Performance Observations of the Beijing area's Great Wall "Rammed Earth and Rubble Core", (unrestored sections)

David Dark

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Study area Map

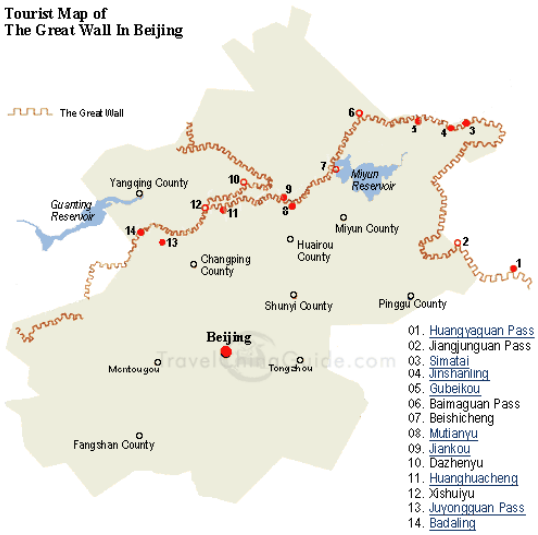

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Figure 1. All stone, no brick, but Rubble Core. #13 and #14

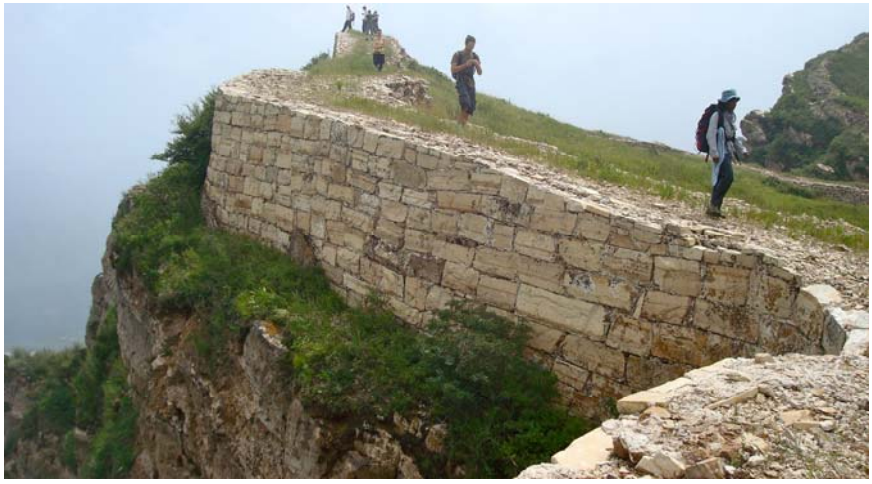

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Figure 2. All stone, no brick, but Rubble Core. #13 and #14

