

# Old Well Temple·New Academic Garden—A Review of the History of Construction and Sustainable Development of UNC's Old Well Temple

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## Research article

**Keywords:** the Old Well Temple; UNC at CH; Academic Garden; cultural heritage; the Circle Square & Square Circle Pattern; the Vitruvian Man

**Posted Date:** April 6th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-19966/v1>

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# Abstract

The Old Well Temple, which represents a kind of humanistic spirit rooted in the 18th century, is a symbol of the University of North Carolina at Chapel Hill. Due to the concern and protection of all walks of life for more than 200 years, the Old Well Temple, which is associated with traditional wisdom, is still alive today, inspiring generations of latecomers. As per the context of the current heritage protection, this paper reviews the sustainable processing of the historical and cultural heritage protection project. After analyzing its function and characteristics in the changes of social trends, campus planning and design, and architectural art language, the article believes that the Old Well Temple's proportion is a combination of the Circle Square & Square Circle Pattern and the Vitruvian Man. It provides a reference for the theory and practice of conservation and sustainable development of the current historical and cultural heritage.

## 1. Introduction

The University of North Carolina at Chapel Hill (abbreviated as UNC at CH) is known as the Paradise of the South for its beautiful natural and cultural landscape. As an iconic landmark of the UNC at CH campus, the Old Well Temple contains a strong, an eternal spiritual belief.

The Old Well Temple was built in such a very special historical period, which soon after the end of the American Civil War and the assassination of President Abraham Lincoln's terrible period. As per the context, the development of it can be divided into four important stages: 1793?-1856(a three floors wooden Bell Tower); 1856-1897 Oriental Pagoda Type Spire; 1897-1954 the Old Well Temple; 1954-now the new Old Well Temple, which is co-existent with the UNC at CH and they always sink or swim together. Nowadays, along with the deeply rooted in the concept of sustainable development, the Old Well Temple will also be renewed and the old tree sprouts.

## 2. Materials And Methods

There are important related researches on history and style analysis. In case of Madry's book [1](p. 93), the history of construction of the Old Well Temple is revealed, and the source of its style and style was analyzed. In case of Kenan's book [2](Kenan,1949), some precious historical pictures of the Old Well Temple are recorded so that we can ascertain its original designs.

This paper tries to analyze the style, proportion and scale of the Old Well Temple. And learning from the previous generation. The purpose of this paper is to collect and analyze the architectural features and humanistic spirit of the Old Well Temple, reveal its development history, and explore its strategies for sustainable development and inheritance.

## 3. Results

### 3.1. The origin of the Old Well Temple

Before the existing Old Well Temple, there were already several early structures on the site of the Old Well. A three-story wooden Bell Tower (Fig. 1) was originally erected, but it was unfortunately burned down in 1856 [3] (Allcott 1986).

Figure 1 The campus scene of the University of North Carolina at Chapel Hill in 1852 ( Figure Source: From [4] (Powell 1972). )

Figure 2 Association of the Oriental Pagoda Type Spire and the Primitive Hut in Essay on Architecture. ( Figure Source: Left from [2], Right from [5] )

Since then, an Oriental Pagoda Type Spire has been built on the site of the Old Well and continues to perform its historical process (Fig. 2 left). It was not of Japanese design, but was an octagon, had a steep, pyramidal roof and eight wooden columns. Its style is very similar to that The Primitive Hut [5] (Laugier 1755) ( Fig. 2 right) proposed in Essay on Architecture published in 1753 by Marc-Antoine Laugier, whose way is to return to the origin of the architecture - the original house made of branches, and use it as the theoretical basis for natural and pure architecture [6] (2015). Similar to the Primitive Hut, the Old Well Temple with stable triangular roof structure, supported by eight wooden columns, can also be seen as the source of the UNC at CH's architecture, and the origin of life, knowledge, and faith.

The Old Well Temple was built in 1897, approximately 105 years after the campus was built (in 1793), which can be considered as a centennial celebration gift to the UNC at CH ( in addition to the five-year abandonment following the Civil War ). Edwin Anderson Alderman, who was the President at the time, had asked Professor Joshua W. Gore to arrange for the design and construction of a round temple. Gore gave the assignment to Eugene Lewis Harris. Finally, they together built a round Neoclassical Temple with a dome and eight columns[1](p. 4).

