

Prewar Banking and Finance

- Formation of the Banking Sector
 - Central vs. National Banks
- End of the Samurai
 - Asset Pricing
- Technology Policy
 - Iwakura Mission
 - Education Reform

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Meiji Monetary Reforms

- One of the first actions of Meiji government was ordering of specie-minting machine from the UK in 1868
 - Decided to model Japanese banking on the US system
 - Several of the Ministry of Finance (MOF) leaders had spent time in the US working for a bank in New Hampshire
 - 1870 Hirobumi Ito (who later became Prime Minister) visited the US to study national banking
 - Recommended that Japan do the same
 - No central bank, but a series of national banks that could issue currency

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Banks and Money Supply: Theory

- Two ways to issue currency: National Banks and Central Banks
 - In the US today (as in Japan) only the Central Bank can issue currency
- National Banks can issue currency (as in US and Japan in 1870's)
 - National bank collects deposits and owner capital in the form of specie and paper currency
 - Keeps some on reserve and lends the rest out
 - Borrowers obtain national bank notes which are legal tender.
 - Backed by National Bank's reserves.
- In Central Bank system only Central Bank can issue currency.
 - This currency is backed by specie (if on gold standard) or not backed as in fiat money

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Banks and Money Supply: Example

- What are the implications of a 10% reserve requirement

	Assets		Liabilities
	Loans	Reserves	Deposits
1 st National Bank	90	10	100
2 nd National Bank	81	9	90
3 rd National Bank	72.9	8.1	81
And so on...			
Total	900	100	1000

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Banks and Money Supply in Words

- Suppose banks keep 10% of deposits on reserve.
- If the 1st National Bank has 100 yen in deposits, then there will be $100 * (1/0.1) = 1000$ yen in circulation
- The money multiplier is one over the reserve ratio. It tells you how much currency is generated by 1 yen of deposits.

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Developing a Monetary System

- 1872 National Banking Act
 - Used following scheme
 - 60% cash holdings had to be given to Gov't in inconvertible paper currency in exchange for government bonds paying 6%
 - 40% in specie
 - Bank could issue *convertible* notes up to amount of government bonds they held
 - Effective Reserve requirement was 0.40
- This system basically failed because reserve requirement was too high

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The Answer: Samurai Bankers!

- 1873
 - began universal conscription so didn't need Samurai
 - Not popular with samurai who called it a "blood tax"
 - 1873 Gave samurai an option of converting their stipends into 1/2 cash and 1/2 bonds equal in value to 6 years of stipend.
- 1875 Switched all stipends to nominal values (not rice)
- 1876 Forbad wearing of swords
- 1876 Decided to end stipends with Kinroku Kosai (Cash Stipend Bonds)

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Aside: How Does One Price a Bond?

- Imagine a bond that pays D forever. If the interest rate is r , then the *net present value* of the bond, i.e. the price of the bond, is

$$P = NPV = \sum_{t=1}^{\infty} \frac{1}{(1+r)^t} D = D / r$$

- Example: if interest rate is 10% then you are indifferent between receiving 100 yen or a bond yielding 10 yen forever
 - If you put 100 yen in the bank you would receive 10 yen forever

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What Were Kinroku Kosai?

- Bonds were priced at 5-14 times the nominal stipend value
- 5% yield
 - Bond rate should have been around 12%
- Not redeemable for 5 years and then some randomly redeemable each year for 30 years
- Magnitude
 - Issued ¥175 mil worth of bonds to 310,000 people
 - To get some sense of the magnitude consider the following
 - Gov't budget was around ¥59 million
 - GNP was around ¥800mln

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Government amended the National Bank Act in 1876

- Initial bank plan not popular because reserve ratios
 - Reserve requirements on all national banks were dropped to 20%. Banks could use government bonds instead of gold as reserves.
 - Allowed Banks issue *nonconvertible* notes of up to 80% of their capital
- Samurai could pool Kinroku Kosai bonds and lend out 80%.
 - Could lend this money to themselves
- About half of capital for new banks came from samurai
 - 15th National Bank involved capital from 480 Daimyo and Court officials.
 - Made many bad loans
- 1879 stopped giving out new charters
- Formed 153 banks by 1879, ¥34 mil in capital

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Where Did the Samurai Go?

