Excavation of the Third Grotto-site at Yungang

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The third grotto-site at Yungang 云冈 consists of a yard in front of the grotto, anterior chambers and a back chamber. Its excavation was carried out by arranging test squares and trenches along its vertical axis with an azimuth of 15 degrees. Altogether 30 squares were opened: 26 in the yard, three in the eastern antechamber and one in the western antechamber. In the back chamber, five trenches were laid out, each is one meter wide. The revealed area measures above 900 sq m in total (Fig. 1). The vestiges discovered include unfinished bedrock floors left over from the construction of the grotto in the Northern Wei period, the anterior ground and platform repaired and built respectively in the Tang period, and rammed-earth plinths remaining of the pavilion built in the Jin period. The objects unearthed comprise pottery and porcelain shards, stone sculptures, coins, structural

Fig. 1 Layout of excavation squares and trenches in Grotto 3
members, etc. The excavation aimed mainly at the acquisition of scientific evidence for clarifying the historical changes of Yungang, and the revelation of the historical aspect of the Yungang Grottos in different periods.

Judging from the five-layer cultural deposits and the unearthed objects and taking into account historical documents related to the Yungang Grottos, the cultural remains of the third grotto can be divided into four phases, which correspond to the Northern Wei (layers 5A and 5B), the Sui-Tang (layers 4A and 4B), the Liao (layer 3) and the Jin (layer 2) respectively.

I. Northern Wei Cultural Remains

1. Vestiges

They include mainly the traces of taking-off stones remaining of unfinished building-works, which are discovered on the bedrock ground under layer 5B.

It is revealed through excavation that the bedrock ground in the yard, the anterior chambers and the back one were all distinctly uneven. The yard shows a greater variety in height, the maximum drop reaching 2.41 m. The antechambers are also quite varied in the height of the bedrock ground, having a sheer drop of 1.92 m, and the eastern and western antechambers are similar in this respect. The back chamber does not so change in ground height, the drop measuring only 1.53 m.

To sum up, in the height of the bedrock ground, the antechambers are the lowest, the yard comes next, and the back chamber is the highest. If we take the ground of the antechambers as a cardinal level, then the bedrock in the yard is commonly 1–1.5 m higher than it, while that in the back chamber exceeds it by 2 m and more in height. This reflects to a certain extent the way and process of rock cutting in the construction of the grotto.

All over the ragged bedrocks are spread rectangular and round convex rocks cut out by crisscross grooves, as well as cuboid and circular concave hollows left over from stone quarrying.

Rock groove-cutting was carried out in two ways. The first was rectangular cutting by opening grooves largely parallel or perpendicularly to the vertical axis of the grotto, i.e. pointing to the west and east or to the

Fig. 2 Remains of cutting-out and taking-off square stones on the bedrock ground in the east of the back chamber

Fig. 3 Remains of cutting-out around stone on the bedrock in the eastern antechamber

Fig. 4 Remains of taking-off around stone on the bedrock in the west of the back chamber
north and south (Fig. 2). The second was round cutting, which was done, first of all, by locating the center of a circle, drawing two concentric circles with an interval of 10–20 cm, and then hewing off the ring-shaped zone between the circles. Thus a round stone needed was formed with a diameter of 73–110 cm (Fig. 3). Either for round stones or rectangular ones, the width and depth of grooves was usually determined according to the size of the stones to be cut out, i.e. the larger the stone, the wider and deeper the groove was opened, and the converse was also true. The section of the groove is U-shaped on the whole, generally 9–21 cm in width and about 30 cm in depth.

After the opening of the groove, the stone needed was taken off in the following way. For the rectangular stone, a slanting groove was cut out from one end of the stone, at an angle of 30–40 degrees to the rock face. Then a wedge was hammered in to pry the stone up. By repeating the operation stones would be got one by one. For the round stone, a section of the ring-shaped groove was hewn into a cut, from which a wedge was inserted and pried up. Another way was hewing 6–8 cuts along the periphery of the ring groove, and wedges were hammered into them instead (Fig. 4).

