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Research on the Effect of High-Rise Commercial Building Construction on Land Value of Shanghai in the 1920s

Le Sun†

College of Architecture and Urban Planning, Tongji University

Abstract

When the tall office building first appeared in the street of Chicago in the end of Nineteenth Century, this building type has become a commodity in the development of real estate and been defined as a machine that makes the land pay. With the investigation of land price samples of the high-rise commercial buildings and the overall land price development in the central district of International Settlement in Shanghai, this paper tries to examine the site selection and construction of high-rise commercial buildings have important positive effect on the land value development.

Keywords: High-rise commercial building, Land value, Shanghai, in the 1920s

1. Introduction

The high-rise building was defined as "a machine that makes the land pay" (Cass Gilbert, 1900) in 1900 by Cass Gilbert, the architect of the Woolworth Building, and that also affirmed the important connection between the high-rise building and the commercial development of real estate, as well as the interaction with land economy. In fact, to get the maximum return on investment, buildings would be built higher in order to make the most of the purchased land's value. While the government needs to develop appropriate control systems for urban space to ensure that space is safe and green, a subtle system of building height control exists among the real-estate developers, architects and government. Investigating the historical land price data of the high-rise commercial buildings located in modern Shanghai in the 1920s, this paper emphasizes the effect of tall commercial building construction on the changes of land use and land value.

2. Spatial Distribution of Tall Commercial Buildings and Land Value Development in Shanghai in the late 1920s

2.1. Historical data research in 1931

In 1931, survey data was collected by an American company, Asia Realty in Shanghai, comparing the land value of the biggest cities in the world, including New York, Chicago, London, Paris, Shanghai, etc. One of the tables from this study is discussed in the context of city population (Table 1) and one is discussed in conjunction with the height control system of each city (Table 2). Each reveals certain important correlations between the city regulation of building height control and urban land value.

According the survey data, the most expensive urban land was located at the junction of Wall Street and Broadway in New York City, whose population reached 6.93 million in 1931, ranking the city in second place worldwide. London had the largest urban population, but its land value was in ninth place. The land value in Chicago was in second place, with the fourth largest city population.

During this period, the population of Shanghai was ranked as the fifth-largest global city, after London, New York, Berlin, Chicago. The land value in Shanghai was in the twenty-second place worldwide and ranked first among Chinese cities, surpassing that of the British colony of Hong Kong and Guangzhou, a trading port that opened 100 years earlier than Shanghai.

The survey also pointed out that the reason that why American cities' land value was ranked at the forefront of the global was due to the relatively loose regulations of building height. The Zoning Law in New York was issued in 1916 and clearly specified the ratio between the building height and the adjacent street width. If the building height was more than 250 ft or 2.5 times of the width of the adjacent streets, the volume of building would be required to be set back, but there was no limitation of the building height. Likewise in Philadelphia, there were no building height regulations. By contrast, in the ancient cities of Europe, such as London, Paris, Berlin and Rome, the limit of the height of the building in regulations was mostly between 65.5 ft to 80 ft (Table 2).

The building control in 1916 released by the Municipal Council in Shanghai required that no new building (other

†Corresponding author: Le Sun
Tel: +86-18817207515; Fax: +86-21-69852107
E-mail: sunle@tongji.edu.cn

Table 1. Land Value Comparison of the Twenty-four Largest Cities in the World (1931)

