

An Analysis of Development of Modernism as a Contra-Flow Illustrated by the Case of T. P. Yang's Design of Buildings

Zhen Li, Honghe Chen*

Army Logistical University of PLA, Chongqing 401331, China

**Corresponding Author.*

Abstract

A current trend in architecture is towards an overemphasis on its form but a neglect of building structure, function, surrounding topography and cost-performance ratio. This tendency triggers the current analysis, which, based on both a review of the emersion and development of Chinese Modernism Architecture before the Anti-Japanese War, and that of the city construction in Chongqing as well as the evolution of Modernism during the period of the war, with specifically an analysis of the architecture in Chongqing by T. P. Yang, finds from it the modernism features of a focus on building function as the leading factor, a hankering to be with concise façade, a use of simplistic but reasonable building materials and structures, and a perfect combination of buildings and its adjacent topography. On the basis of this, the current paper summarizes the special impact of these features on various aspects including economy, technology, politics and so on. To be more specific, with a generalization of characteristics of the thoughts behind the building designs of T. P. Yang, and a summary of the Modernism features characterized by the style of Chongqing during the war, this paper makes theoretical contributions to maintenance and development of principles of modernism architecture design, which state that styles of buildings should be compatible with both the style of the times when they are designed and the topography surrounding them. And this further aids in turning the current trend of design into such one that more attention will be attached to the most important matter of these core issues in designing buildings.

Keywords: *Anti-Japanese war, modernism, T. P. Yang, contemporaneity*

I. Background

The Anti-Japanese War changed not only the destiny of the Chinese nation, but also development of Chinese architecture. At the beginning of 1920s, pressures from nationalism and official-cored political system forced the evolution of Chinese architectural style to happen, which indicate a retro. Then, with an increasing influence of Modernism in 1930s, both Palatial and Style-mixed buildings were transformed into those with a modern style characterized by decoration. However, the Total Anti-Japanese War imposed a devastating impact on this momentum. Most constructions were forced to be in stagnation during this hard time. Nonetheless, Chongqing, as the wartime capital whose position was raised a lot during this period, was brought with a great number of opportunities of architecture development. This made the construction development in Chongqing a countercurrent in the wholistic trend of decline nationwide. An adverse current of Modernism emerged, as the replacement of the main trend of retro, in such a society with stagnant economy. Among architectures epitomizing this thought, those in Chongqing by T. P. Yang is seen as the most typical ones. Thus, a review of the design methodology and Modernism idea behind these buildings against social and economic background of that time will facilitate research concerning development of Modernism in China and arouse people's awareness of the importance of it.

II. Emersion of Modernism against the Ethos of Retro before the Anti-Japanese War

2.1 Retro with Nationalism as the main ethos in this period

After the Opium War, the increasing crisis in all aspects forced the Chinese nation to learn from the West advanced technology, their culture and regimes for the purpose of revival. Failures in this hard process made people realize

an increasing crisis of culture of Chinese nation's own. Then, such an awareness was gradually reflected in building styles, by means of an increasing embodiment of styles of Chinese culture. Culture, as a core aspect of any nation, was expressed by architecture in it. Therefore, it can be seen from buildings of that nation both what the nation is like and the course of development [1]. As a counterweight to the continual input of buildings of western style, Chinese Eclecticism emerged in about 1920s, which applied modern techniques to traditional Chinese constructions for their revival. In 1927, the choice of Nanjing as the capital by the national government marked the end of separatist warlord regimes. Such a relatively stable society allowed for an increasing number of constructions. This, together with a traditional-Chinese-style orientation, made buildings with Chinese architectural style, represented by Sun Yat-sen Mausoleum [2], popular. Such a trend did not cease until the Total Anti-Japanese War in 1937.

2.2 Introduction of modernism under the new thought of democracy and science

Besides the ultranationalism as a counterweight to the culture crisis, the New Culture Movement by Duxiu Chen, Xun Lu and so on was also set to deal with it. Rather than making efforts to recover the retro, they placed a high value on science and democracy. Hereto, two kinds of culture awareness which were at opposite poles arose, both with the purpose of counterbalancing the brunt of western systems of economy, culture and politics. Compared with its counterpart, the New Culture Movement made great contributions to the development of science, broadened people's horizons and laid a solid foundation for the evolution of Modernism.

