yat-sen. He had received higher military education in Germany. See National Palace Museum Archives, Grand Council memorials (*Junjichu dang zhejian* 軍機處檔摺件) n° 188046. Memorial by Zhang Mingqi 張鳴岐 (*zou wei houxuan langzhong Niu Yongjian qingxiao chai qian wang deguo liuxue lujun zhuan yanjiu gaodeng junxue qing gei guanfei deng you* 奏為候選郎中鈕永建請銷差前往德國留學陸軍專研究高等軍學請給官費等由), endorsed XT 2/5/13.

⁵¹[[Yokoyama 1904](#)], [[Meng 1909](#)].

⁵²[[Jiangsu 1923](#)].



Figure 2: Yokoyama Masao, Meng Sen (transl.), *Tōkei tsurōn*, Shanghai 1908.

tion Association.⁵³ He did not pursue any research in statistics, but he certainly strongly supported the introduction of statistics in the curriculum and in government administration. His translation, interspersed with his personal commentaries, is not uncritical towards China's conservative forces:⁵⁴

The translator comments: In the 28th year of Meiji [1895], the 4th month of *Yimo* in the cyclic calendar, which is about in our second or third month, at the time when China was defeated by the Japanese in Port-Arthur [Lüshun], if the author's [Yokoyama's] writings and additional commentaries had been transmitted abroad, their science would have earned highest praise. Now, not even mentioning Korea, the people of my nation go to Japan for study. This opened the path for statistics. This branch of learning is a universal instrument open to all. Those who first become aware of this certainly will have glory, but even those who awake later, must not be ashamed. In my [China's] antiquity, those who transmit statistics, have done so for more than 4000 years. Who knows that in my country, the arts and sciences have

⁵³See [Bastid 1988] p. 168.

⁵⁴[Meng 1909] p. 43.

declined and not progressed ? This also applies to statistical theory. Nowadays there are few who have even heard about its name, and those who investigate its content are as if they were both in bright and dark territory. Seeing that in the West care and diligence was given to this for 300 years, and that Japan has hastily started to catch up with it for 40 years, we cannot miss another day in studying it. The gentry of my [country] is still dreaming. Alas, what a pity !

Although political activism was prohibited by imperial edict to government supported students abroad, the involvement of Chinese returning students in political reform was a major driving force by the end of the Qing.⁵⁵ Meng Sen's abundant commentaries on China's backwardness in statistical institutions and education did not fall on deaf ears. Official government documents show that the political significance of statistics as a centralizing force in a modern state was recognized and that there was an urgent demand in reforming administrative structures and practices.⁵⁶

This first phase of statistical reform, very much based on Japanese institutional models and manuals, was superseded in the early 1930's by the growing influence of mathematical statistics transmitted mainly through American trained students returning to China.

7 An Outlook on Mathematical Statistics

The story of mathematical statistics in China is a different chapter. Not only is knowledge transmitted through other channels, and specific Statistical Departments created in universities,⁵⁷ but the figure of the statistician is also changing. After the 1911 Republican Revolution, that ended the Imperial era in China, we can see more clearly the emergence of a state statistician who combines mathematical knowledge with administrative practices. At the moment of publication of his first translation, Gu Cheng 顧澄 (1882-19??) is Professor of Statistics at the Beijing Special School for Law and Politics (*Beijing fazheng zhuanmen xuexiao tongji jiaoshou* 北京法政專門學校統計教授), Director of the Statistical Department of the Ministry of Education (*Jiaoyu bu tongji ke kezhang* 教育部統計科科長) and General Director of the Central Statistical Association (*Zhongyang tongji*

⁵⁵On China's Study-in-Japan program and the overseas students' increasing alienation from the conservative politics of the Qing state see [Harrell 1992].

⁵⁶See the Memorial translated in the [Appendix](#).

⁵⁷See [Li and Mo 1993] p. 277 mentioning the statistical departments of the KMT's Central Politics School and of Nankai University.

xiehui zongganshi 中央統計協會總幹事). In his preface to Yule's INTRODUCTION TO THE THEORY OF STATISTICS Gu criticizes the Japanese social approach to statistics:⁵⁸

Among earlier translations on statistics there was only Yokoyama Masao's GENERAL DISCUSSION OF STATISTICS. [...] It only narrates the history of statistics, how to establish tables, draw charts and other things. This does not have any merit for theoretical study. Investigating into other Japanese books on statistics, I found that mostly all of them are like that. By the time I wrote the translation of this book, I had nothing to compare or amend the terminology used in theoretical learning, so I decided upon all the terms according to my personal opinion. Within the seas [China], the great men of refinement may hopefully correct what is not up to the standards.