City	Most expensive land value per mu		Exchange Rate	Population	Population Ranking	Land Value Ranking
	Local Currency	Shanghai Local Currency (Tls[a])				
New York	$ 5,445,000	16,900,000	31	6,930,000	2	1
Chicago	$ 3,630,000	11,700,000	31	3,430,000	4	2
Philadelphia	$ 3,630,000	11,700,000	31	1,950,961	9	3
Boston	$ 2,500,000	8,050,000	31	781,188	17	4
Indianapolis	$ 1,520,000	4,900,000	31	364,161	22	5
Montreal	$ 1,450,000	4,675,000	31	681,000	19	6
Los Angeles	$ 1,240,000	4,000,000	31	1,238,048	10	7
Liverpool	£ 240,000	3,780,000	$1/3\frac{1}{4}$	804,000	16	8
London	£ 217,800	3,430,000	$1/3\frac{1}{4}$	8,202,812	1	9
Tokyo	J¥ 2,000,000	3,200,000	160	2,294,600	7	10
Paris	Fr 1,800,000	2,140,000	785	2,283,000	6	11
Sydney	£ 116,160	1,828,000	$1/3\frac{1}{4}$	1,238,660	11	12
Berlin	DEM 2,000,000	1,540,000	130	4,332,000	3	13
Rome	ITL 7,350,000	1,250,000	5.90	999,769	13	14
Singapore	S$ 650,000	1,200,000	$183\frac{1}{2}$	502,000	21	15
Manila	CUP 540,000	870,000	62	324,522	23	16
Marseilles	Fr 6,750,000	860,000	785	647,000	20	17
Cape Town	£ 108,900	820,047	$1/3\frac{1}{4}$	207,000	24	18
Bombay	Rs. 650,000	765,000	85	1,176,000	12	19
Manchester	£ 45,000	710,000	$1/3\frac{1}{4}$	730,550	18	20
Jincheng in Argentina[b]	ARS$ 670,000	670,000	100	2,225,000	8	21
Shanghai	Tls 500,000	500,000	-	3,112,250	5	22
Hong Kong	HK$ 575,000	450,000	78	852,932	15	23
Guangzhou	GZ¥ 300,000	210,000	70	950,000	14	24

[a]Silver dollars, a common currency in Shanghai before 1933.
[b]"Jincheng" is the literal translation from the Chinese table. It may refer to Buenos Aires, the capital and also the biggest city in Argentina.
Source: Asia Realty Company, *Shanghai Real Estate Monthly*, 1931.7, 5~6.

Table 2. Land Value and the Limitation of Building Height

	Most expensive land value per mu (Tls)	Population Ranking	Land Value Ranking	Limitation of Building Height
New York	16,900,000	2	1	Setback if more than 250ft or 2.5 times of the width of the adjacent streets
Chicago	11,700,000	4	2	264ft
Philadelphia	11,700,000	7	3	No limitation
Boston	8,050,000	10	4	155ft
Indiana	4,900,000	11	5	180ft
Los Angeles	4,000,000	8	6	150ft
London	3,430,000	1	7	80ft
Paris	2,140,000	6	8	65.5ft
Berlin	1,540,000	3	9	72ft
Rome	1,250,000	9	10	78.5ft
Shanghai	500,000	5	11	No more than 84ft£[a] setback required if more than 1.5 times the width of the adjacent streets

Source: Asia Realty Company, *Shanghai Real Estate Monthly*, 1931.7, 5~6.

than a church or chapel) should be erected to more than 84 feet in height, and on any municipal road such that the height of such a building should exceed one and a half times the distance from the front or nearest external wall above the first floor of such a building from the opposite of such Municipal Road. An exception was made for buildings adjacent to open space of at least 150 feet in width.

Taking London and New York for examples, the impact of building height restrictions is obvious. Even though the population in London was 1.27 million larger than New York, its most expensive price of land was just 1/5 of New York's priciest real estate. And if the system of building height control was relatively loose in cities, like Boston, Indianapolis, and if the population is far less than the top five big cities (0.78 million in Boston, 0.36 million in Indianapolis), these cities also ranked much higher in terms of land prices than London. In summary, any cities with strict regulations of building height, even where population was relatively large, saw lower land values, and vice versa.

2.2. Spatial distribution of high-rise commercial buildings in the late 1920s

In Shanghai, the high-rise commercial buildings with the frame structures were mainly located in the central district of the International Settlement until the late 1920s. The boundaries of this area are Suzhou Creek on the north, the Bund to the east, south to Avenue Edward VII (now East Yan'an Road), and west to Tibet Road. Two of these buildings were adjacent to the public recreation ground in the west district along Bubbling Well Road.[1]

By 1929, there were 18 commercial high-rises over 84 ft height, among which 11 buildings were concentrated along the Bund, and 4 buildings were located in Sichuan Road very close to the Bund (Table 3). The Sassoon building, completed in 1929, became the tallest skyscraper (164.5 ft, 13 stories) in Shanghai in late 1920s, and kept this "crown" for almost five years, until the Park Hotel was built in 1934.