- Tried to employ them, how?
 - Gov't: 80% of bureaucrats were samurai
 - Set up firms
 - Mitsui (Shibusawa Eiichi), Fuyo (Yasuda Zenjiro), Mitsubishi (Iwasaki Yataro)
 - Samurai received government loans
 - Fostered the creation of “samurai” banks
 - ¥175 mln yen in bonds
 - Japanese GNP was around ¥800 mln
 - Formed 153 banks
 - DKB, eighteenth bank, seventy-seven bank
 - Even so many went bankrupt

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Rise of Banking System

Date	Number of National Banks	Assets (millions of yen)	Bank Notes (millions of yen)
1872	0		
1873	2	3	0.9
1874	4	3.5	0.8
1875	4	3.5	0.2
1876	5	2.5	1.7
1877	26	23.0	13.0
1878	95	33.3	24.5
1879	153	40.6	34.0

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Impact on Money Supply and Prices

	Gov't Paper Money	National Bank Notes	Total	Specie and Convertible to Total	WPI
1876	105	2	107	40	
1877	106	13	119	35	100
1878	139	26	166	26	108
1879	130	34	164	26	130
1880	124	34	159	23	148

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Effect

- Value of bonds fell enormously
 - Removed financial strain on government
- Didn't create financial warriors
- Raised relative position of merchants
- The issuance of Kinroku kosai lead, in part, to the Satsuma rebellion in 1877
 - Satsuma felt betrayed by Meiji reforms
 - Government won but cost of fighting was met by printing money (Y27 mln) and letting banks issue money
 - Prices more than doubled between 1876 and 1881
 - Inflation at 20% per year
 - Badly hurt Samurai, which benefited government
 - New government problem was that land was not reevaluated

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Summary

- By 1878 the government had fulfilled 3 objectives
 - Simplified the Japanese currency
 - Created a market for government bonds
 - Created national banks and a banking system

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Technology Policy

- Believed in the idea of “Fukoku Kyohei:” (Wealthy Nation/Strong Military)
 - Promote the introduction of Western thought
 - Revamp education system
 - Develop industries
 - Land tax reform
 - Build up army (universal conscription)

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Iwakura Mission (1871)

- Objectives
 - Convince West that Japan was unlike rest of Asia
 - Went in western clothes
 - Argued for repeal of unequal treaties
 - Wanted to study source of western wealth and power
 - Factory production
 - Science, engineering, economics
 - Mass transportation
 - Management

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Impacts of Iwakura Mission

- Came to believe in the importance of merchants
- Rejected western idea that religion and individualism were key to growth. Saw keys as
 - Hard work, planning, and organization and management skills
- Translated loads of texts and brought them back to Japan
- Became committed to education for both sexes

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Education in Tokugawa Japan

- Saw a large growth in han schools, from 11 in 1735 to 210 by 1844
- Growth in publishers and libraries (numbered in hundreds)
- Thousands of books were in print at any time
- Although Japanese had access to moveable type technology, they chose to use wood blocks.
- Overall literacy levels reached 40-50% of all males (15% females) making Japan one of the most literate societies in the world at that time.

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Assimilation of Foreign Technology

- Education As Key to Success
 - Samurai were studying modern sciences
 - Well established system for using education as the basis for success
- Rise of Japanese school system
 - With Japan so far behind the west, education was seen as a mechanism for absorbing established ideas. Not new ones
 - Wanted to generate nationalism--dorms were somewhat military in nature
 - In 1891, 26% of labor force had primary school education, by 1935 98% did
- Established Universities
 - In 1868 Fukuzawa Yukichi was teaching Political Economy at Keio, which he founded

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Subsidized Import of Foreign Technology

- Establishment of libraries
- Subsidized study abroad
- Imported many scholars from US and Europe and sent students abroad
 - Began employing enormous numbers of foreign instructors
 - At least 3000 foreigners of all types in government service during early Meiji
 - Total of 8000 foreigners in Japan in public and private positions
 - Expenditures on foreign salaries was \$1.8 mln
 - 1/3 of U. Of Tokyo budget was foreign workers
 - 1/2 of ministry of education budget
 - 2/3 of public works budget

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Subsidized Import of Foreign Technology

- Establishment of libraries
 - In 1865 Established Bansho Torishirabejo
- Subsidized study abroad
 - Bakufu recognized the importance of western learning
 - In 1862 sent people to Holland to study economics
 - Soon were very familiar with Smith, Ricardo, Malthus, Mill
 - Particularly attracted to the idea that developing countries should practice free trade at early stages.