2. Objects

Among the stone fragments of layer 5B, excavators found stone blanks for making Buddha statues, querns, etc. In the black soil of layer 5A, excavation brought to
II. Sui-Tang Cultural Remains

1. Vestiges

The main findings are the southern stone wall of the yard, the ‘凸’-shaped platform in front of the antechambers, and the west-to-east stone wall of the expanded platform in front of the grotto.

Remain of the southern stone wall of the yard extends between the southern ends of the eastern and western walls of the yard (Fig. 9, A) and measures 54.35 m long as survey shows. The structure of the southeastern wall-juncture is unknown as it has been damaged, but the southwestern one remains in quite a good condition. At this point there is a 2.2–3.6 m wide passage leading to the No.4 grotto complex. On the southern side is a steep cliff, and the wall is made just along the cliff edge. The whole wall is built of irregular stone flakes and blocks on the ragged bedrock surface, measuring 0.6–1 m in length and 0.8–1 m in width. The date of construction must have been the turn from the Sui to the Tang when...
the ground in front of Grotto No. 3 was leveled to form the yard.

Inside-yard platforms in front of the antechambers either has a 凸-shaped plan. The platform in front of the western grotto-gate is in a better condition. It faces to the south and is 9.9 m long and 3.1–3.6 m wide for the larger northern side, and 3.6 m long and 2.7 m wide for the projective part in the south. The surface is all damaged by the intrusion of layer 4A. Its construction can be dated to the Sui or early Tang period as the unearthed objects suggest (Fig. 9, B).

The stone wall of the expanded platform. It starts from the eastern side of the platform to the west of the western grotto-gate in the Northern Wei period, 8 m apart from the western yard-wall and 5.7 m from the northern one. It extends eastward until reaching the point 7.5 m apart from the eastern yard-wall and 5.45 m from the northern. The remains measure 32.4 m in length, 40–50 cm in width and 29–36 cm in height, with the outer edge rather smooth while the inner one uneven (Fig. 9, C). To the south of the wall, archaeologists discovered porcelain bowl fragments belonging to the Hunyuan 河源 ware of the Tang period.

2. Objects

Layer 4B yielded a lot of small-sized pottery saucers, a small number of glazed pottery saucers and bowls, and a Wu Zhu 五铢 coin of the Sui period. In layer 4A, some porcelain bowl fragments were unearthed along with dish-mouthed gray pottery basin shards impressed with slanting chequers.

Pottery includes small-sized gray saucers (Fig. 10:1–5) and gray bowl shards. The latter are of sandy gray ware, small in number and peculiar in shape (Fig. 10:6 and 7).

Glazed pottery embraces two small-sized saucers of orange-red ware (Fig. 10:8 and 9).

III. Liao Cultural Remains

No vestiges were found from the cultural layer except for some objects, which were brought to light largely in the eastern antechamber and rarely outside the grotto. They fall into porcelain, glazed pottery, structural members and coins.

Porcelain yielded includes a number of shards of the bowl, dish, jar and saucer from layer 3.

Glazed pottery comprises only some shards of bowl rim and ring foot and a few pot and vase fragments.

Pottery embraces quantities of finds, which belong to the basin and jar (Figs. 11:1 and 12) for an overwhelming majority, and to the pot (Figs. 11:2 and 13) and bowl (Figs. 11:3 and 14).

The coins bear the characters “Kai Yuan Tong Bao 开元通宝” or “Da Guan Tong Bao 大观通宝”. The structural members include flat tiles, cylindric tiles, tile-ends and glazed tiles.
**IV. Jin Cultural Remains**

1. Vestiges

On the yard ground, rammed-earth plinth-bases were found to be in two east-to-west rows. They lie, respectively, about 3 m and 6 m apart from the northern wall of the yard, and left over six plinths in the southern row and only one in the northern one, which are arranged correspondingly. In addition, two broken square stone plinths were discovered close to the eastern wall of the yard, at the points 3 m and 6 m apart respectively from the northeaster corner, opposite to the above-described two rows of plinths (Fig. 15).