As shown in Fig. 1, the locations of the high-rise commercial buildings and the spatial distribution of density by the end of 1929 can be clearly observed. Based on the map of land values in 1929 made by the American Asia Realty Company, most tall commercial buildings were concentrated in the location of the peak price area where the land value was more than 0.2 million tael/mu; the others were located in the secondary peak area, where the land value was more than 0.1 million tael/mu. In summary, according to the analysis of the distribution of the tall commercial buildings against the historical spatial data of land prices, the sites where these buildings were located were all in the peak or secondary area of land value (Fig. 2).

2.3. Land value development in the central district (1899-1930)

Recent research into the history of land value development in Shanghai from the 1900s to the 1930s allow for clear analysis of the value evolution in the center district of the International Settlement. It's particularly important to analyze the influence on those values before and after the completion of high-rise buildings (Fig. 3).

Table 3. List of High Rise Commercial Building (1915-1929)

No.	Building	Completed Year	Location
1	Union Building	1915	Bund
2	McBain Building	1915	Bund
3	Yangtze Insurance Building	1920	Bund
4	Glen Line Building	1922	Bund
5	Chartered Bank Building	1922	Bund
6	Asia Realty Building	1922	Sichuan Road
7	Headquarters of Tata Chemicals Europe Company	1922	Sichuan Road
8	HSBC Bank Building	1923	Bund
9	North-China Daily News Building	1924	Bund
10	New Yokohama Specie Bank	1924	Bund
11	Nishin Navigation Company Building	1925	Bund
12	Bank of East Asia Building	1926	Sichuan Road
13	Four-bank Deposit Association Building	1926	Sichuan Road
14	China United Assurance Society Building	1926	Bubbling Well Road
15	New Custom House	1927	Bund
16	Capitol Building	1928	South Suzhou Road
17	Foreign Y.M.C.A Building	1928	Bubbling Well Road
18	Sassoon Building	1929	Bund

[1]Bubbling Well Road is the former name of West Nanjing Road, which was used between the year of 1862 to 1945.

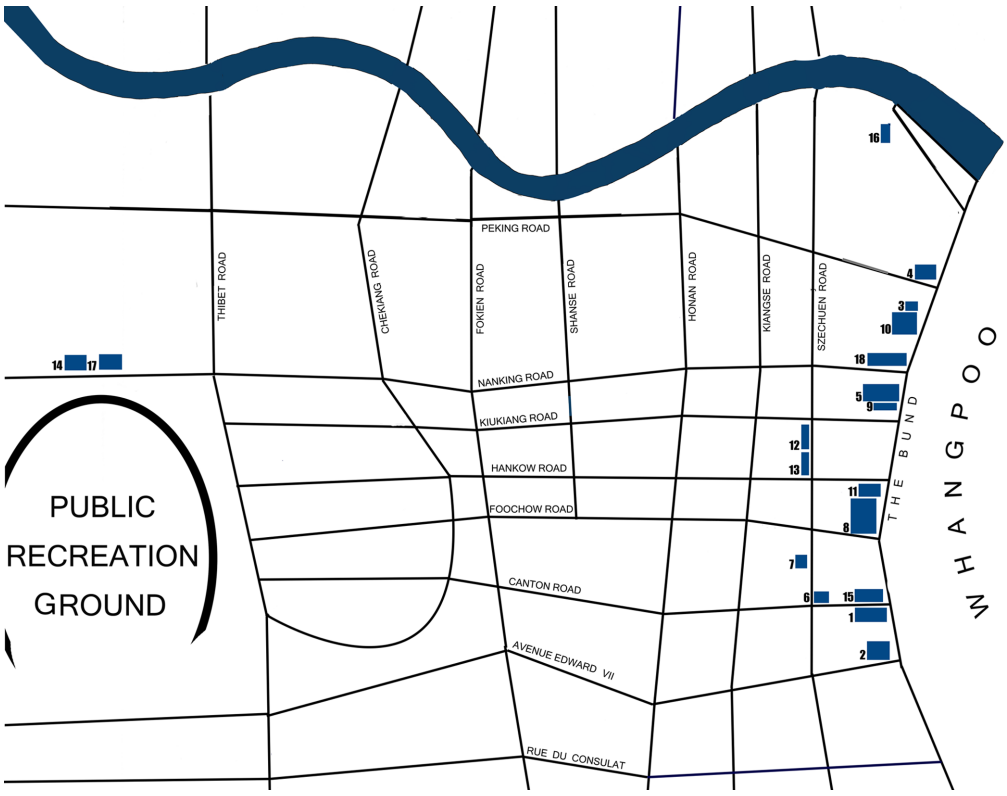


Figure 1. Space contribution of High-Rise Commercial Building in the late 1920s.