During the period between WWI and WWII, there was a boom of modernism buildings, with relevant theories continually being developed. In his book of *Vers Une Architecture* in 1923, Le Corbusier called for constructions with a brand-new modernism [3]. And the advocacy found its way into China, whose society was relatively stable at that time. In the end of 1920s, modernism began to exert its influence upon Chinese construction industry. A number of architects, such as Ziheng Yan, Dayou Dong, Yangmo Guo, Wenzhao Fan, made an attempt on modernism architecture in many cities including Tianjin, Shanghai, Nanjing, and Guangzhou, etc [4,5].

The Chinese architecture industry followed the foreign trend of construction not only from the perspective of practice, but also from that of theory. The set of lectures about new approaches to designing buildings by Le Corbusier was serialized in *The Chinese Architect* from Vol. 2-2 (Feb., 1934). And in Vol. 2-8 (Aug., 1934) was published *An Overview of Modernism Architecture* by Lizheng He, a student of grade 1931 in National Central University, which outlined seven characteristics of modernism architecture. In 1936, *New Architecture* was founded, which also promoted modernism constructions. It could be seen from this that there had been a good grasp of modernism in China in terms of both theory and practice.

However, the number of modernism constructions was still quite smaller than that of those with an eclectic style. Deemed as a representation of popular architecture in 1930s, modernism constructions were built only mainly in big cities like Shanghai and Nanjing, showing characteristics of an incipient stage. Then, the Anti-Japanese War in all aspects nearly totally obstructed this development. But the modernism, although still in its incipient stage, managed to find its way to survive.

III. Evolution of Modernism Constructions in the Wartime Capital of Chongqing during Anti-Japanese War

3.1 Development of Chongqing during the war

With the progress of the war and the loss of Nanjing, Chongqing, a city in the rear area of China, was set as the wartime capital, and thus became the center of politics, economy and industry. Along with the KMT government, 104 party, government, and military guard organizations, 429 factories of large or medium scale, 25 colleges, as well as many cultural organizations, medical and scientific institutions, transportation and financial institutions all chose to move into Chongqing [6]. And this city, an inland one but with its port opening as early as 1890, began its

rapid development, with such resources. The population here increased from 300 thousand before the war, to 1.25 million in 1945, more than half of which were from regions other than Chongqing [7]. The increasing demands of buildings by an increasing number of population and institutions, together with the fact that constructions were continually damaged by the Japanese army, made the requirement for building fairly large. And this forced a large-scale construction and reconstruction to happen, allowing for various buildings to appear [8].

3.2 Robust development of modernism in disadvantageous environment

Nationwide, only a few constructions continued in this hard time, most of which were small-scale military installations. The lack of opportunities of practice forced architects to attach more attention to theoretical research. *International and Nationalism Architecture – A theory of the Establishment of Form of Architecture in Republic of China* by Ran Huo provided people with a new perspective of political ideology as to design of modernism architecture. The architect of Nianci Dai adopted an even more jacobinical version of modernism. By contrast, many famous architects made an attempt on the combination of the qualities of being modern and being regional [9]. Therefrom, an innovation emerged, which established the paradigm of designing modernism constructions with diversification.

Meanwhile, the destruction by war left the government with no extra time to pay close attention to political attribute to architecture, thus leaving no room for the advocacy of ‘Chinese architectural style’. On the other hand, the increasing sense of social responsibility made the architects challenge the rationality of that style. Such a trend echoed well with the emphasis on sociability and contemporaneity put by modernism, and laid a solid foundation for the development of modernism that was with tenacious vitality, during the hard war time.

IV. Contemporaneity in Constructions by T. P. Yang in Chongqing

Modernism was characterized by a focus on building function, an advocacy of new materials and structures, a close attention to the cost-performance ratio, and an objection to any copy of the old style. These became guidelines based on which architects made an attempt on innovations.