### **3.1.1. The University of North Carolina at Chapel Hill & the Old Well Temple**

On November 1, 1792, when six members of the University of North Carolina's new board of trustees set out on horseback to look for a university site. After several investigations, they eventually selected the site, where its ridge laced with springs that can be the source of building an Old Well Temple (Fig. 3) [1](p. 5).

Figure 3 Map of the Site of the University of North Carolina at Chapel Hill, November 7, 1792 ( Figure Source: [7])

### **3.1.2. Concept of Space and Function of the Old Well Temple**

As for the concept of space, many people have explored it in the long river of history. Lao Tzu, who was Chinese Taoist originator, in his Book of Tao Te Ching, discussed questions about nature and space. In Taliesin East, Frank Lloyd Wright engraved the famous phrase The reality of the building does not consist in roof and walls but in the space within to be lived in, which he interpreted the concept of space and treated as a classic quote. Sigfried Giedion, the master of modern architectural theory, pursues the inner essence of modern architecture and finds the theory of spatial concepts [8] (Giedion 1956). In fact, this is only a philosophical speculation. However, it is an important enlightenment for architects. In Lao Tzu's concept, the nihility is exactly space and it is a very thought-provoking idea, having an intangible quality. The Old Well Temple is in such a nihilistic site bounded by South Building, Old East, Old West and McCorkle Place. These form the matrix of voids and solids around the Old Well[1](p. 74) However, its appearance breaks the symmetry and monotony of the space, resulting in a balance and harmony in its interior and with adjoining spaces, and gives us a smooth reflection. It creates a beautiful, amazing and wonderful space.

However, why a round temple? There are several explanations. Firstly, in Alderman's mind, he had always admired the little round temples in English Gardens derived largely from the Temple of Love in the Garden at Versailles[1](p. 8). Plato(427 B.C. – 347 B.C.) believed that love is the bond uniting God and Man into a whole entity[1] (p. 15). Secondly, William MacDonald in The Pantheon: Design, Meaning, and Progeny clarifies two primary uses of tholoi dating from the Bronze Age: houses for worship and tombs for burial[9] (MacDonald 1990). However, the Old Well Temple is not a treasury, a mausoleum, a temple for worship, or a temple of Love, and yet in a way it is all these things[1] (p. 106). Lastly, Nelson Ikon Wu believes that the square is the entry into the world and is the world of man; the circle is the export of the world and is the world of nature. Between the square and the circle, between nature and human beings is a world where people and nature reach a balance[10] (Wu 1963). The Chinese gardens have such properties, so did the McCorkle Place and the items it contains. The Old Well Temple, where there is no sequence in such a round building, makes people's minds go constantly to the middle. Aiming to express the linking into memory, the round shape invites a reflection and perception of the descendant to look back and to look forward.

### **3.1.3. The spiritual and humanistic value of the Old Well Temple**

In Alderman's day and in the century before, beauty with a capital B, which represents as an idea, an object, the desired goal in life, even a yearning for democracy, was a subject found in literature and the pictorial arts. He believed that beauty helped people keep a proper perspective on things. It is important to us that it is also a ready subject in treatises by landscape architects. In the late 19th and early 20th centuries, an architectural movement developed that was in favor of order and harmony in public buildings and spaces[1] (p. 57). Since the well was the only student union then on campus, it is very necessary to build a landmark building here. In such an era background, the whole well incident, the building of the little Temple, was a pitiful, yet beautiful, illustration of the way Democracy cries out for beauty to give it backbone—spiritual backbone—that will make it so strong that it can and will defy self-gratification, mobs, and red terrors[1] (p. 9). This is its strong vitality, reflecting its strong spiritual and humanistic values.

## **3.2. Alderman, Gore, Harris, and the Old Well Temple**

### **3.2.1. Construction and protection process of the Old Well Temple**

In the process of construction and protection of the Old Well Temple, heroes and heroines have emerged one after another. In 1896, in order to redevelop the Old Well Temple and add beauty to the campus, Alderman had asked Joshua Gore to arrange for the design and construction of a round temple similar to that of the Temple of Love at Trianon near Versailles, France. Gore gave the assignment to Eugene Lewis Harris[1] (p. 7). With their joint efforts, the Old Well Temple was completed in 1897. And few details are available about the Old Well Temple from 1897 to 1949.