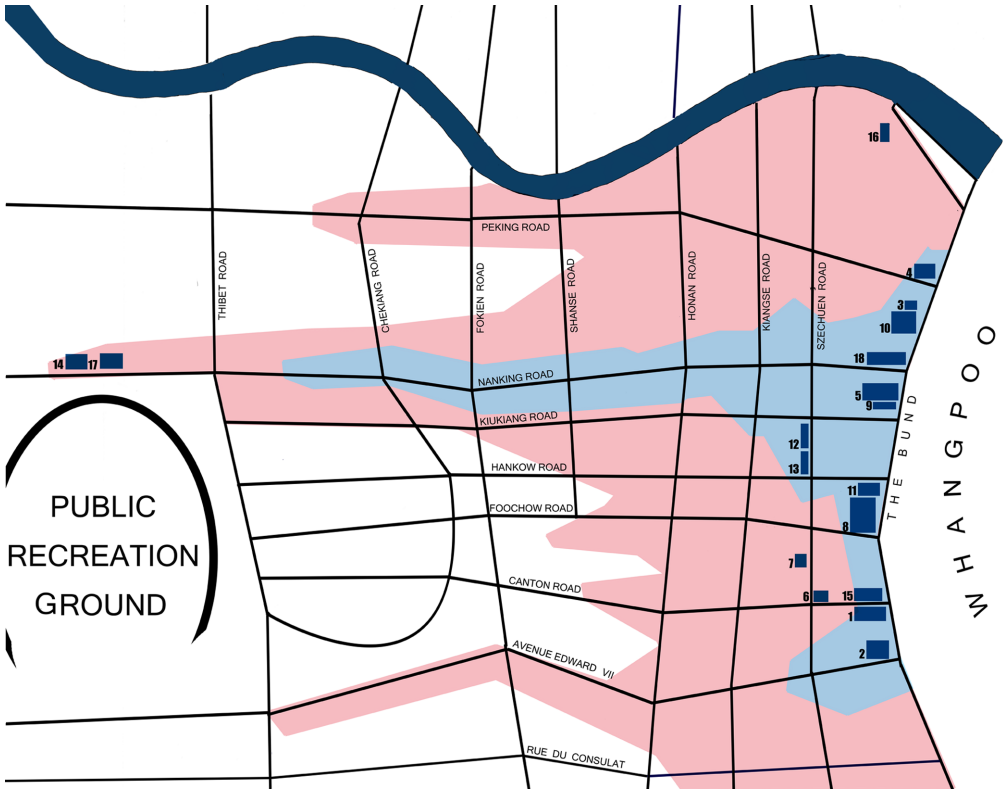


Figure 2. Correspond to the map of land value from Asia Realty Company in 1929.

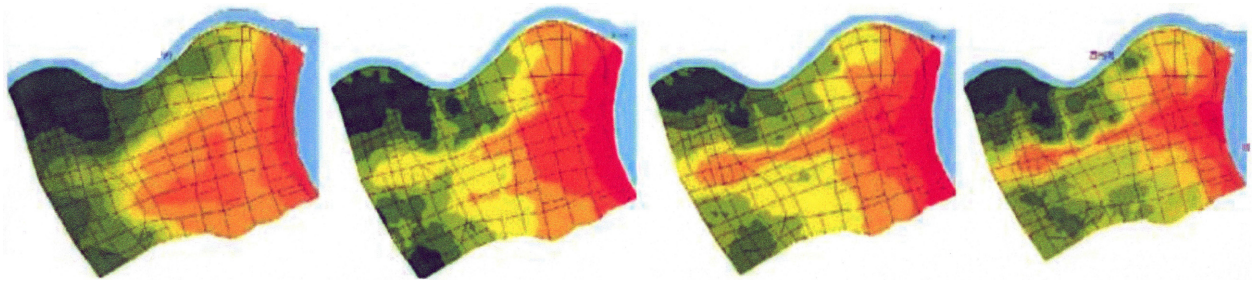


Figure 3. Land value development in the center district: 1899, 1911, 1922, 1930 (from left to right) (Source: Zeng Shengwei, Space Research on Land Value in the International Settlement in Shanghai (1899-1930), the dissertation for Master Degree, Fudan University, 2013, pp. 46-52.)