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Institutional Borrowing

Source	Organization	Year
Britain	Navy	1869
	Telegraph System	1869
	Postal System	1872
	Postal Savings System	1875
	Commercial Banks	1882
France	Army	1869
	Primary School System	1872
	Police	1874
	Judicial System	1872
	Industrial Banks	
US	Primary School System*	1879
	National Bank System	1872
Germany	Army*	1878
Belgium	Bank of Japan*	1882

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Changes in the Role of Women

- Major Advances
 - Foreigners strongly criticized the status of women in Japan
 - In 1872, the first public elementary schools for women were founded
 - Ban on women entering holy places was lifted
 - In 1873 women were allowed to initiate divorce
 - Women allowed to legally head households
 - Suffragette movement gained prominence
 - In 1882, Secondary schools opened to women
 - Arrival of Christianity greatly improved educational opportunities for women
 - Many Christian women's colleges were opened

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Prewar Industrial Development

- Prewar Industrial Development
- The Role of the State
 - Cotton Textiles
 - Silk
- Economic Policy under Matsukata Masayoshi
 - Fiscal and Monetary Policy
 - Formation of Financial Institutions

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Legal Reform

- Important innovation was creation of Joint Stock Company
 - All banks were structured this way
 - Better than partnerships because owners could freely sell shares and faced limited liability (but more liability than corporations)
 - Became basis for Japanese firm structure

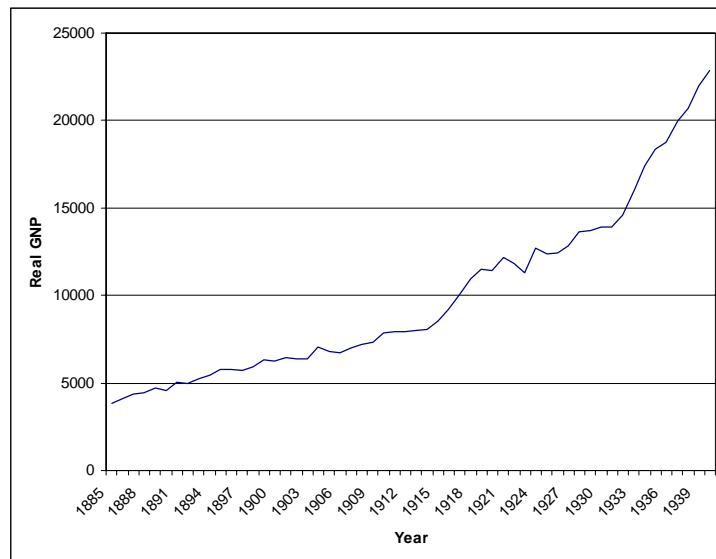
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Comments on the success of Japanese industry

- “Public response in the US to the expansion of Japanese trade has been varied, depending on the nature of the group interests affected. A large section of the public has remained indifferent, if not oblivious. Various business interests have expressed concern over Japanese competition, especially as it has appeared in the American market, ranging from vague worryment to emphatic appeals for government aid in the case of the XXXX industry. Proponents of “Buy Americanism” have made effective propaganda for the cause out of this alleged threat to the American standard of living. The press, for example, has industriously inflated the “Japanese menace” with graphic accounts “of darkened American factories, of poverty and despair in homes of honest, able workmen—a story of cunning Japanese subtly spreading ruin while [economists] talk of “Trade Balances.”” “Those [economists] said Senator XXXX in the Senate on April 19, 19XX, “if they have not gone to Russia, may now be retired to Tokyo, receiving medals made in Japan...””