Constructions by T. P. Yang was deemed as the most typical ones among all buildings in Chongqing in that time. Between 1927 and 1937, he was engaged in design and repair of nearly 50 buildings, distributed in Shenyang, Beijing, Nanjing and many other places, among which the Warehouse of Bank of China that was in Tianjin, and Dahua Theater in Nanjing were both with modernism. This made him a leading authority in the industry, known as “T. P. Yang in South and Liang Sicheng in North” together with Liang Sicheng, also known as one of “Four Standouts in Chinese Architecture Industry”, the other three being Liu Dunzhen, Tong Jun, and Liang Sicheng [10]. During the war, following Jitai Construction Company enabled him to get involved in practice. In the six years between 1939 and 1945, Yang worked for Jitai, meanwhile teaching in National Central University at the Culture Region of Shapingba district and Ciqikou, a center for culture and education during the war. See Table 1 and Figure 1 for an overview of the nine buildings constructed here by T. P. Yang.

Table 1 An introduction to the architecture by T. P. Yang in Chongqing

NO.	Name	Construction time (year)	Building Material and Structure	Location
1	Hotel of International Gala	1939	Masonry-timber structure	No. 18, Jialing New Street(demolished)
2	Rotunda Mansion	1939	Masonry-timber structure	No. 190, Jialing New Village
3	The Mei Feng Bank of Sichuan	1940	Reinforced concrete	No. 74, Xinhua Street

4	Kangjiantang Theater	1940	Masonry-timber structure	No. 181, Zhongshan First Street(reconstructed)
5	Peasantry Bank of Chongqing	1941	Unknown	Southern extremity of Square of Monument to the people's Liberation (demolished)
6	Porch of the KMT government	1941	Stone	No. 232, Renmin Street, Yuzhong District
7	Parachute Tower of Wartime Capital	1942	Reinforced concrete	Datianwan Stadium, Yuzhong District
8	Linsen Mausoleum	1943	Reinforced concrete and stone	Communication College of Chongqing, Gele Mountain
9	Theater of Youth Association in Chongqing	1944	Hybrid structure including stone and rammed earth	Unknown(demolished)