(1) 1899

As shown in the land value spatial distribution of the central district in 1899, Nanjing Road is the boundary beyond which the land value of the southern side was significantly higher than that of the northern side. The peak area is along the interface of the Bund; the secondary peak areas of land value are in Sichuan Road, and around Henan Road and Fuzhou Road.

(2) 1911

The changes of land value distribution were more obvious, showing increases in the east and lower values in the west. The land prices north of Nanjing road were increasing significantly, while the peak area along the Bund was sprawling out to the west; meanwhile the high-priced area along Nanjing Road began to develop, and extended to the public recreation ground along Bubbling Well Road in the west district.

(3) 1922

The overall characteristics of distribution were towards high values in the east and lower values in the northwest and southwest area. The most important detail of the change was that the "T-shaped" structure of a higher-value belt from the Bund to Nanjing Road had been formed, and extended to the public recreation ground along Bubbling Well Road in the west district. Affected by the development of the "T-shaped" structure, Fuzhou Road east of Henan Road was still in the high land-price distribution area.

(4) 1930

In 1930, the overall distribution of peak price area was reducing. The "T-shaped" structure from the Bund to Nanjing Road fractured in the middle of Nanjing Road and in areas west of Henan Road; the effect of differential land value increased significantly. Another important point: A site with significantly higher values than any of the other plots had emerged at the junction of Nanjing Road and the Bund.

Through archival data and geographical research methods, the spatial structure evolution of land value was precisely analyzed for the evolutionary characteristics of land value in tall buildings' distribution area (Fig. 3).

3. Sassoon House: the Tallest Building in Shanghai, and its Impact on Land Value Development

With the land value data analysis now presented, following is a demonstration of the positive impact of building skyscrapers on regional land prices.

3.1. Building history

The Sassoon House was completed in 1929, which is located in Cad. Lot No. 31 in the junction of the Nanjing Road and the Bund. This skyscraper not only broke the height and volume records of former buildings, it also presented a brand-new architecture style in the Bund. It was becoming a landmark of Shanghai and in the Far East, supported by large-format photos, advertisements and appreciative reviews in the English-language magazines of the time[2] (Fig. 4).

This No. 31 plot was bought by Messrs. E. D. Sassoon and Company in the end of the 19th century, but the company did not build on the site until the 1920s. Compared with other plots along the Bund, its land price was in the middle level during this period.

In 1925, detailed schemes of the Sassoon House began appearing in the media, and the project received much attention. The reports about this building and its construction were published in many newspapers and magazines from 1926 until 1930, one year after its completion (Fig. 5).

3.2. Top ten highest-valued plots (1911-1933)

According to analysis of the statistics from the Municipal Council Land Evaluation, the top ten plots of land value had been collected from the years of 1911, 1922, 1927, 1930 and 1933 (Table 4).

The most expensive land price in International Settlement was 90,000 tael/mu in 1911, and the five plots rep-

[2]THE CATHAY HOTEL AS SYMBOL: An Appreciation in Prominent American Journal. THE NORTH-CHINA HEARLD.1930.12.23, p. 410.



Figure 4. An advertisement in North-China Daily in 1929.



Figure 5. Historic photo of Sassoon House

Table 4. Top ten Plots of land value (thousand tael/mu)

1911		1922		1927		1930		1933	
Cad. Lot No.	Land Value	Cad. Lot No.	Land Value	Cad. Lot No.	Land Value	Cad. Lot No.	Land Value	Cad. Lot No.	Land Value
6	90	32	175	31	220	31	325	31	360
26	90	37	175	32	210	32	325	32	360
41A	90	41A	165	37	200	37	270	37	315
45	90	43	165	37A	200	41A	270	41A	305
50	90	45	160	41A	200	85	260	37A	305
54A	90	26	150	41G	200	34	250	85	300
56	87	31	150	45	190	28	250	34	290
32	85	37A	150	43	190	26	240	41G	290
24A	85	54A	150	49	190	36	240	28	290
49[a]	85	55[b]	150	26	190	43	235	43	285

[a]Cad. Lot No.54B and No.3 had the same land value of Cad. Lot No.49.
[b]Cad. Lot No.41G had the same land value of Cad. Lot No.55.
Source: land value statistics from the Municipal Council of the International Settlement in 1911, 1922, 1927, 1930, 1933, preserved in the Shanghai Municipal Archives.

orting this price were all located on the Bund, at Cad. Lot No. 6, 26, 41A, 45, 50, 54A, the gap between the top price and the other four plots' land value was very small. To some extent, the land value of the Bund, and also the top ten, was relatively homogeneous.