Used as a manual in his teachings at the Beijing Special School for Law and Politics, together with his manual on the method of least squares,⁵⁹ Gu was certainly a precursor in the field of mathematical statistics in China. But, as was the case for John Fryer and Hua Hengfang's translation of a first treatise on probability in 1896, Gu's writings were not influential. The major breakthrough was made in the 1930's by returned students, who had obtained PhDs in American universities, and others who translated English language manuals or important research articles from the Journal *Biometrika*.⁶⁰ It is also then that the first dictionaries for statistical terms were compiled.⁶¹ But before a standardization of terminology took place many authors continued to indicate the English language equivalents in brackets.

In these first manuals on mathematical statistics, the idea of China's lost statistical tradition from early Zhou dynasty does not entirely disappear. In the 1925 preface to Chen Qilu's 陳其鹿 ELEMENTS OF STATISTICS FOR HIGHER COM-

⁵⁸[Gu 1913].

⁵⁹[Gu 1910]. By 1910, when Gu was professor of mathematics at the Metropolitan University (*Jingshi daxue tang* 京師大學堂) and College of Languages (*Yixue guan* 譯學館), he had translated many other manuals for higher and secondary education in mathematics in the field of analytical geometry, differential and integral calculus, the theory of determinants and non-Euclidean geometry.

⁶⁰[Chen 1934].

⁶¹[Wang 1930], [Zhu 1933]. According to the preface, Zhu has drafted a first manuscript in 1923, with only little more than 250 words. In 1930, he saw his friend Wang Zhongwu's book which contains many terms on economic statistics. So Zhu added even more, and finally lists more than 1000 expressions in Chinese.

MERCIAL SCHOOLS⁶² the Chinese civil service examination system – « a poison that has deeply penetrated into the people's minds » - is again made responsible for hindering the renewal and the decline of intellectual life. But, the author counts on statistical education to make up for this:⁶³

Who knows, if one day the results of training people in better ways of life through enlightened government, of enriching and strengthening in my country cannot be compared in beauty with the West ? I can foretell that, in the future, with this book, they can !

8 Conclusion

In the previous sections, I have tried to show the complexities of translation of statistical science into late Imperial China in a context of reform: first the transference of foreign statistical practices and institutions into changing Chinese administrative and educational structures, and second, the linguistic translation of statistical manuals into Chinese. The actors who were instrumental in introducing statistical institutions and knowledge into China turned out to have had a broader political mission in the process of modernization. The urgent demand for a precise population census fostered the Constitutional Commission's interest in statistical methods, and statistics began to be seen as the universal tool in modern public administration.

The statistical "movement" within traditional administrative and educational frameworks was clearly oriented towards Japan, as were the manuals before the 1930's, which were translated from Japanese writings on social statistics. The idea of adopting a foreign institutional model to centralize the compilation of statistics and to educate students in this new field of inquiry was quickly put into practice and could easily be legitimated by a discourse pointing out the similarities with the most ancient Chinese administrative tradition. Within a few months a nationwide statistical network was created and specialized schools for law and politics were established. A first generation of "statisticians" was partly trained in Japanese schools of law and politics. Some of them also served as teachers of statistics in the new schools, but no Chinese language manuals were available in the beginning. Even when mathematical statistics and research came to China in the 1930's, only

⁶²[Chen 1925] based on King, ELEMENTS OF STATISTICAL METHODS ; Bowley, ELEMENTS OF STATISTICS vol. 1; Copeland, BUSINESS STATISTICS and Davies, INTRODUCTION TO ECONOMIC STATISTICS.

⁶³[Chen 1925] p. 3. The preface was written by Ma Yinchu 馬寅初, an economist who had received his PhD from Columbia University in 1914 (THE FINANCES OF THE CITY OF NEW YORK), and later became President of Beijing University.

one manual translated from Japanese was widely used. China's interest in statistics at the beginning of the 20th century thus focused primarily on its application to state administration and the education of state statisticians.

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APPENDIX

Memorial from the Constitutional Commission concerning statistical tables for financial and civil administration, 1909⁶⁴

The Commission for Constitutional Government memorializes for settling table patterns for civil and financial administration and for deliberating the proposed important regulations. The lists are appended to other documents.⁶⁵

Your Majesty's servant, looking upward he implores the glance of your sacred Majesty upon a memorial reverently prepared on behalf of miscellaneous humble matters: in obedience to the requirements of statistics as important political documents, he proposes to follow the table patterns for civil and financial administration as edited at the beginning and to deliberate the important laws/regulations as drafted ; he ventures to ask for a rescript published by Your Majesty's.