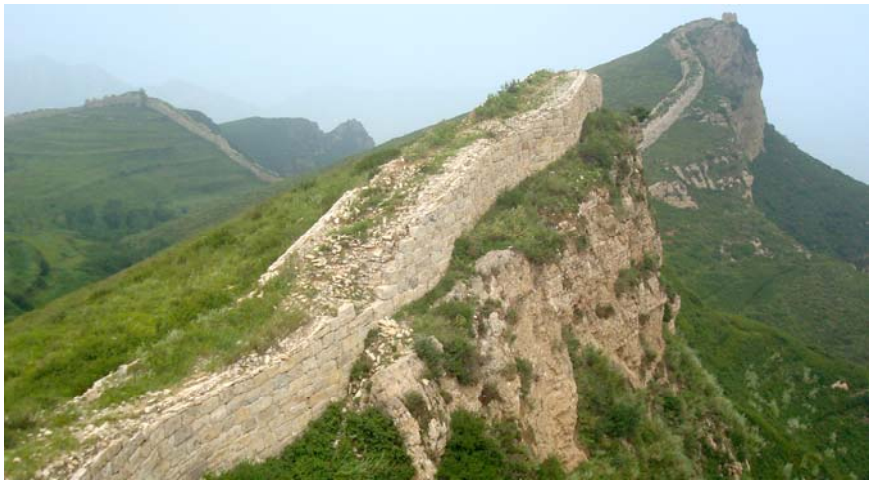

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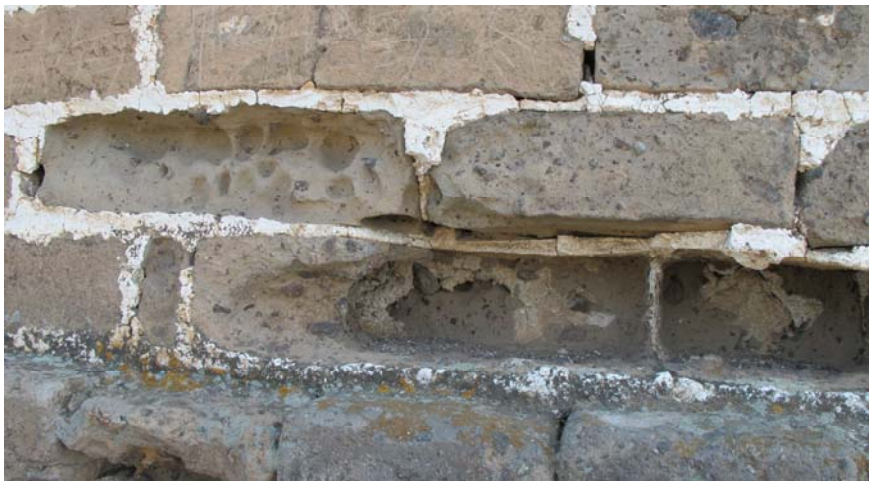
Figure 4. Sticky-Rice and Lime mortar. Typical brick. #5

4

Sticky-Rice and Lime mortar. Typical brick. #8

5

Sticky-Rice and Lime mortar. Disintegrating bricks. #4



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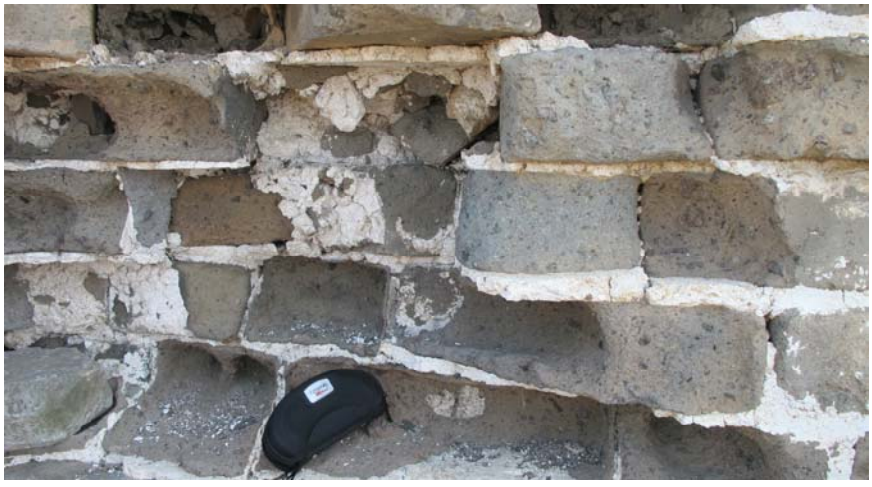
Sticky-Rice and Lime mortar. Disintegrating bricks. #4



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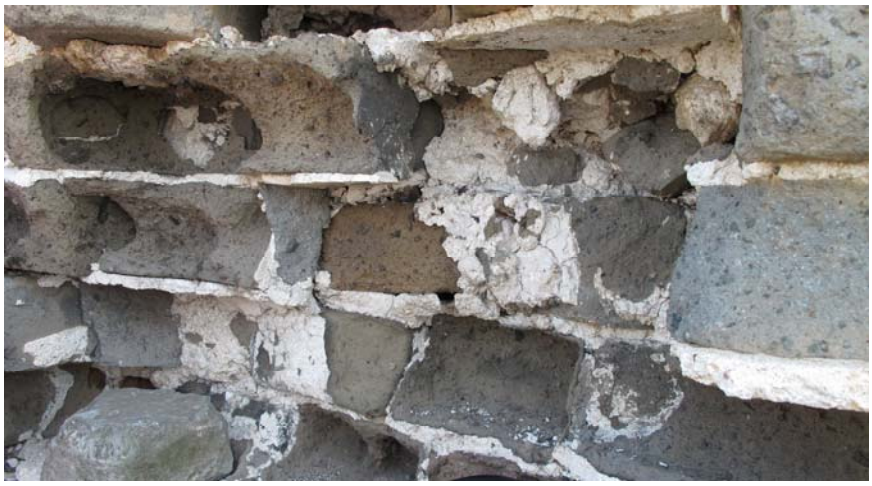
Sticky-Rice and Lime mortar. Disintegrating bricks. #4



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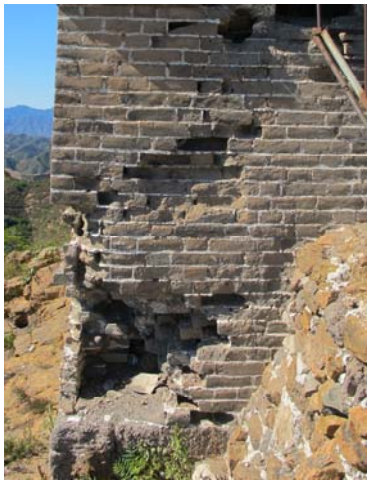
Sticky-Rice and Lime mortar Disintegrating bricks. #4