In 1922, the top price was 175,000 tael/mu, commanded by one plot located at the crossing of Nanjing Road and the Bund, and another at Jiujiang Road and the Bund. The Cad. Lot No. 31 where the Sassoon House was located entered into the top ten for the first time, with a land price of 150,000 tael/mu, but it was still some distance from first place. The differential trend of land value spatial distribution appeared because of the advantages of the commercial function of land use in Jiujiang Road and Nanjing Road.

In 1927, the second year of Sassoon House's construc-

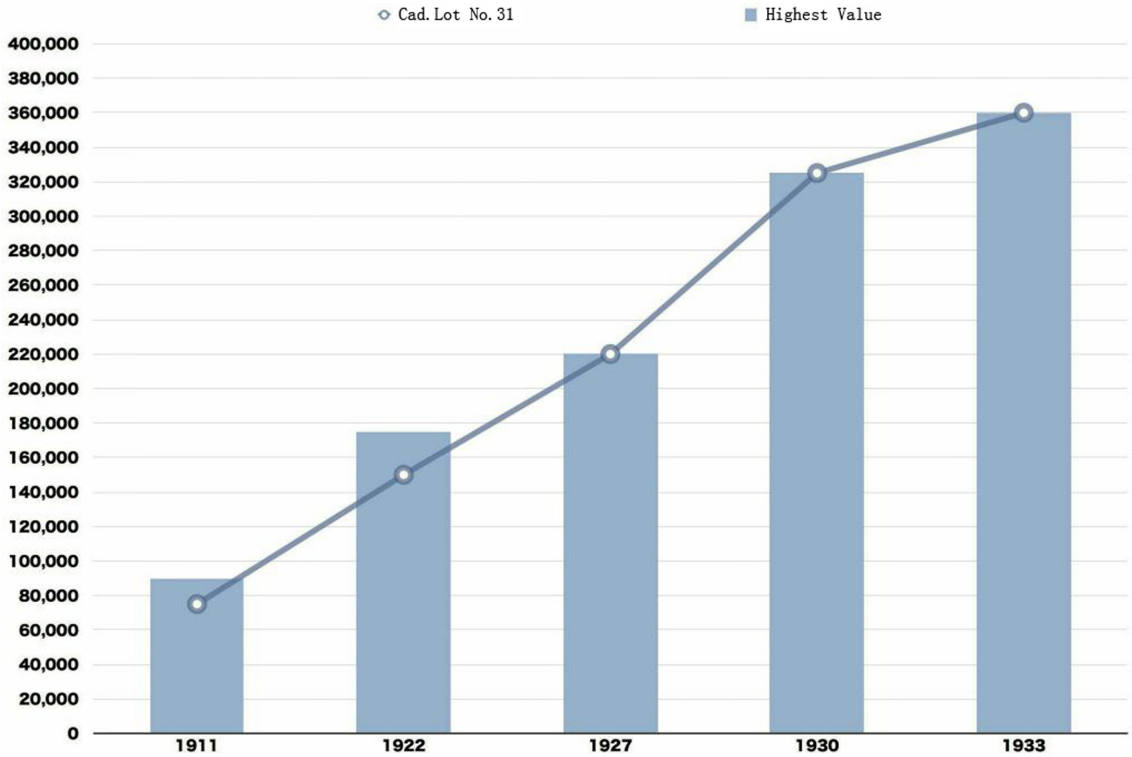


Figure 6. Chart of land value Growth in Cad. Lot No. 31 and compared with the peak price in each year.

tion, the location Cad. Lot No. 31 recorded the highest land value at 220,000 tael/mu, and unlike in other years, there was no parallel valuation this time. The valuation of Cad Lot No. 32, which is the opposite corner plot of the Sassoon House, came in second with 210,000 tael/mu.