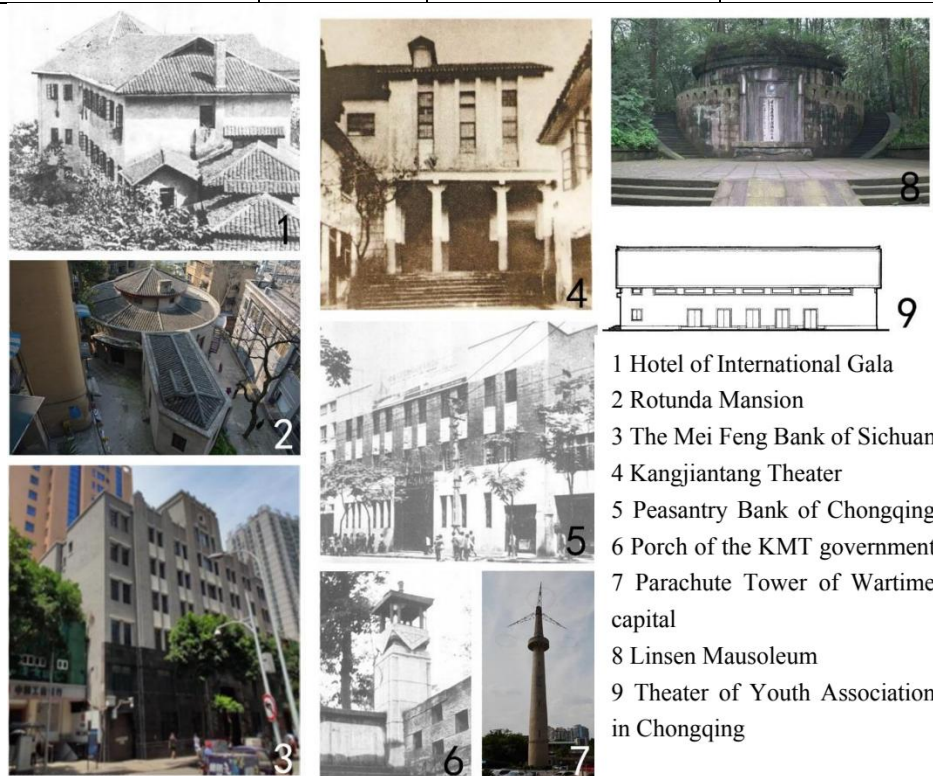


Fig 1: Photos of constructions by T. P. Yang in Chongqing

Among them are banks moved here, mansions and mausoleums of celebrities, installations of government, and infrastructure for military discipline as well as for art appreciation. Despite the vast variability of them, there was one thing in common, which was the essential characteristic of T. P. Yang's design before the war. The commonality was first featured by a great symmetry of buildings. Second, there was harmony among different part of the architecture in terms of the respective proportion they took. With exceptions of Linsen Mausoleum and the porch of KMT government which still took the form of a traditional style, all the rest buildings were designed with a pursuit of a focus on function, a simplistic form, a common and reasonable material and structure, and a perfect fitting into their surrounding topographic environment. Such a pursuit well epitomized modernism features characterized by the style of wartime capital during the war.

4.1 Predominance of functionality

The Hotel of International Gala took a flexible form of "L", and the Mei Feng Bank are more like a parallelogram than a rectangle. From the perspective of plan, instead of a pursuit of an absolute symmetry, concessions, skewness,

and protrusions were made in both. For example, the kitchen in the hotel was placed in the extremity and was also skewed to some extent. And for the Mei Feng Bank, the protrusion of vault from the business hall was made to ensure a square room for the main body, and the concession was made for enough daylighting for stairs. Despite a pursuit of being square in the whole, a unification of every single part was not insisted. Instead, more attention was paid to the assurance of a more fine-grained division by function and a more reasonable

But predominance by function was not an equivalent of a 100 percent pursuit of function. See Figure 2 and Figure 3 for an analysis of the axis of the Hotel of International Gala, and the Mei Feng Bank and its alternations. Concerning designs of some critical spaces, stabilization and symmetry would still be taken into consideration, with the purpose of being with beauty. This was also an indication of an integration of modernism and Beaux-Arts in T. P. Yang's design.

