Pippala leaf shape decoration is a decorative type named “L¸ ®Ò”. This type has been common decorated in the art of Vietnam, particularly original various forms on the roofs at the architectural sites in the North Vietnam. Only several scholars (Parmentier and Mercier 1952: 328-334, Tong Trung Tin 1997:115, Ngo Thi Lan 2006) have studied building materials related to decoration components of roofs such as Pippala leaf shape. However, the scholars have not deeply researched this type of decoration. I am interested in understanding the evolution of this type of decoration that is very unique to Vietnam. Thus, based on the typical artifacts in archaeological discoveries and excavation, I would like to study: What is Pippala leaf shape? Different types of the leaf shape on the roofs; Evolution of the leaf shape in historical periods and initial comparison of the shape with other motifs in Vietnam and other countries.

What is Pippala leaf shape?

The Pippala leaf shape is a decorative type. It is a component of Pippala leaf shape and it has relation with Buddhism (Thich Minh Chau Minh Chi 1991: 96). This decoration attached to decorative form on roofs of architectural sites in the North Vietnam. The Pippala appeared in the Ly and Tran-Ho periods (the 11th to early 15th centuries) and ended in the Mac period (the 16th century). This motif has other names: “La de” (Tong Trung Tin 1997:115), “Vong hao quang hinh la de”, “Vong hao quang”, “Vong sang nhon dau”(Nguyen Du Chi 2003: 178), “Hinh la bo de” (Nguyen Ba Lang 1972: 84).

The distribution of Pippala leaf on the roofs of architectural sites in the North Vietnam.

Archaeological sources show that architectural sites have been discovered and
researched very much. Before 1954, architectural material components discovered and researched in the North Vietnam, mainly Thang Long (Hanoi) have been recorded by French scholars in EFEO (Hanoi) (Parmentier and Mercier 1952). After 1954s to now, Vietnamese archaeologists have researched architectural sites and artifacts in a relatively systematic way.

Up to now, over 34 sites and groups of sites have been discovered the Pippala decoration on roofs. They have been distributed in 16 provinces in the North Vietnam such as Hanoi (15 sites), Nam Dinh (8 sites), Bac Ninh (4 sites), Bac Giang (2 sites), Yen Bai (4 sites), Thanh Hoa (3 sites) and other one site such as Vinh Phuc, Hung Yen, Hai Phong, Quang Ninh, Ha Nam, Thai Binh, Hoa Binh, Phu Tho, Ha Giang and Nghe An.

According to the discoveries the Pippala leaf shape appeared in the types of buildings such as palace, pagoda, tower, temple, altar and tomb in the Ly, Tran, Ho periods (11th to early 15th centuries) and the Mac period (16th century). They are related to the State level official and religious architecture and Buddhism. Pippala decorations have not been found on tile roofs in common and secondary works. This issue shows a high-class nature of this decoration.

**Different types of Pippala leaf shape decorated on the roof.**

Pippala decoration attached to decorative form on tile roof and curved ridge-corners roof tiles. This motif has been commonly decorated in two types: round tile and flat tile. Round tile have round eaves tile and ridge tiles. There are 3 flat types: lotus petal flat tile, lotus petal flat tile with cutting on two sides and round nose flat tile. Details about roof tiles were researched (Ngo Thi Lan 2006: 30-33).

The leaf shape is decorated in the center and top of end round tile. This motif is decorated on the center of the top of ridge tiles and roofed on the roof-tops and roof-edges. When the motif is decorated with the duck statue, it is on the top of the end ridge tile such as Tam Duong tomb (Thai Binh). The leaf shape is decorated on the top of end round eaves tiles at Thang Long site (Hanoi) and Nam Giao altar (Thanh Hoa). This motif is roofed in the end of tile rows.

On the flat tiles, the leaf shape is decorated on the top of the flat tiles. This motif has been popularly decorated on lotus petal flat tile, lotus petal flat tile with cutting on two sides and round nose flat tile at architectural sites such as Nam Giao, Ly Cung (Thanh Hoa), Tam Duong tomb (Thai Binh), Tuc Mac (Nam Dinh), Bao An pagoda and Thang Long (Hanoi), Ben Lan pagoda-tower (Yen Bai) and Nam Dau (Ha Giang).