Obviously, a significant skyscraper construction boom had a very positive role in the increase of land value. Before Sassoon House was completed, its land value had appreciated to become the most expensive value in Shanghai, which netted positive commentary and promotion from the Evaluation Committee of the Municipal Council (Fig. 6).

3.3. The changing spatial distribution of the top ten

After the completion of the Sassoon House in 1929, the land value of the surroundings increased significantly, especially along the eastern section of Nanjing Road. From the survey data that the Land Evaluation Committee of the Municipal Council released in 1930, the highest property value in that year was 325,000 tael/mu for two plots, just as Sassoon House and its opposite land Cad. Lot No. 32 were both reaching their peak.

The land value of Cad. Lot No. 37A and Cad. Lot No. 41, which were located at the corner of Jiujiang Road and the Bund, adjacent to Nanjing Road, was 270,000 tael/mu, ranking second. At 55,000 tael/mu, this was the widest gap between the highest and second-highest price yet recorded in the area.

Furthermore, there was another important feature of the spatial distribution of the top ten plots in this year. In previous years, the top ten plots all faced the Bund, but in 1930, the land value of three plots in Nanjing Road increased rapidly, which the Cad. Lot No. 85 at the southwest corner of the Nanjing Road and Sichuan Road increased to the third rank, with 260,000 tael/mu; the Cad. Lot No. 34 and the Cad. Lot No.28 in the southeast and the northeast corners of the Nanjing Road and Sichuan Road increased to fourth place, with 250,000 tael/mu. The fifth-ranked price and below all faced the Bund (Fig. 7).

The valuation in 1927 ranked the top ten plots and noted their distribution, but by 1930 the peak price distribution had widened. The 1930 district land value spatial distribution shows that the Bund-Nanjing Road peak point, and the Bund and Nanjing Road "T"-shaped high land price area formed at the same time.

Compared to the space distribution of the top ten plots in the former years, the distribution in 1930 was more concentrated. The characteristic was the same as shown in the spatial distribution of land value in the central district in 2.3, when the peak values appeared at the corners of Nanjing Road and the Bund. The differential price was more obvious in the different section of Nanjing Road, when the "T-shaped" structure of high prices from the Bund to Nanjing Road formed.

According to the Municipal Council's land evaluation in 1933, the last one undertaken during the settlement period in Shanghai, the overall distribution of the top ten



Figure 7. Top ten plots of land vale in 1911, 1922, 1924 (the deep red represents the plot with the peak price in that year).

was very similar to 1930, except for some small adjustments of the ranking and two blocks' replacement in the Bund. The Sassoon House and Cad. Lot No.32 were still the most expensive plots and their value had risen to 360,000 tael/mu. Cad. Lot No.37 at the northeast corner of Jiujiang Road and the Bund got second place. The price of plots in Nanjing Road had all declined slightly and dropped by one ranking, including Cad. Lot No.85 to fourth place, Cad. Lot No.34 and Cad. Lot No.28 to fifth place. There was reason to suppose that this was the result of the weakening of the effects of the completion of Sassoon House. The space distribution of the top ten plots was still close to Nanjing Road (Fig. 8).

4. Conclusion

To conclude, from the perspective of land value growth, the commercial plots would grew rapidly than residential or industrial. Because there were no clear zoning laws in Shanghai at that time, the building function totally depended on the owner's desire and capital power. According to the analysis of the historical data of land evaluation, the high-density development of the high-rise commercial building in the Bund at the first caused the commercial use of land to extend further to the west of Sichuan Road and Jiangxi Road; meanwhile, with the commercial- and entertainment-focused development in Nanjing Road, the high land value of in the "T-shaped" structure formed.