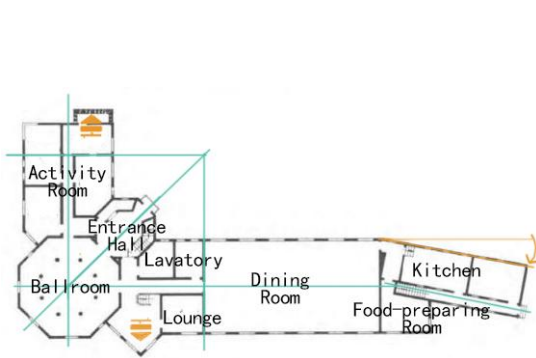


Fig 2: An analysis of axis of hotel of international gala and its alternations

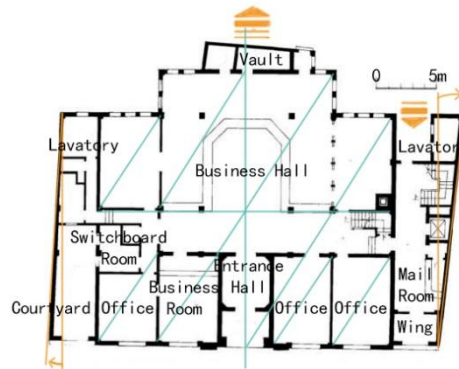


Fig 3: An analysis of axis of the mei feng bank and its alternations

4.2 A pursuit of simplicity in form and façade

Generally, buildings by Yang in Chongqing were featured by simplicity in form and facade. For them, there was neither intricate and extravagant decorations like arch in western architecture, nor long eaves typical of the Chinese style. The most representative build was Peasantry Bank of Chongqing. Taking longitudinal square windows in its facade, variability in their sizes and materials were manipulated to enrich the facade, without any other additional decorations but still with a strong modernism style. Along with the bank were the Parachute Tower and Rotunda Mansion. For the former, which was for military discipline, a design of simplistic three-dimensional cone-type form was adopted. At its top, three umbrella-like steel structures overhung in different directions, each with a length of about nine meters. There were also longitudinal windows along its main body to ensure enough daylighting into the inside. Besides, the overall style of being grand and the good coordination of sizes of different parts together epitomize those extraordinary characteristics of Yang. For the latter, which was the residence of Sun Ke, who was the president of the legislative institution, its facade also showed a style of simplicity, through the form that was like a badge.

4.3 A adoption of simplistic but reasonable materials and structures

Because of the lack of modern building materials including steel and cement, T. P. Yang utilized materials unique to the region of eastern Sichuan and techniques here, to get access to fast constructions with a low cost. For example, the Hotel of International Gala was built with hybrid structures and materials including fence by bamboo, pillars by bricks, and skeleton by timber. The Rotunda Mansion was built by a mixture of stone and timber. See Figure 4 for a diagrammatical sketch of the internal structure of the Rotunda Mansion. The Youth Association Theater was built by brick pillars, rammed earth, bamboo, or cavity walls. However, due to the inferior durability of such materials, only the Rotunda Mansion was kept. The basement of it was built with dressed stone, while the first floor with bricks and plaster, and the roof with timber skeletons. The local style was shown in its roof, rather

than its doors, windows and walls, where there were no additional decorations. But such a style was not embodied in its inner structure, the design of which did not follow the pattern of either column and tie construction or post and lintel construction. Instead, the skeleton of a western style was chosen, according to which laterally bracing truss was mainly used. The Rotunda Mansion indicated a perfect combination of the use of readily available materials, the adoption of folk techniques, and the choice of modern design method. Such a combination further served as an indicator of the equilibrium among the easiness of construction, the rationality of structure, and the utilization of spatial resources by T. P. Yang [11]. Despite the lack of modern building materials, the white walls and black tiles nevertheless showed characteristics of modernism and regionalism during the war [12].