The motif is not only decorated on types of tile but also on curved ridge-corners roof tiles. This roof tile decorated with a Pippala leaf was found in Ly Cung (Thanh Hoa) (Pham Nhu Ho, Tong Trung Tin 1980: 56) and this roof tile with three Pippala leaves was discovered in Con Son (Hai Duong) and Tam Duong (Thai Binh) (Nguyen Manh Cuong 1979). The
curved ridge-corner roof tiles are often covered on the corner of roof.

Depending on suitable positions, the Pippala leaf is attached to different positions on roofs. For example, for type of ridge tile, it is covered on the roof-tops or roof-edges; for flat eave tile or round eave tile, they are roofed on the end of tile rows and curved ridge-corner roof tile on the corner of the roof. Symmetrical Pippala leaf decorated on one side often is covered in eaves. Big symmetrical Pippala leaf decorated on two sides is often roofed on the center of the roof-top at Ly Cung site (Thanh Hoa) and Thang Long (Hanoi). Half-cut Pippala leaf shaped decoration is on ridge tiles that are often covered on the top of roof and roof-edges. Small half-cut Pippala leaf shape is often decorated on one side.

The lay out of pattern.

According to the name of Pippala leaf shape, the Pippala leaf is copied from the shape of the leaves of the Pippala. All leaves of the Pippala have common and similar lay-out consisting of parts. There are four positions decorate on Pippala such as peripheral part, central part, boundary between peripheral and central part and leaf part on base of the tile.

In four positions, the center patterns are fixed and only changes in decorations. Layout of pattern and decorations of the three remaining positions fluctuates, sometime not expressed.

According to form of Pippala, the Pippala has two types: Symmetrical Pippala and half-cut Pippala shaped. The layout and general features of the half-cut Pippala shaped like symmetrical Pippala but there are some differences. The lay out of half-cut Pippala pattern often not decorates clearly as symmetrical Pippala. Peripheral part and boundary peripheral and central part sometime not decorate. The size of half-cut Pippala is larger than symmetrical Pippala. The half-cut Pippala decoration is not varied as symmetrical Pippala. The central pattern carved dragons and phoenixes.

However, the lay out of pattern and decoration is not enough four places as above part but sometime changing some places. There are five cases of decoration on the Pippala:

- Case 1: the lay out of pattern and decoration cover all four positions such as dragon, phoenix Pippala decoration at Ly Cung and Nam Giao altar (Thanh Hoa), dragon-shaped fish Pippala leaf at Trung Thanh (Bac Ninh); and dragon, phoenix standing on the lotus and chrysanthemums flower decoration at Thang Long (Hanoi) (Ngo Thi Lan 2006: 77).
- Case 2: the lay out of pattern shows all four places but the decoration is represented on three places: peripheral, central, boundary between peripheral and central part. The leaf part on the base of the tile is not decorated. This case is popularly decorated on the symmetrical Pippala leaf such as 18.Hoang Dieu site (Hanoi).
- Case 3: the lay out of pattern is often represented clearly. The pattern is decorated
in two places: central and leaf part on base of the tile. The peripheral and boundary between peripheral and central patterns are not shown clearly, filling in space has ranges of soft flower-leaf. This case is popular on the half-cut Pippala leaf shape.

- Case 4: this case shows that the lay out of pattern is not in the position as before. The leaf is narrow. The leaf part on the base of the tile is longer. Boundary between peripheral and central patterns are nonexistent, the peripheral part is simultaneous with central patterns. This case is uncommon, it is only on symmetrical Pippala at Dau pagoda (Hanoi).

- Case 5: the lay out of pattern and decoration varies. The Pippala is decorated on two or three positions; Half-cut Pippala shape is similar to symmetrical Pippala such as Bao An pagoda, Thang Long (Hanoi), Den Tran (Nam Dinh).

The lay out and decoration pattern of symmetrical and half-cut Pippala leaf shape have common features of position and pattern are fixed and only changes patterns and peripheral part, different of leaf part on the base and boundary between central and peripheral part. Changes in the layout and decorations contribute to determining the dating among periods.