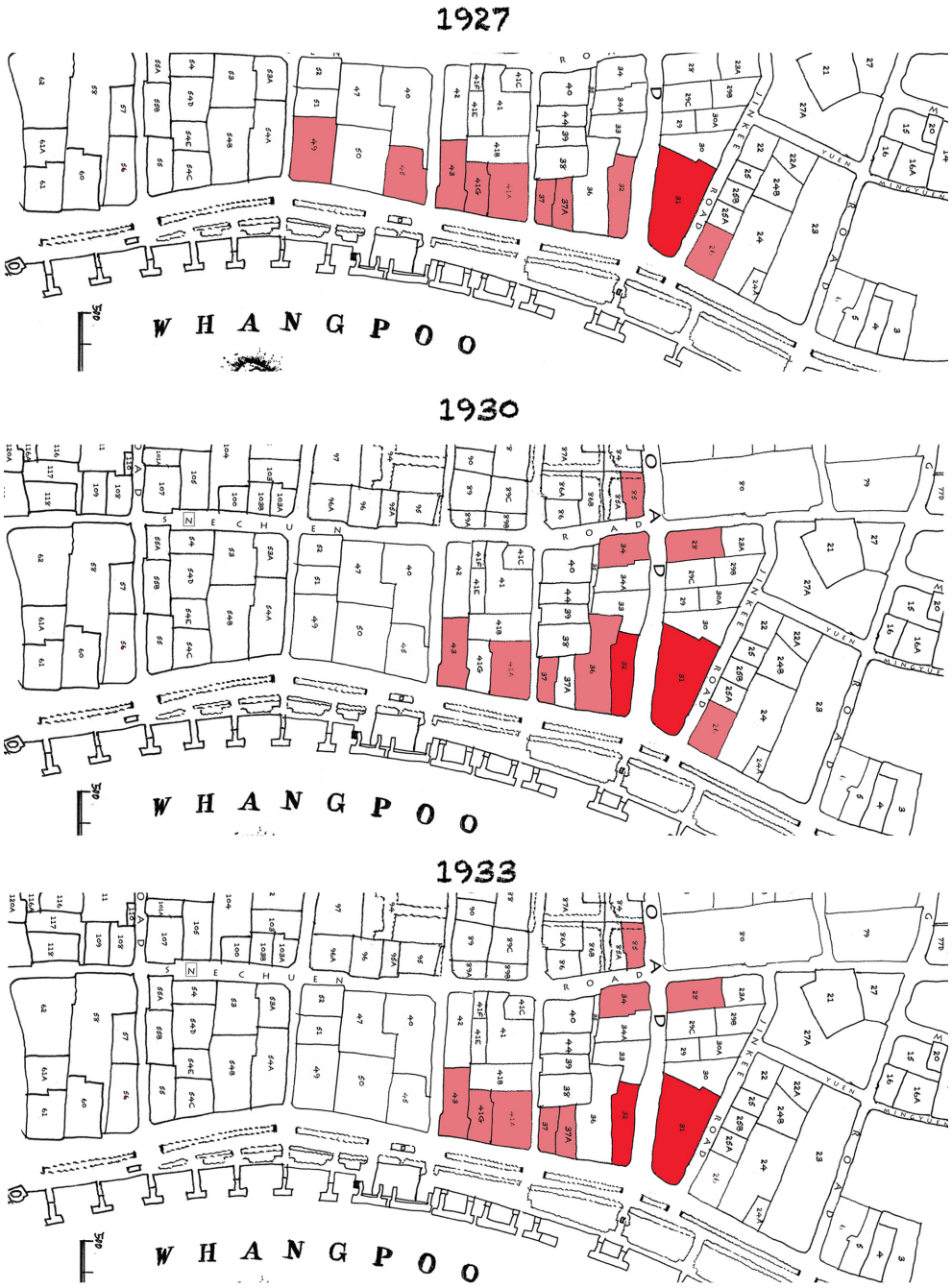


Figure 8. Top ten plots by land value in 1927, 1930, 1933 (the deep red represents the plot with the highest price in that year).

Thus, the central district in the International Settlement was becoming the true business center in Shanghai, and commanded accordingly higher prices.

The construction of the China United Assurance Society Building and Foreign Y.M.C.A Building led the collective changes of neighbor blocks' land use to the commercial functions east of Bubbling Well Road, which had consisted of isolated rural houses before the 1920s. With the entertainment function of the public recreation ground, this area became the second commercial center of Shanghai in the settlement period.

The land value data of Cad. Lot No. 31, where Sassoon House located, is the representative case to illustrate the effect of high-rise building construction on the increasing of the land value of its location and the adjacent area. The "architecture" stepped into the business, and its inner space

turned into a commodity, and eventually, "the Skyscrapers became the ultimate manifestation of architecture in the capitalist world"(Carol Willis, 1995).

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