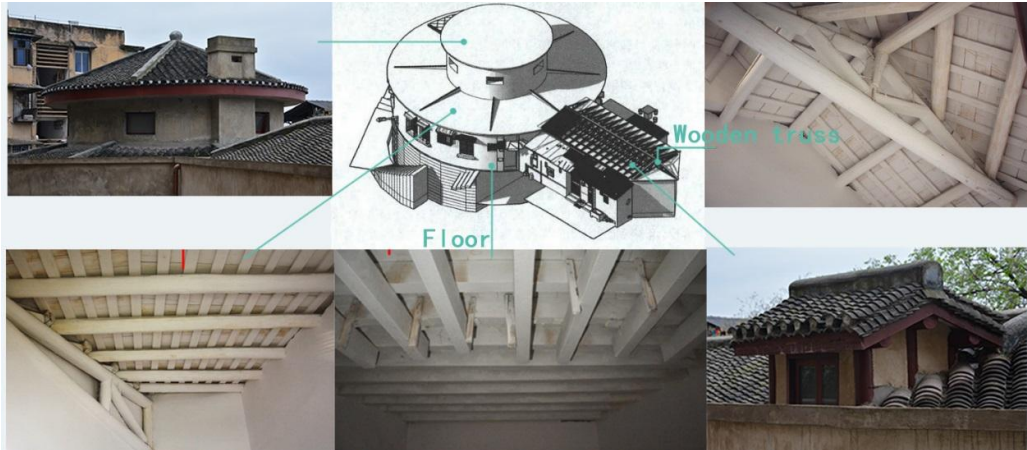


Fig 4: A diagrammatic sketch of the internal structure of the rotunda mansion

4.4 A good fitting into surrounding topographic environment

Both the Hotel of International Gala and the Rotunda Mansion, the distance between which was no more than a hundred meters, in the 'International Village', were built half way up the mountain of Eling, in face of the Jialing River. Because of the steep slope, both were built with step-terrace structure, making the buildings better fit into its surroundings and reducing the demands of dealing with the special topography. See Figure 5 for a diagrammatical sketch of the design of step-terrace, structure of the Rotunda Mansion. Besides, rooms with little requirement for ventilation would be placed in those additional floors. For example, the storage room of the Rotunda Mansion was placed in such floors, whereas the living room and kitchen were arranged in the first floor. Such a design was a typical way of making a good fitting for the constructions into surrounding topography by T. P. Yang, greatly lowering the demand of earth and saving precious construction resources during the war.



Fig 5: A diagrammatic sketch of the design of step-terrace structure of the Rotunda Mansion

V. An Analysis of the Historical Background behind the Buildings as Motivation

From the Mei Feng Bank to the Peasantry Bank of Chongqing, Hotel of International Gala, and Parachute Tower of Wartime Capital, all these constructions, which were instilled with modernism, were outcomes of historical

development. A review of the source of modernism would reveal that many factors contributed to the formation of modernism.

5.1 Theory and practice before the war as the premise

As early as the end of 1920s, the transfer from a superficial understanding of modern architecture to a systematic one of theories about modernism ensured that the seed of modernism had been germinated. There indeed were a certain amount of modernism constructions before the war. Thus, such constructions were accepted. Before the war, as a famous architect, T. P. Yang had designed a series of constructions featured by modernism, including the Central Hospital, Grand Theater of China, etc. Either to an individual or to the society, the notion of a modernism architecture was not a strange one. This was the premise under which T. P. Yang could design such buildings.

5.2 Economic base, technological condition and social background as the core

A strong motivation for the modernism to emerge lay in the fact that the advancement of technology under the Industrial Revolution facilitated the rapid development of capitalism, which attracted enormous migrants from rural areas to urban ones and thus caused a great expansion of demand for buildings. Thus, those with miscellaneous decoration whose would cost people much time to make but with little functionality could not meet such demands any more. Instead, buildings which did meet the demands were those modernism buildings with a focus on functionality rather than decorations, whose construction was featured by modern techniques. The rapid development of modernism buildings eventually took the place of those with eclecticism. Thus, the outcome of modernism architecture was modulated by economic base, technological condition and social background.

The same went for China, between 1920s and 1930s. First, there was social stability before the war. The steadily developing economy, especially the fast development of industry and commerce in metropolitan cities, laid a solid economic foundation. The second factor lay in the rapid spread of new construction technologies. Thanks to this, within a short time traditional manual workshops were transformed into modern construction companies [13]. For example, it was by the use of new building materials and structures that “Chen Ming Ji” Construction Company succeeded in the construction of University of Nanking and Jinling College. Third, the New Culture Movement made people more open-minded, thus making them more willing to accept western styles. All these factors contributed to leaving enough room for the development of modernism. And that was why there could be modernism buildings in the main trend of retro.

At the outbreak of total Anti-Japanese War, the society was brought with radical change. Despite of this, both constructions and theories of modernism still got developed. Such development could be attributed to three aspects of economy, technology and society.

From the perspective of economy, the dramatic recession of economy did not lower the demand for buildings. What was changed was the driving force, which was from capital to the requirement due to the war. In other words, to meet the demand of the great deal of institutions which was forced to move into Chongqing by war, to repair or reconstruct buildings destroyed by war, and to build enough military installations all demanded for a great number of buildings. Taking works by Yang as an example. The construction of the Mei Feng Bank, the Hotel of International Gala, and the Rotunda Mansion was for those institutions that moved into Chongqing and for development of capital, while the Parachute Tower of Wartime Capital was for national defense. Therefore, although the war caused severe economic regression, which seemed to be a brake on construction, the destroy brought by war in the local region of Chongqing instead enlarged the demand for new buildings.