The origin of the methods of statistics stems from the most ancient times. The yearly accounts of the officials under the Zhou Dynasty were called *kuai* [calculations]; monthly accounts were called *yao*; daily accounts/the measures of the sun were called *cheng*.⁶⁶ The Minister of Finance and Economy examined the harvest at the end of the year in order to know how to rule the four corners of the kingdom [the State]. The Minister of Education [under the Zhou Dynasty] promulgated the *bi* -method (*bifa* 比法)⁶⁷ in order to receive the demands for [the following] three years. As for the balance, the officials said that there were many who thoroughly understood to govern and brought about results. The royal regulations likewise stated that the Grand Minister of Education, the Grand Minister of War and the Grand Minister of Public Works [under the Zhou Dynasty] take the completion of officials of all ranks from the Son of Heaven. Although the pattern for completion

⁶⁴Translated by the author from [ZZGB] n° 493 dated XT 1/2/24 (15/3/1909), Memorial section (*zhezou lei* 摺奏類) pp. 3-5. This memorial was presented to the throne suggesting a standard format for reporting data on state finance and population. It frequently refers in turn to earlier memorials and imperial rescripts, summarizing and commenting upon the official discourse on the adoption of foreign style statistical institutions.

⁶⁵The memorial is accompanied by more than 200 prototypes of statistical tables, which are not translated and reproduced here.

⁶⁶Alternatively these two expressions could be interpreted as referring to astronomical records, the measures of the moon and the sun.

⁶⁷A group of five families under the Zhou dynasty.

has not been transmitted, it [certainly] valued the intentions of statistics. This is evident throughout. The Han [Emperors] ordered the compilation of registers in the prefectures and principalities (*jun guo* 郡國);⁶⁸ the Tang [Emperors] ordered the Provinces and Districts to report to the supreme [institutions]. Until today, at each end of a term of the year all the inner and outer yamen still have to present a series of memorials on matters of population, city temples, revenues from taxes, and granaries. These are all related to the great principles of civil and financial administration. It was always agreed upon that ancient and new regulations were specially to be handed down in course of time. Account books, registers and astronomical records were studied with customary respect and seen as conventional phrases of government reports. Gradually the original meaning of drawing up their methods got lost. Our Commission obediently followed the imperial decree and established a Bureau of Statistics. We memorialized to determine the rules and regulations for the management of affairs, to found separately Statistical Divisions in the Boards and Departments at the capital, and to found separately Investigations Bureaus in the Provinces for searching and seizing all kinds of [countable] items, and for undertaking their classification. This [memorial] was respectfully received by His Majesty. The Imperial Edict says:

« Each statistical data item shall be set out in order and detail according to the tabular pattern as determined by the said Commission. According to the stated periods, reports shall be communicated to prepare the [data's] usage in the publication of statistical annals. » [end of quotation from the Edict]

We look up to the Imperial Court with respect. To make a general investigation of numerous affairs of state is the good intention of ‘getting at the truth by verification of the facts’⁶⁹. Now, the foundation of Statistical Divisions at the Boards and Departments at the capital, and the foundation of Investigation Bureaus in the Provinces have already clearly been established by the above mentioned memorial. In addition, I and other leading officials at the Commission have added a careful re-examination, based on the tables sent to the Commission by the Ministry of Interior and other yamen. Although the principles and the methods still need to be more thoroughly studied, the facts are sufficient to rely on. Examining into the outline/scope of [the tables, we found] it to be suitable to add further investigations, nevertheless the searched and seized [data] can already give us a

⁶⁸A system of political zoning adopted by Liu Bang 劉邦, founder of the Han Dynasty, whereby he divided the Empire into many prefectures under the direct jurisdiction of the throne and a number of principalities governed by the imperial princes.