By 1949, the wooden structure was decaying. A discussion on how to build it was carried out again. Mrs. Anne Osborne Hall wrote to President Gordon Gray advised that only an exact replica should be put up in its place. Gray accepted her suggestion and hastened to inform Mrs. Hall of the university's intention to create precisely Alderman's and Harris's Old Well. On February 11, 1953, a plan designed by Arthur C. Nash was generally accepted[1] (p. 19). On October 11, 1954, the new Old Well Temple was completed. Since then, it is well-protected, with few changes in decades. What we saw today is the same as it was decades ago.

### 3.2.2. Alderman and the Old Well Temple

Although he is the president at the time, Alderman is also the proponent and builder of the Old Well Temple. He watched over the design and construction of the Old Well Temple. In the process of construction, Alderman clearly remembered that Harris had extracted the Age and Regional Characteristics of the Old Well Temple with the general idea, and with the Five Models he had given to him(Fig. 4, Table 1). At the same time, Harris drew something after their manner. After getting the Old Well Temple design plan, Alderman and Gore went ahead with local carpenters and built it[1] (p. 11). Together, Harris, Alderman, and Gore built a round Neoclassical Temple. The completion of the project also achieved his social ideal that infused with love of humankind, and he believed that education was essential to eliminate poverty and prejudice.

According to his own testimony, Alderman stated the original consideration of the construction for a number of reasons. Firstly, he had aesthetic destinations. Not beauty but Beauty was his desire for the Old Well Temple[1] (p. 155). Secondly, he wanted to achieve his political ideal through the construction of the Old Well Temple. The Old Well Temple's story has in it an element of using architecture to summon or direct a common energy in recalibrating the political and socio-economic temper of the society. Thirdly, Alderman built it to help North Carolina free itself from the Post-Civil War era, renew its loyalty to the national union, and invest in public education and industrialization[1] (p. 4). He chose to use "practical" means to serve democracy so that democracy can be experienced and touched. It is telling that Beauty in the service of Democracy[1] (p. 13).

Figure 4 Edwin Anderson Alderman(1861–1931) and his Five Models for the Old Well Temple: ☒ The Choragic Monument of Lysicrates; ☒ The Tholos, Delphi; ☒ Temple of Vesta, Tivoli; ☒ The Tempietto in S. Pietro in Montorio, Rome, Italy; ☒ The Temple of Love, Trianon, Versailles, France; ☒ Edwin Anderson Alderman ( Figure Source: ☒ from [11]; ☒ from [12]; ☒ from [13]; ☒ from [14]; ☒ from [15]; ☒ from [16] )

Table 1  
Analysis of the new Old Well Temple and Five Models in Alderman's Mind

	The new Old Well Temple	Alderman's Five Models for the Old Well Temple				
		□	□	□	□	□
Dating	1897 ( redesign in 1954 )	Circa 334 B.C.	360 – 320 B.C.	Circa 72 B.C.	Circa 1502	1778
Artist	Harris ( Nash redesign )	Unknown	Polykleitos the Younger	Unknown	Donato Bramante	Hubert Robert, Pierre- Richard Mique, and J. Deschamps
Style	Neoclassical	Ancient Greece	Ancient Greece	Ancient Rome	Ancient Rome	Neoclassical
Color	Blue and White	Blue and White	White and Black	White	Blue and White	White
Column type (amount)	Ionic, Ionic-style bases and Tuscan- style column capitals	Corinthian order	Doric- external;Corinthian - inside	An Attic base and a Corinthian capital	Tuscan - Doric order	Corinthian order
Diameter (inches)	193(base);160(dome)	72	794.5	completely destroyed	120(temple),168(base)	538.8(steps wide)
Height (inches)	190(plus two 7 steps)	648(include a Piraeus stone base)	no longer standing	completely destroyed	450	405.36(plus 43.2 high steps)
Conclusion	A round Neoclassical Temple. A satisfactory aesthetic reflection of the Five Architecture Models.					
Data from:	[17–20]					

### 3.2.3. Gore, Harris and the Old Well Temple

Joshua Walker Gore(Fig. 5 left), who knew the university from top to bottom, is an engineer, inventor, and professor. During the absence of President Edwin A. Alderman from the campus Gore was acting president, and at Alderman's resignation, Gore was recommended as his successor[21]. He is both a subordinate and a competent assistant to Alderman. In the construction of the Old Well Temple, he agreed with Alderman and strongly supported Alderman's work. He gave the assignment to Eugene Lewis Harris(Fig. 5 right), the university registrar and a professional portrait artist[1] (p. 11). They drew a large number of pencil sketches according to its scale, and took up its building with some nearby lumber company[1] (p. 9). Both of them were designers and builders of the Old Well Temple and together had witnessed its birth.