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Japanese Prewar Growth



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Japanese Industrial Structure

Employment

Sectors	1870	1890	1912	1930
Agriculture and Mining	85	72	62	52
Manufacturing	5	13	18	19
Services	10	15	20	29

Manufacturing Shares	1875	1890	1905	1925	1930
Metals, Mach	24.3	18.8	22.7	23.7	32.8
Food	40.2	35.2	34.4	25.6	25
Tex	22.3	36.1	31.9	39.4	30.6

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The Role of Government Policy: Cotton

- Why Cotton? - Cotton was the heavy industry of the 19th century. It represents the first major incursion of Japan into the world economy.
- Early attempts at bringing in foreign technology
 - In 1877 bought two spinning machines from England and offered them to entrepreneurs. Also had advisors, but no takers
 - In 1879 offered 10 machines with 2000 spindles apiece and good loans.
 - Decided on machines that used Mule spinning technology.
 - Gave user great control over type of cotton used
 - Wanted to use Japanese cotton, but Japanese cotton had short threads and broke easily
 - Could use poor quality cotton like the type grown in Japan

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The Role of Government Policy: Cotton

- Followed English example: English engineers, even imported the bricks
 - Ran on water power but Japanese rivers didn't run fast enough
 - Couldn't run the machines all year long
 - Required a lot of strength, height, and skill
 - Basically needed male skilled workers but the wages were too high
 - LF was heavily female and unskilled
- Ran only 1 shift (14 hours) and couldn't make any money
 - 80% of the cost of cotton yarn is the cost of raw cotton
 - Indian yarn was consistently cheaper
 - Price of male labor in India was well below that in Japan
 - All but one of the companies failed

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The Role of Government Policy: Cotton

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Industry Results

- Adapt foreign technology for domestic conditions
 - Industry went with “ring” spinning
 - Had to use high quality raw cotton, not flexible
 - Needed a lot of people around to retie broken threads by hand
 - Able to use a lot of female labor between ages of 12-16
 - Idiot-proofed the machinery and went with a McDonalds strategy
 - Entire industry switched away from water power to steam. Earlier all but three had used water power

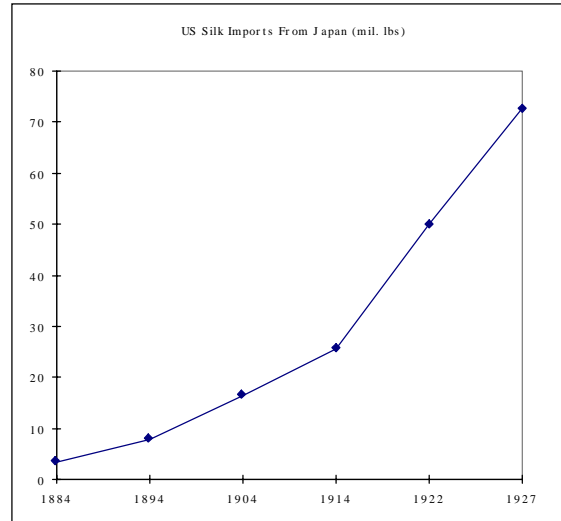
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Industry Results

- Take advantage of Japanese regulations
 - Began running machines 24 hours a day in 1880's
 - 11 hour shifts + 1 hour of maintenance
 - First country to do so, why?
 - In west wanted to save labor not capital
 - Japanese wanted to run K as much as possible
 - Social legislation about running factories at night due to gas era.
 - Factories had a lot of cotton fibers floating around, but now could use electric light
 - First electric lights in imperial palace. Second in Osaka spinning mill

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Example 2: Silk



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Government Involvement in Silk

- Government ran Tomioka silk reeling mill “model plant”
 - Imported around ten French and Italian technicians to teach J. the way that silk was produced in Europe
 - Decided to build large factory near silk worm farms
 - Used steam engines to drive mill
 - Thought that visitors from all over Japan would go to Tomioka to observe production then set up similar operations
 - But industry moved to wooden machines, not the Tomioka model
- Problem: Again gov’t picked a technology that was not appropriate
 - Machinery was too expensive and complex
 - Picked plants that were too big (opposite of cotton)
 - Rural areas could not afford machines and advisors
 - Bureaucrats were more interested in internal promotion than financial and technical matters
 - No incentive to bargain for cheap inputs
- Innovations
 - Temperature control
 - Motorization

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Major Lessons

- Government policy was not successful in picking techniques
- Very successful in promoting the absorption of technology
 - Subsidized access to foreign technology
 - Education
- Japanese firms succeeded by observing foreign technology *and* adapting it to domestic conditions
 - **Both** conditions were critical
 - Innovation and (minor) improvements in foreign technology/techniques played a critical role

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Economic Policy Under Matsukata Masayoshi

- Major Policy Goals
 - Stabilize the economy
 - Eliminate Government Deficit
 - Expenditure Policy
 - Tax Policy
 - Achieve convertible currency
 - Establish Central Bank
 - Create Specialized Financial Institutions

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Money Supply in Japan, 1875-1914

Year	Ratio of Money Supply to National Income
1875-80	35
1880-85	26
1885-90	23
1890-95	24
1895-1900	24
1900-1905	24
1905-10	26
1910-14	23

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Aside: How Do Firms Raise Money?