From the perspective of technology, the scarcity of reinforced concrete made T. P. Yang turn to utilize traditional building structures and materials of tiles and earth walls. Adapting the working method to local conditions, construction with the purpose of meeting the demand of the society by use of the most available materials and

structures at that time was undoubtedly reasonable.

From the perspective of society, in accordance with the Hierarchical Theory of Needs, what the focus was on had changed from style to functionality, due to the overwhelming national crisis. And it was the modernism buildings that better met such a demand.

From the above analysis it could be seen that the reason why modernism could get developed lay in the fact that modernism buildings well met the requirement at that time.

5.3 The transformation of official ideology as the facilitator

There has been a close correlation between the regime of the Chinese nation and its construction throughout the history [14]. The Linsen Mausoleum, also a work by T. P. Yang, nevertheless took the form of mausoleum in Qing Dynasty, which was right in contrast with his other works. Due to the fact that Linsen was the former chairman of KMT, construction of his mausoleum would be largely affected by political considerations. Within the same period, works by a single architect could show styles in opposition to each other. This clearly revealed a major role that the official ideology played in development of construction. At the later stage of war, the government turned to be more pragmatic, attaching importance to modernism buildings with a high cost-performance ratio. This was well illustrated by the *Plan of Construction of Residence for Citizens of Chongqing* by Committee of Construction, in which it was said that in such a hard time every effort must be made to lower the cost of construction, by utilizing the cheapest materials and structure of timber pillars and skeletons, earth or bamboo walls, and tile roofs, while still ensuring as much stabilization as possibly.

Buildings were outcomes from certain economic base and culture. And the attribute of culture of a building was often utilized by government for some political purposes. The government could strongly influence the developmental orientation of architecture. Such a turn in official ideology stated above definitely left enough space for the development of modernism.

5.4 The train of thought of T. P. Yang behind the design as the decisive factor

The fact that his parents were both intellectuals enabled T. P. Yang to be exposed to both traditional Chinese and open modern education. Furthermore, instilled with the idea of Beaux-Arts, he nevertheless had the courage to apply the design idea of modernism to buildings. Thus, there were both traditional and modern characteristics, and eastern as well as western features in him. His works indicated that there was both something which he wanted to insist on and something which he wanted to break. What he tried to insist was the maintenance and revival of traditional Chinese style of construction, and what he tried to break was the state of clinging to the old idea, by means of an application of modernism to construction. The principles and guidelines behind this were illustrated in *Paragon of Architectural Design Approach Based on Realism—Research on T. P. Yang's Design Thought* by Guxi Pan, in which it was said that the design of buildings should be people-oriented and that buildings should be for serving people and society rather than for architects' showing off [15]. It was such a design idea of realism that enabled T. P. Yang to design buildings with high cost-performance ratio through an adaptation to local conditions.

VI. Conclusions

It has been a century since the emergence of modernism. Emerging in the main trend of retro in 1920s in China, its development went through several stages including tough development during the war time, the probing development in the Zilü Period (the period characterized by 'self-discipline') after the foundation of P. R. China, and the flourish after the reform and opening-up. As the outcome of certain economic base and social situations, modernism buildings played an important role throughout the tough course of modernization in China.

Nowadays, after postmodernism and deconstructivism comes the nonlinear and digital design [16]. However, it should be noted that the core issue concerning buildings is their functionality, i.e., how well they can meet the demand of people. The ex parte pursuit of novel forms should never be the first thing to consider. A review of works by the master architect of T. P. Yang during the Anti-Japanese War, which shows his design idea of adapting to local conditions in construction, reveals the transitional role such works played for the emergence of postmodernism.

The current review of such a design idea may remind those modern architects, who have been mostly plagiarizing, of the essential issue concerning building design, i.e., the functionality of buildings should always be put in the first place. In the course of any design, an architect should consider how to make an adaptation to the local conditions. To be more specific, he should consider whether the design would meet the demand of society, whether it is in line with the local culture, and whether it fits into the economic base. And what T. P. Yang did provides a good answer to these questions, i.e. an insight into the essence of modernism and an insistence to the design principle of an adaptation to the local conditions.

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