Figure 5 From left to right, Joshua Walker Gore (1852–1908), Eugene Lewis Harris (1856–1901) ( Figure Source: Left from [21]; Right from [1] (p. 12) )

### 3.2.4. Nash, Eggers, Higgins and the Old Well Temple

Indeed, the SAME is the keyword of the Old Well Temple from 1897 to 1949. The same style, the same dome, the same columns and the same color. The Old Well Temple they designed had hardly changed for about fifty years and few details were available.

By 1949, the wooden Old Well Temple was slowly decaying with time and so Vice President and Controller of the university, W.D. Carmichael, Jr. decided to rebuild and restore it[22]. After a period of disputes and discussions, by February 11, 1953, a plan to replicate the Old Well in stone had been designed by Arthur C. Nash, approved by Eggers and Higgins was basically recognized. While they recommended a "freer and lighter 'colonial' interpretation for the strictly 'classical' proportions of the design." After some discussion, they decided instead to recreate the temple size, posture, and shape exactly using wooden columns, but adding granite

steps, marble bases for the columns, and a copper dome[1] (p. 20). A new frost-free fountain was installed in summer 2001 so that thirsty passers-by can drink winter as well as summer. And this is the new Old Well Temple we see today.

### 3.3. Style Analysis of the Old Well Temple

#### 3.3.1. Overview

There are various proper architectural terms for the Old Well Temple. Most of the vocabulary originated in ancient Greece. For example, monopteros which means a circular colonnade supporting a roof but without any walls[23] (Curl 2006). Unlike a monopteros, tholos is a dome, or domed building or a dome-shaped tomb from the Mycenaean period of Ancient Greece[24]. However, neoclassical architectures are constructed using a systematic application of ancient rules known as the orders of architecture[1] (p. 27). The main colors of the Old Well Temple are blue and white, which are the UNC at CH's school colors, coming from two of the oldest student organizations on campus. Although the white Temple might be contrasted with the red brick building, it goes without saying that the Old Well Temple is the supreme design element in this space. It is human-sized[1] (p. 88). The size of the Temple is most likely a product of Harris's design talent combined with the surrounding environment.

#### 3.3.2. Style, proportion and scale

According to assessments made by two specialists in classical architecture, Dr. Kenneth Sams, and Dr. Gerhard Koeppel, the structure is an amalgam of Ionic and Tuscan design. There are few differences between Alderman's 1897 temple and the 1954 reconstruction except for the material composition of the base and the number of steps. It gives a good impression of an antique structure notwithstanding its departures from traditional forms[1] (p. 29).

Some scholars believe that the early wooden huts in which our ancient ancestors lived were archetypes for later temples. In China, many scholars have done a lot of research in this area. They believe that dwellings are the origin of various other architectural forms, including temples. In the history of China, there is an old saying that Houses are Converted to Temples which is an excellent comment on this theory. When you look at the South Building through the Old Well Temple, suddenly you will find out that the Old Well Temple was present on top of the South Building(Fig. 6). The Old Well Temple is truly a gift from God to the UNC at CH campus. It is almost a replica of the Belfry at the top of the South Building. The Temple bears a family resemblance to Nichol's belfry once alongside the Old Well. Thus, BELFRY may be regarded as the father of the Old Well Temple[1] (p. 81).

In ancient China, the first illustration of Yingzaofashi (圆方) was called Circle Square & Square Circle Pattern (Fig. 7 left) [25](图 2011). It is charming and an important way to achieve eternal beauty, which means a round set of a square and a square set with a circle. The ratio of the length of a square to the diameter of its circumscribed circle, or its diagonal, is  $1:\sqrt{2}$ . How can it be applied in practical projects? The traditional carpenters of ancient China were very clever and used a simple integer ratio, Square Five Oblique Seven (Fig. 7 right), to deal with it[26] (pp. 168–172). It means if the square side is 5, the diagonal is approximately equal to 7, which is both in proportion and strong in operability.