- Borrow money from banks
 - Must pay interest on loans
- Sell bonds
 - Must pay a fixed yield (interest payment) on bonds
- Issue equity (i.e. Stocks)
 - Equity value is based on two factors
 - Stream of future dividend payments
 - Value of assets of firm after banks and bond holders are paid off
- Retained earnings (i.e. use profits to finance investment)

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Financial Policy Under Matsukata

- In 1882 eliminated ability of National Banks to issue currency and created the Bank of Japan
- Matsukata was a believer in bank finance not financial markets
 - Stock Market formed in 1878 without government initiative
 - No corporate bond market until 1905
 - Corporate bonds were unimportant until 1920
 - Believed strongly in Specialized Financial institutions
 - Central Bank would be government banker and control money supply
 - Commercial Banks financed industry
 - Savings banks took in deposits and lent to commercial banks
 - Special Banks for Agriculture, Foreign Trade, Industries, and Regions
- Rational behind system
 - Commercial Capital had high turnover, investment capital low turnover. So should have different types of banks dealing with SR projects and LR development
 - Difficult to distinguish in practice

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Specialized Institutions

- Postal Savings System
 - Established in 1875 for small savers
 - Served as depository institutions before these existed
 - Were an alternative to the government bond market
 - By 1890's half of all deposits were in PSS
- Special Banks
 - Idea was these were public service institutions
 - Industrial Bank of Japan, Hypothec Bank, Hokkaido Takushoku Bank
 - Stock held by private sector
 - Did not take deposits but raised capital through debentures (unsecured bonds) that they sold to the government
 - Gov't obtained the money from the Postal savings system
 - By 1914, 26% of all loans were from these institutions

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Important Rules That Promoted Banks

- No regulations on bank size in 19th century
 - Allowed easy entry
- 1895 eliminated restrictions on share of lending to any one firm
 - Allowed banks to lend heavily to particular firms
 - Fostered development of corporate groups
- No competition from corporate bond market until 1905

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Meiji Finance

- National banks
 - Could issue currency until 1882
 - Charters expired b/n 1896 and 1899 and converted into private banks
- Private banks (including specialized institutions except PSS)
 - Focused on lending
- Quasi-banks
 - Engaged in lending, trade, and production
 - Similar to trading companies
 - SR lending
 - In 1893 bank act forced to convert into private banks

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**Number, Total Paid-In Capital, and Average Capital of National Banks,
Private Banks, and Quasi-Banks in Japan, 1873-1899
(capital in thousand yen)**

Year	National Banks		Private Banks		Quasi-Banks	
	No.	Total Cap.	No.	Total Cap.	No.	Total Cap.
1873	1	2,441	0	0		
1874	4	3,432	0	0		
1875	4	3,450	0	0		
1876	5	2,350	1	2,000		
1877	26	22,986	1	2,000		
1878	95	33,596	1	2,000		
1879	151	40,616	10	3,290		
1880	151	43,041	39	6,280	120	1,211
1881	148	43,886	90	10,447	369	5,894
1882	143	44,206	176	17,152	438	7,958
1883	141	44,386	207	20,487	573	12,071
1884	140	44,536	214	19,421	741	15,142
1885	139	44,456	218	18,750	744	15,397
1886	136	44,416	220	17,959	748	15,391
1887	136	45,839	221	18,896	741	15,112
1888	135	46,878	195	15,790	711	14,408
1889	134	47,681	218	17,432	695	14,421
1890	134	48,645	217	18,976	702	14,512
1891	134	48,701	252	19,796	678	13,827
1892	133	48,326	270	22,856	680	13,944
1893	133	48,416	604	31,030	0	0
1894	133	48,816	700	37,411	0	0
1895	133	48,951	792	49,967	0	0
1896	121	44,762	1,005	88,970	0	0
1897	58	13,630	1,217	149,286	0	0
1898	4	390	1,444	189,440	0	0
1899	0	0	1,561	209,973	0	0

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