The Pippala leaf decoration in historical periods

Pippala leaf decoration in the Ly period

The attachment of decorative tiles began during the Ly period, during which the Pippala leaf form began appearing on roofs. Pippala leaf is decorated on round tile and ridge tile. No Pippala leaf is decorated on curved ridge-corner roof tiles. The pattern was carved in great details directly by hand and mould but it is common by hand. The lay out and decoration pattern are shown in only case 1, 2 and 3. The Pippala leaf is decorated on one side and two sides of symmetrical Pippala and half-cut Pippala leaf shape. The symmetrical Pippala leaf decoration is more abundant than half-cut Pippala leaf. The pattern included types: dragon, phoenix, flower-leaf and jade bead.

The central part is commonly decorated dragon, phoenix and other patterns such as jade bead and flower-leaf pattern. For dragon pattern, the centre of Pippala leaf is decorated two dragons on symmetrical Pippala leaf and one dragon on half-cut Pippala leaf. The dragon caved carefully in detail by hand and mould. E.g Pippala leaf is being stored in Vietnamese History Museum. The dragon pattern was carved many different types in the Ly period (Ngo Thi Lan 2006: 61-84). The lay out of phoenix Pippala leaf is similar to dragon leaf. The central pattern of Pippala leaf is decorated two phoenixes on the symmetrical leaf and one phoenix on the half-cut leaf. The phoenix leaf shows very lively and soft patterns. E.g, phoenix standing on chrysanthemum, lotus and cloud at Thang Long (Hanoi). For the patterns
on the dragon and phoenix leaves, they were carved very carefully by hand and mould. It is similar to dragon pattern, the phoenix pattern also have many different types in the Ly period (Ngo Thi Lan 2006: 61-84). Flower-leaf pattern decorated on the symmetrical Pippala leaf have been found in Doan Mon and Quan Ngua sites (Thang Long-Hanoi) or chrysanthemum flower pattern at Den Huyen (Nghe An) (Ha Van Tan, Nguyen Dinh Chien 1976: 89-90). The flower-leaf is carved directly by hand. Jade bead Pippala leaf have appeared on the roof of architectural sites in the Ly period. The centre pattern is decorated from three to fine nested circles as the halo light. This decoration was found on the statue base of Tuong Long tower (Hai Phong), Phat Tich (Bac Ninh) and stone columns at Thang Long (Hanoi) (Ngo Thi Lan 2008: 385). However, jade bead Pippala leaf decoration on the tile roof has been discovered at only Thang Long (Hanoi).

The peripheral part is narrowed. The peripheral pattern is commonly decorated two-flame pattern with deeply carved line and question mark pattern is uncommon.

Boundary between peripheral and central part pattern are commonly decorated one-line and two-line pattern on symmetrical Pippala leaf. On the half-cut leaf, this pattern part is not clear. Three-line pattern with circle appeared in the late Ly period such as pheonix symmetrical leaf at No. 18 Hoang Dieu site (Thang Long-Hanoi).

Leaf part on base of the tile is short and small. Sometimes, this part is not clear like symmetrical leaf at No.11 Le Hong Phong site (Thang Long - Hanoi). The cloud band is decorated on the half-cut leaf stored at Vietnamese History Museum.

**Pippala leaf decoration in the Tran-Ho periods**

The Pippala leaf decoration in the Tran-Ho periods take over from Pippala leaf decoration traditions in the Ly period but it is more abundant, multiform and added some new types of Pippala pattern. The Pippala leaf is also decorated on round tiles, ridge tiles and flat tiles with many various types such as lotus petal flat tile, lotus petal flat with cutting on two sides and round nose flat tile. The curved ridge-corner roof tile appeared on the roof of architectural sites in the Tran period.