Figure 6 The scene looking through the new Old Well Temple. Photographed on April 5, 2018.

Figure 7 From left to right, Circle Square & Square Circle Pattern in Yingzaofashi (圆方), Square Five Oblique Seven(方五斜七). ( Figure Source: Left From [25] )

The Vitruvian Man (Fig. 8 right) is a drawing by Leonardo da Vinci around 1490[27] (Stemp 2006), to depict a man in two superimposed positions with his arms and legs apart and inscribed in a circle and square[28]. Vitruvius describes the human figure as being the principal source of proportion among the classical orders of architecture.

According to the analysis of the section of the Old Well Temple(Fig. 8 left), it can be seen that its proportion is a combination of the Circle Square & Square Circle Pattern and the Vitruvian Man. In general, it is controlled in accordance with the Circle Square & Square Circle Pattern. And in the specific square block cut out from the circle, it is mainly designed according to the proportion of the Vitruvian Man. For example, the diameter of the Dome is equal to the height between the Dome and the base of the column. The square space formed by the inner surfaces of the two columns is basically the inscribed square of the circle, which is the largest space that can be created in a circle and maximizes the space utilization. In this square space, the starting point of the dome is the same as the straight arm and circle of the Vitruvian Man. The difference between them is that the Round Center of the latter is not

coincident with the Center of the Square, and the Center of the Square is lowered by one-fourteenth of one's height than the Round Center. However, the Round Center of the former coincides with the Center of the Square, highlighting the maximization and completeness of the space.

Figure 8 Section of the new Old Well Temple and Design Concept Analysis Diagram. ( Figure Source: Left from [1] (p. 26); Right from [29])

The most beautiful scenery on campus is when Alderman looked north from the first-floor window of the South Building and passed through the McCorkle Place (Fig. 9). Walkers often come upon the Old Well Temple at an angle. However, the Old Well Temple is always the center of the square for its round shape. The size of the space is well proportioned to the size of the masses around it. If space is larger, the unit might dissolve. Even worse, if the Temple is larger, the unit might harden; that is, the more the Old Well Temple approaches the size of Old East and Old West, the more tension, and therefore beauty, would be disappeared completely[1] (p. 84).

Figure 9 The scene looking through the McCorkle Place. Photographed on April 5, 2018.

## 4. Discussion

The Old Well Temple is a much-loved symbol of happy college life for UNC at CH students. It is the meeting place for past, present, and future generations[1] (p. xix). To protect the Old Well Temple is to maintain a classical humanistic spirit, a spirit of academic freedom, and a spirit that continues history and moves toward the future. As long as the Old Well Temple is still there, the memory of UNC at CH teachers and students will exist, and this memory will also persist in the hearts of Chapel Hill people and even North Carolina people. It has become a collective unconscious in people's minds and does not disappear due to the passage of time. The Old Well Temple has become an eternal memory. Therefore, the preservation and management of it are particularly important today.

The author believes that the protection of a successful historical and cultural heritage is guaranteed by the mechanism of the interaction between Money, Land and Talented Person. Compared with the lack of funds when the Old Well Temple was first built, Money is no longer a problem right now. The Historic Courtyard where the Old Well Temple is located is also protected by the United States and the state. It cannot be arbitrarily seized. Therefore the Land is also guaranteed under these circumstances. So, the most critical factor is the Talented Person. He must not only know the importance of historical heritage protection but also have this powerful thinking rooted in his heart, just like Alderman. He must also understand the protection technology and protection methods of the historical heritage and understand the materials it is chosen at that time. Only in this way can we look back a few hundred years and the Old Well Temple is still just the same, same old campus, same Old Well Temple, same old jaybirds raising hell. You bet I'm glad I came[1, 30] (p. 93).

## 5. Conclusions

UNC is literally and figuratively an academic garden[1] (p. 143). Whether it is an academic garden or an academic paradise, it attracts people to come closer to her, to walk into her, to breathe together with her, and to share in destiny. In this process, the Old Well Temple takes on a great role. All the repairs, including Alderman's and Nash's, have reached the realm of renovating old buildings and keeping them alive and have continued the traditional essence.