At the top of grotto, above the antechambers, there is a rectangular second-tier platform. To its north, on the bedrock ground close to the cliff-side, a west-to-east row of 10 pits was found to be plinth remains, which are cubic in shape and vary in size, ranging from 0.63 to 1.05 m for each side. To the south, on the bedrock ground close to the platform edge, there is a west-to-east row of beam-grooves, of which 6 remain today. They are rectangular in plan, each measuring 1.10–1.38 m long from the north to the south, 33–52 cm wide from the west to the east, and 13–24 cm deep, and are linked by a west-to-east groove (Fig. 16). The six beam grooves can be correlated with the plinth-pit row on the northern bedrock ground, and the bottom of the beam grooves is lower than that of the plinth-pits. The two rows of building remains at the second-tier platform are also correspondent to the location of the two rows of rammed-earth plinth-pits on the ground of the yard. These suggest that before us is a timber building in front of the grotto with a width of nine bays.

Judging from the beam grooves and plinth pits at the second-tier platform atop the antechambers, the network
of rammed-earth plinth bases on the yard ground and the results of surveys, the central bay measures 6.25 m in width, the eastern sub-central bay 5.47 m, the western sub-central bay 5.48 m, the eastern intermediate bay 5.26 m, the western intermediate bay 5.28 m, the eastern sub-intermediate bay 5.16 m, the western sub-intermediate bay 5.14 m, the eastern end bay 5 m, and the western end bay 4.98 m. The depth from the beam grooves on the upper floor to the rear wall is 5.1 m; that from the eave columns of the lower floor to the northern wall of the yard, about 2.8 m; and that of the auxiliary rooms, 3 m. The total height of this building complex is hard to determine for the difficulty to correlate the layout of plinths on the ground with the location of the 12 rectangular beam holes on the northern cliff-side. However, the correlation of the square stone plinth-pits and rammed-earth plinths at the eastern wall of the yard with the plinth-pits and beam-grooves at the second-tier platform atop the antechambers suggests that the whole complex must have been a multi-floor building.

2. Objects
The second layer consisting of loess and stone fragments yielded plenty of porcelain shards, coins, tile fragments and structural members. Most of them are unearthed from the northern part of ash-pit (H)93T401, which is located in the corridor between the eastern antechamber and the back chamber.

The porcelain is largely of white ware. It is coated with brown, black or tea-dust glaze and belongs to the types of dish, bowl, vase, pot, jar, urn and vat.

The pottery is less in variety, embracing only examples of the basin and jar.

V. Concluding Remarks
Making a comprehensive survey of the vestiges and objects in all the cultural layers we come to the conclusion that from the Northern Wei Dynasty through Tang and Liao times down to the Jin period, construction works carried out repeated at the third grotto in Yungang. Especially the discovery of the remains of unfinished bedrock floor left over from the Northern Wei makes up a gap in this field and has very important value to researching into the hewing process and techniques of Yungang grottos.

The works in the Northern Wei period can be divided into two stages. The early stage was mainly to hew the grotto and at the same time to quarry stone material. The use of the round and square stones fetched from Yungang grottos has been evidenced by the recent discovery of such stones in the periphery of the rammed-earth platform at the ruined Mingtang 明堂 (Ritual Hall) in the southern suburb of Datong City. At the late stage, as the hewing work was stopped, the grotto may have been used as a living place of artisans rather than monks.
The construction in the Tang period also fell into two phases. The early phase remains are found chiefly in layer 4B, including the vestiges of building the stone wall at the southern cliff-edge to form the enclosure of the third grotto and structuring the 凸-shaped platforms in front of the grotto. These resulted in the formation of a monastery. The late phase vestiges and objects come from layer 4A. The principal remains are those of the stone wall of expanded platform built in the mid- and late Tang period.

In the Jin period, large scale timber grotto-eaves were constructed in front of the grotto. Although the Jin period building complex of the third grotto cannot definitely identified as the LingYan Da Ge 灵严大阁 (Grand Cave Temple) mentioned in the inscription of the “Jin Bei 金碑” (Jin Stele), it is beyond any doubt that the whole building group was a large scale monastery completed at Yungang in the Jin period.

References