The lay out of pattern is not only in the Ly period but also it is changed in more abundant and simply way and shown in the above cases 2, 3 and 5. In the late Tran period, some new styles appeared. E.g the half-cut Pippala leaf is similar to the symmetrical leaf; the pattern is decorated on all four positions as in the Ly period. The pattern was decorated simply by hand and mould but it is common by mould. The Pippala leaf is also decorated on one side and two sides of the two above types of the leaf. The common shape of the Tran period leaf is not elongate as in the Ly period but it is tending to be larger in leaf body. The lay out and decoration pattern are simpler.
The pattern is more abundant. The central pattern still take over from the decoration of dragon, phoenix, jade bead, flower-leaf as in the Ly period. Dragon, phoenix and flower-leaf are common decoration type in the Ly and Tran periods. The Pippala leaf was caved very simply by mould and hand. There is a little change in the lay out of phoenix pattern than dragon one. It is shown in only the above cases 2 and 3. This motif is decorated on the roof of architectural sites in the Tran period. Dragon Pippala leaf has many different types (Tong Trung Tin 1981: 49-63, Ngo Thi Lan 2006: 62-77, Dang Hong Son 2007: 75-83). The flower-leaf Pippala leaf has been discovered at Nam Giao altar (Thanh Hoa) and Thang Long (Hanoi).

Some new types of Pippala leaf such as tower, deer, Gandharva, dragon-shaped fish and “Human face?” have appeared. The Jade bead decoration in the Ly period have disappeared and new jade bead appears.

The new jade bead Pippala leaf decoration are replacing with old jade bead leaf in the Ly period. The jade bead is circle jade bead. Peripheral part is large. All of Pippala looks like a big flame or halo flaming fire. This Pippala was caved by mould and hand. The tower Pippala decoration on the roof of architectural sites was discovered at Thang Long (Hanoi), Den Huyen (Nghe An), Ly Cung (Thanh Hoa), Bao Thap (Quang Ninh) and Binh Son tower (Vinh Yen). The tower Pippala leaf has different types: one tower, three towers and associated with other decorations such as dragon and leaf. The tower Pippala leaf is symmetrical leaf. The tower has from three to nine layers in the center of the symmetrical leaf. Details about this motif were researched (Ngo Thi Lan 2009). The Gandharva symmetrical leaf was decorated on Bao An pagoda (Hanoi). This Gandharva leaf is similar to Gandharva on the wooden door of Thai Lac pagoda (Tong Trung Tin 1997: 212). Dragon-shaped fish symmetrical Pippala leaf was discovered at only Con Son (Hai Duong) and Trung Thanh hamlet (Gia Binh-Bac Ninh). The lay out of dragon-shaped fish is similar to the dragon symmetrical leaf. The Deer symmetrical leaf was discovered at Ly Cung (Thanh Hoa) (Pham Nhu Ho, Tong Trung Tin 1984). The centre of the symmetrical leaf is decorated on a deer that running on the corona is small spark. Human face Pippala? the centre of the symmetrical leaf is decorated like human face. The human face with wide mouth, rim of moustache glide on two sides. This Pippala leaf was discovered at Tuc Mac (Nam Dinh) and Tam Duong (Thai Binh). The tower, Grandharva, dragon-shaped fish, human face Pippala also was carved simply by mould.

The central part of Pippala leaf changed abundantly. Therefore, peripheral part change abundantly too. The peripheral in the Tran period maintained factors in the Ly period but changed more abundantly. The peripheral part pattern is commonly large and sparse. The two-flame pattern was common in the Ly period but in Tran period it changed a one flame and various lines. The question mark pattern is commonly decorated in the Ly period but this motif is more simple or contrariwise question mark pattern. The peripheral part decoration is not only conserved and changed but also appear new types such as spark pattern, flame and...
spark pattern even without pattern. The peripheral part of pheonix Pippala leaf is more simple than the dragon leaf.

There is a little change in the decoration of boundary between peripheral and central part in the Ly period. This motif is commonly decorated from one- line to two- lines pattern as in the Ly period. The three- lines pattern has appeared on the deer symmetrical leaf at Ly Cung (Thanh Hoa) and dragon and tower symmetrical leaf in the Tran period. In the late Tran period two new types appeared: two lines with punctation and band with diagonal pattern decorated dragon and tower symmetrical leaf at Ly Cung and Nam Giao (Thanh Hoa). This decoration style is similar to eaves round tiles in these sites.