The article makes a preliminary review of the process of construction and protection of the Old Well Temple, and analyzes several stages of their development. Then, a comparative analysis of architectural style, spatial characteristics, functions and humanistic spirit of the Old Well Temple is discussed. Finally, the article reaffirms the significance of the Old Well Temple protection and believes that the interactions of Money, Land and Talented Person and organic conservation thinking are important mechanisms for the sustainable development. Just like the last words said in 1952 by William Carmichael, that the new Old Well ( Temple ) will be the grateful acknowledgment that the ever-flowing water from the rock-ribbed earth beneath is the chief reason that the University stands on this happy site[1] (p. 168). May both the new Old Well Temple and the UNC at CH stand steadfastly here forever!

## Abbreviations

UNC at CH means *the University of North Carolina at Chapel Hill*.

## Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

All authors agree to publish.

Competing interests

The authors declare no conflict of interest.

Funding:

This research was funded by Major Program of National Fund of Philosophy and Social Science of China (CN) [Grant No. 2015YZD6], and National Natural Science Foundation of China (CN) Young Scientists Fund [Grant No. 51608248].

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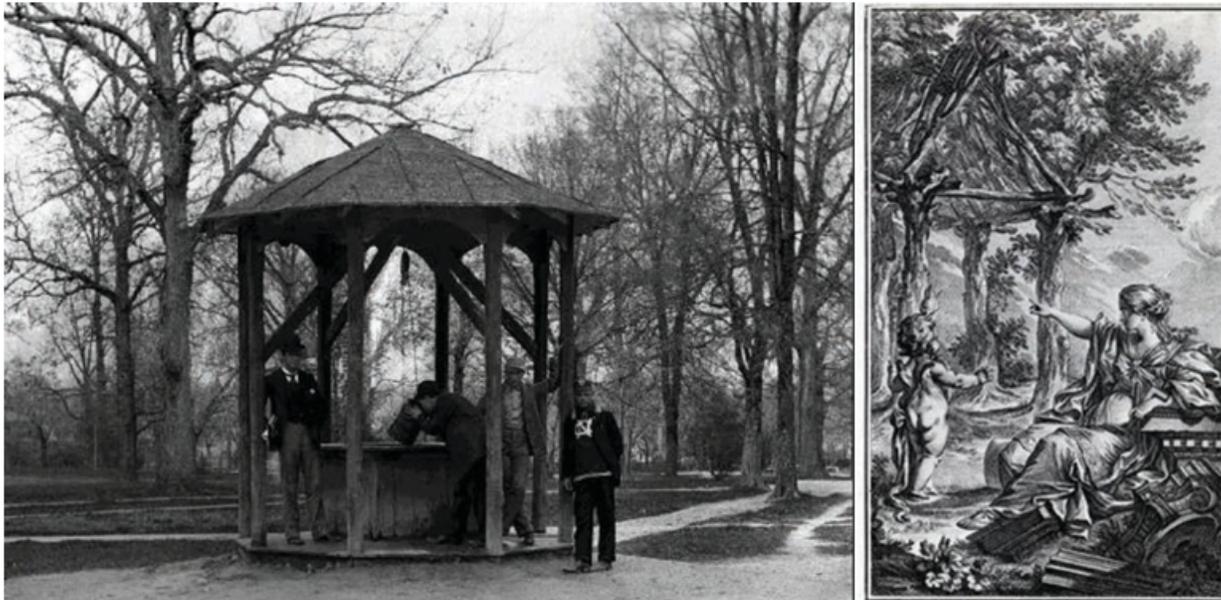
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**Figures**



**Figure 1**

The campus scene of the University of North Carolina at Chapel Hill in 1852 ( Figure Source: From [4](Powell 1972). )



**Figure 4**

Association of the Oriental Pagoda Type Spire and the Primitive Hut in Essay on Architecture. ( Figure Source: Left from [2], Right from [5] )