⁶⁹An ancient Chinese saying.

clue. It is our humble opinion that the reason why statistics in all the Eastern and Western states are published is not only that they allow to revise accounts, or just sketch exercises for mathematical formulas. What they want is to research the strength of the nation, the condition of the populace, find out the reasons for its waning and waxing, its advancing and retiring ; they regard them [statistics] as a basis of comparison for devising political programs. It is the importance of this connection which made [statistics] one of the branches of science. Chinese frontier walls are broad and long, people and objects are abundant and many. Government administration is so vast that what should comply with the views of another is parted. Communication is such a serious obstruction that [center and periphery] consequently become alienated. Viceroys and Governor-Generals cannot exhaustively know the affairs of their provinces and districts; the Boards and Departments at the capital cannot exhaustively understand the affairs of the Viceroys and Governor-Generals. At the beginning of the establishment of statistics, circumstances made it difficult to embrace everything one by one and things were crooked and unwieldy. What is there that is more important than the two fields civil administration and financial administration? In civil administration the most difficult task is to accurately examine the population ; in financial administration the most important task is to accurately manage the expenses. Now-a-days long standing practices and old habits are still as before. Even if the compilation of audits is to provide against confusion, the sending in of accounts is entirely connected to flexible arrangements. Examining the door-plates⁷⁰, we find that many households have persons that have been omitted; investigating the account-books of the treasury, we find that in many places there are irregular numbers. Not a single item that could not have been questioned in court. And how much more [omissions and irregularities] do affect the complex multiplicity of the whole system ? This requires to prepare year by year for the necessary arrangements. First, we took this as the foremost foundation of constitutional government, and as the primary matter right from the beginning. Wherefore the by-laws for investigating the population, and the by-laws for financial management have now both already been memorialized and communicated by the Board of Interior and the Board of Revenue. Since these follow the strategy of devoting their strength to the investigation of the facts, there naturally is gradual progress in the results. Whatever statistical data items there are, it is of course appropriate that all follow these [by-laws] to begin with, so that mutual completion and mutual accomplishment may be hoped for. Your Majesty's servant, other respectful members of the [Constitutional] Commission and Governor-Generals participating in the examination of China and the West to advise in questions of public interest, drafted 14 general

⁷⁰Giving particulars of residents, number, occupation, etc.

rules for statistics, for the Statistical Bureau of the Board of Interior 76 tables and 72 tables for the provinces, for the Statistical Bureau of the Board of Finance 90 tables and 88 tables for the provinces. In addition, we attached to each table an explanation to the meaning of the designed table and the method for filling it out. We also tried to bring about an understanding for the disordered keys to financial affairs, by further classifying them into 12 main points. This proves, that in order to render apparent the invention of new principles, all has come out of what is contained within the ancient statutes. Chinese, foreign, ancient and new articles are all of the same thread and they are merely to be considered as styles. Although the honorable Zhou examined with care, every [accomplished] fact is subject to a considerable amount of change; [although] the statutes frequently start from the facts, facts and times are shifting. The table patterns drafted here are merely taking an example from a wheel without the hub⁷¹, and are not to be taken without consideration as a standard for the future. After reporting to both inner and outer [yamen], they still have to be abridged, the important points brought forward, and item by item revised. The managers in office of the said yamen in the end shall investigate especially with the necessary care. If there is a section that should be added, the circumstances of the supplement should not interfere with the filling up of the report without rigid application of the rules. We still expect that a clear distinction of the main points makes naturally obvious the path to be followed and that [the new table] remains “in the same groove”. Until now, Japan has published statistical annals more than 20 times. The fact that some detailed items of the essential elements have been altered, might be considered as a proof of the aforesaid. Respectfully we wrote out the explanations for the important regulations and submit them as a list. Reverently we jointly present the table patterns, waiting with humility for the Emperor’s inspection. Respectfully this [has been decided by His Majesty] and published by imperial authority:

« That which is contained within the tables shall explain each individual item, commencing from the thirty-third year of Guangxu reign [i.e. 1907]. The facts must be verified before and the style must strive for reality. One should avail oneself of comparison in order to avoid a delay [in the submission of the report]. »

It is suggested that from this occasion on, the inner and outer yamen receive their orders by Your Majesty’s rescript. Beginning from the appointed time, all limited to within half a year, the affairs shall be investigated according to the important regulations of the table patterns. Item by item, the true facts shall

⁷¹Something at its initial state and leaving much to be done.

be filled in the report and sent quickly in reply to the official communication. Our Commission must not conceal delays when preparing investigations in the future. So as to show due respect to important laws, we strictly fix limits. For the rest, each type of table pattern immediately will be collated speedily by our Commission as a continuation of the previously edited [tables]. We petition the Emperor to publish by authority the settled table patterns for civil and financial administration and to deliberate the proposed important regulations. These are the reasons whereby we humbly beg your sacred Emperor to glance at a memorial reverently prepared, and to give instructions.

Respectfully this memorial has been received by his Majesty in the first year of Xuantong reign, the second moon and the twentieth day.⁷² The communication has already been registered.

⁷²March, 11th, 1909.