The leaf part on base of the tile continued tradition in the Ly period like the cloud band on the two sides decorated on the half-cut Pippala leaf shape. The cloud pattern of the leaf part in miniature on the base half-cut leaf in the late Tran period. This part of the symmetrical leaf is popular without pattern. The leaf part on the base of the symmetrical leaf tend to be larger and longer and appear new decoration such as the band of cloud with punctations at Nam Giao, Ly Cung (Thanh Hoa); Triangular or S-shape with apricot blossom on dragon-shaped fish were found at Con Son (Hai Duong) and Trung Thanh (Bac Ninh).

The Pippala leaf decoration in the Mac period

Up to now, no the Pippala leaf decoration has been discovered in the Le period (15th century). The decoration on the roof of architectural sites is round-eaves tiles and pan-eaves tiles in the 15th century.

The architecture works such as pagoda, tower and etc were limited or not allowed to be constructed in the Le period. Buddhist and other religions do not have the opportunity for development. In the Mac period, Buddhist has a chance to develop again, particularly construction of pagodas in countrysides. These features shows clearly on the symmetrical leaf on ridge tiles at Dau pagoda (Hanoi).

The Pippala leaf is only symmetrical leaf in the Mac period. It is decorated on both sides on the ridge tile of roof. The leaf shape is narrowed. Leaf part on base of tile is longer and swelled out. The lay out of patterns is not arranged closely as before. The pattern decorated simply is cloud pattern (Nguyen Ngoc Chat 2007: 529-533). The end-leaf of Pippala is long and decoration is simply. It is only three-line pattern. The Pippala leaf was made by mould technique. The Mac period seems to come to an end of this Pippala leaf decoration.

Comparisons

In the above mention, we studied and presented abundant and multiform features
of Pippala leaf in each period. When comparing with other motifs in Vietnam and other countries, private features of Pippala leaf have been shown.

In Vietnam, the Pippala leaf or Pippala leaf shape is the components decorated on a statue bases, tower, forehead of steles, stone columns, wood door, brick and tile. Appearance of Pippala leaf decoration on the roof of architectural sites in the Ly period allows us to consider the beginning of the landmark for decorative forms attached to roof tiles in the 11th to early 15th centuries. Before the 10th century, the decorative forms on roofs are attached on round-eaves tile and associated with pan-eaves tiles. That appearance reflects the spirit of creation, independence, and self-control of Vietnamese nation after the period of 1000 Chinese domination years. The Pippala leaf decoration appeared on the doors, and hard palates in temples, and towers in Champa culture in the 10th century (Tong Trung Tin 1997: 176) but not decorated on tile roofs.

Some Pippala leaf patterns in other components is also similar to Pippala leaf on tile roof such as dragon, dragon- shaped fish, Gandharva, deer, pheonix, tower and etc. But the pattern of phoenix standing lotus, chrysanthmums flower, tower (three towers, tower with dragon, leaf) decorated on only the roof of architectural sites in the North Vietnam.

In other countries, the Pippala leaf decoration show exchanges and influence of Indian and Chinese pattern factors but have the factor of native culture very much.

Dragon, phoenix, and dragon-shaped fish patterns are from China. China has Gandharva motifs but this motif originated in India and is expressed clearly in the style of Champa culture in Vietnam. (Tong Trung Tin 1997: 171-177). Champa cultural factors also had effect when Gandharva Pippala leaf decoration has appeared at Bao An pagoda (Hanoi).

The Pippala leaf decoration attached to the tiles on the roofs of architectural sites have been found in only Vietnam and not in other regional countries. The decoration on roofs in other countries is animal statues such as China. The Pippala leaf decorated on the roofs has showed a original decorative form in Vietnam and Vietnamese characters are shown more clearly through the patterns: the phoenix standing lotus, chrysanthmums flower have been found in only Vietnam and not in other countries.

**Conclusion**

The Pippala leaf decoration is the components of the Pippala leaf shape. This decoration have been popularly decorated on the parts of architectural roofs at the architectural sites in the Ly, and Tran-Ho periods (11th to early 15th centuries) and Mac period (16th century) in the North Vietnam. The Pippala leaf have been decorated on the roofs in the architectural sites which related to the State level official and religious architecture and Buddhism.

The decoration of the Ly, Tran, Mac were influenced by the artistic style of each dynasty
The first appearance of this roof style appeared in the 11th century and two epochs making times of style change can be found in the early 15th and 16th century.