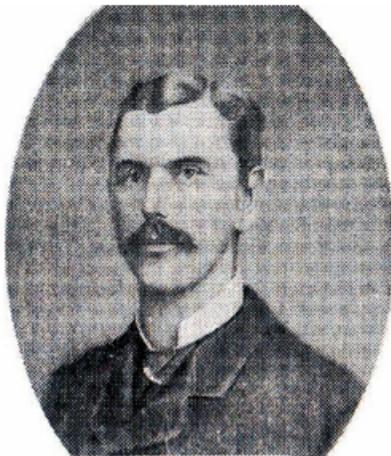
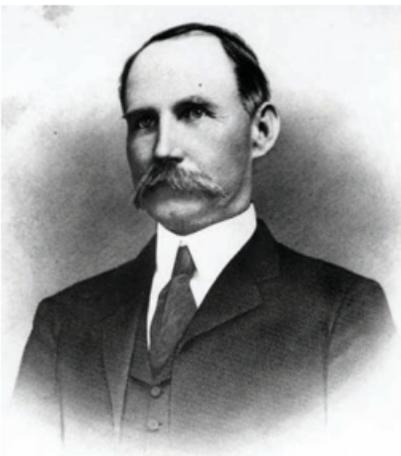
**Figure 7**

Map of the Site of the University of North Carolina at Chapel Hill, November 7, 1792 ( Figure Source: [7])



**Figure 10**

Edwin Anderson Alderman(1861-1931) and his Five Models for the Old Well Temple: ☒ The Choragic Monument of Lysicrates; ☒ The Tholos, Delphi; ☒ Temple of Vesta, Tivoli; ☒ The Tempietto in S. Pietro in Montorio, Rome, Italy; ☒ The Temple of Love, Trianon, Versailles, France; ☒ Edwin Anderson Alderman ( Figure Source: ☒ from [11]; ☒ from [12]; ☒ from [13]; ☒ from [14]; ☒ from [15]; ☒ from [16] )



**Figure 13**

From left to right, Joshua Walker Gore (1852-1908), Eugene Lewis Harris (1856-1901) ( Figure Source: Left from [21]; Right from [1] (p. 12) )



**Figure 16**

The scene looking through the new Old Well Temple. Photographed on April 5, 2018.

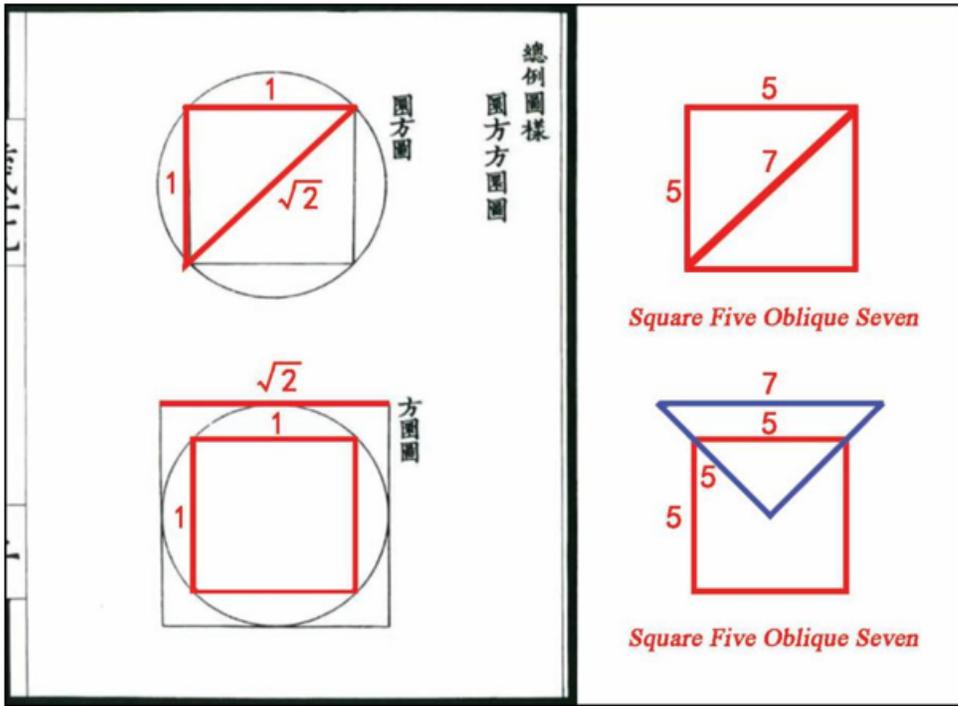


Figure 19

From left to right, Circle Square & Square Circle Pattern in Yingzaofashi (圆方图), Square Five Oblique Seven (方五斜七). (Figure Source: Left From [25])