The Pippala leaf decorative motif on architectural roofs is a new creation of Vietnam in the 11th to early 15th centuries. This decoration has contributed and made more abundant architectural decorative components in Vietnam and regional countries. This motif can be considered as national private characters and not look like any architectural decoration in other regional countries.

The Pippala leaf decoration has showed exchanges and influence of Indian and Chinese pattern factors but still demonstrate obvious characteristics of local culture.

References

5. Nguyen Du Chi 2003, Vietnamese pattern from prehistory to the first half of historical period, University of Art, Hanoi.
8. Nguyen Manh Cuong 1979, Excavation and correction at Tam Duong tomb (Hung Ha district, Thai Binh province), Unpublished report, Vietnamese Institute of Archaeology.
23. Ngo Thi Lan 2009, About the decoration of tower-shaped Pippala, New discoveries in Archaeology 2009:
25. Bui Huu Luong, Dinh Cong Thanh, Nguyen Viet 2008, Discovery on Thong pagoda in Tran period at Tu Son mountain top (Kim Boi district, Hoa Binh province), New discoveries in Archaeology 2006: 383-384
32. Ha Van Tan, Nguyen Dinh Chien 1976, Some archaeological sites in Ly period in Lam river bank, Archaeology 17: 89-90.
33. Tong Trung Tin 1981, Sculpture artifacts at Ly Cung site (Thanh Hoa), Archaeology 1: 49-63.
35. Tong Trung Tin (Editor) 2008, Excavation at Nam Giao Altar (Hanoi), Unpublished report, Vietnamese Institute of Archaeology.
36. Tong Trung Tin (Editor) 2008, Excavation on Nam Giao Altar (Thanh Hoa), Unpublished report, Vietnamese Institute of Archaeology.
37. Tong Trung Tin (Editor) 2008, Excavation at Ho dynasty citadel (Thanh Hoa), Unpublished report, Vietnamese Institute of Archaeology.
38. Tong Trung Tin (Editor) 2008, Report on the 2007 investigation and test excavation findings at the archaeological site (Nam Dinh province) in Tran period and results of revising artifacts at the 2006 investigation and test excavation. Unpublished report, Vietnamese Institute of Archaeology.


46. Uy ban Nhan dan tinh Yen Bai 2008, Hac Y historical-archaeological site (Yen Bai). Yen Bai Provincial Department of Culture and Information.
What is Pippala leaf shape?

- Decoration
- Pippala leaf shaped components
- Attached decorative form on roofs of the architectural sites in the North Vietnam.
- Relation with Buddhism.
- Appeared in the Ly and Tran-Ho periods (the 11th-early 15th centuries) and ended in the Mac period (the 16th century).

The distribution of the Pippala leaf shape decoration on the roofs of architectural sites in North Vietnam.
### The Pippala leaf shape decoration in historical periods

<table>
<thead>
<tr>
<th>Period</th>
<th>Dragon</th>
<th>Phoenix</th>
<th>Jade bead</th>
<th>Flower leaf</th>
<th>Token</th>
<th>Diamond-shaped fan</th>
<th>Gandhara</th>
<th>Deer</th>
<th>Human figure?</th>
<th>Cloud pattern</th>
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<tr>
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### The peripheral pattern of Pippala leaf shape decoration in historical periods

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<tr>
<th>Period</th>
<th>Flame pattern</th>
<th>Question mark pattern</th>
<th>Spark pattern</th>
<th>Flame and Spark pattern</th>
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<tr>
<td>Mac period (16th century)</td>
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<td><img src="image42" alt="Image" /></td>
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### Boundary between peripheral and central part
of Pippala leaf shape decoration in historical periods

<table>
<thead>
<tr>
<th>Period</th>
<th>One line pattern</th>
<th>Two lines pattern</th>
<th>Three lines pattern</th>
<th>Hand with diagonal pattern</th>
<th>Two lines with punctuation</th>
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### Leaf part on base
of the Pippala leaf shape decoration in historical periods

<table>
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<tr>
<th>Period</th>
<th>Symmetrical Pippala</th>
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<td>Minh period (16th century)</td>
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