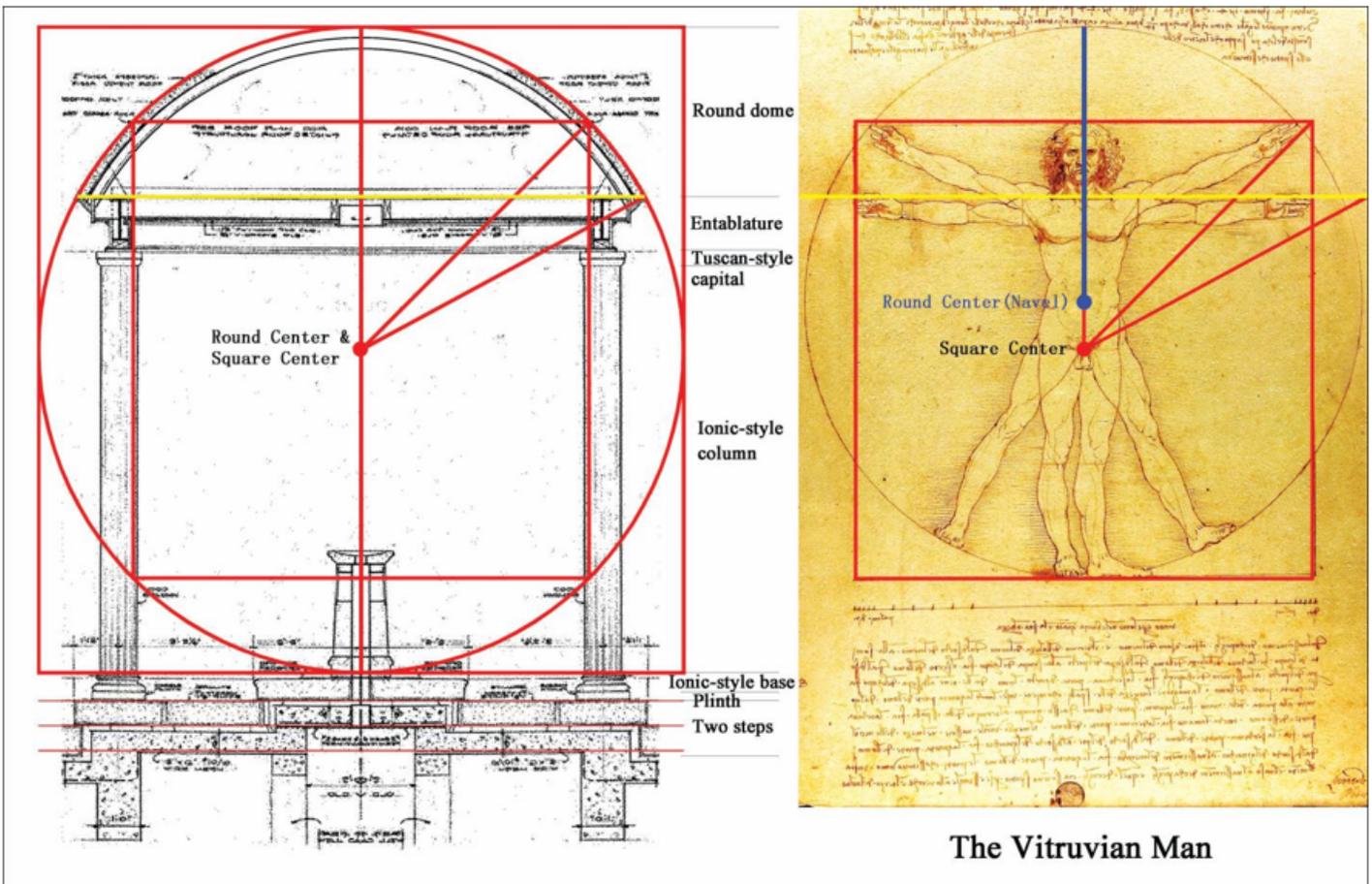


Figure 22

Section of the new Old Well Temple and Design Concept Analysis Diagram. ( Figure Source: Left from [1] (p. 26); Right from [29])



## Figure 25

The scene looking through the McCorkle Place. Photographed on April 5, 2018.

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

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