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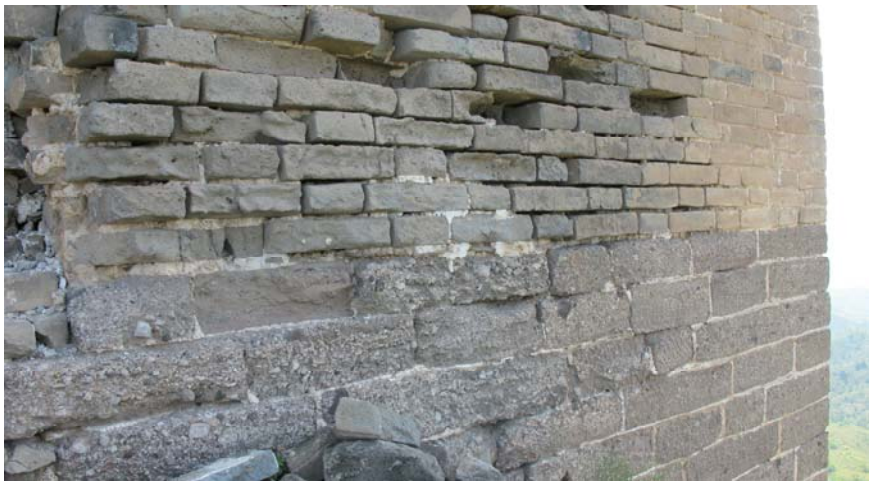
Disintegrating Sticky-Rice and Lime mortar. #4



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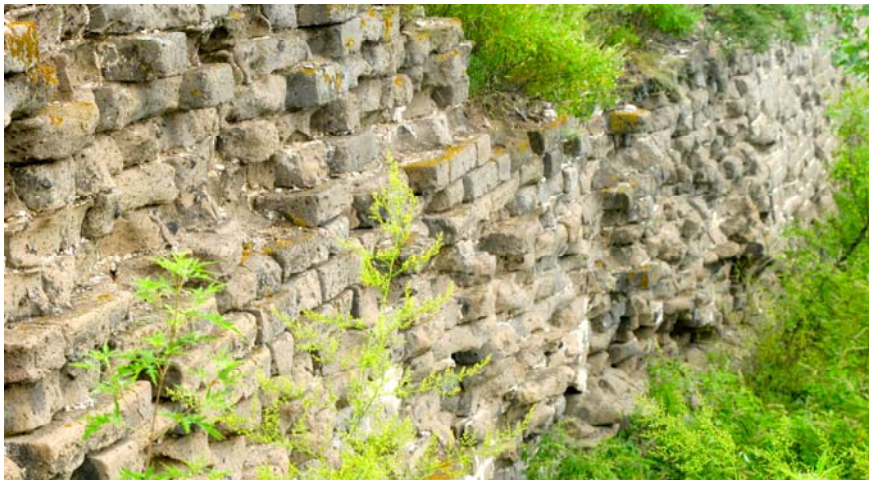
Sticky-Rice and Lime mortar & disintegrating bricks. #5



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Sticky-Rice and Lime mortar & disintegrating bricks. #5

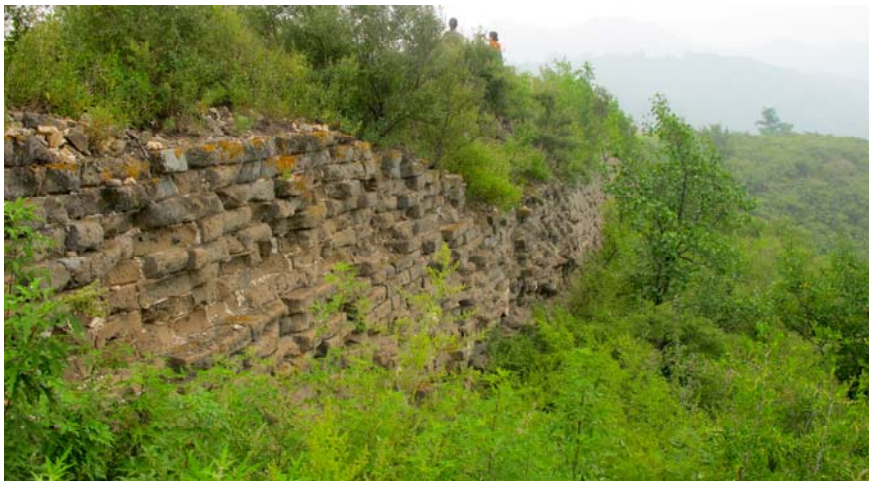

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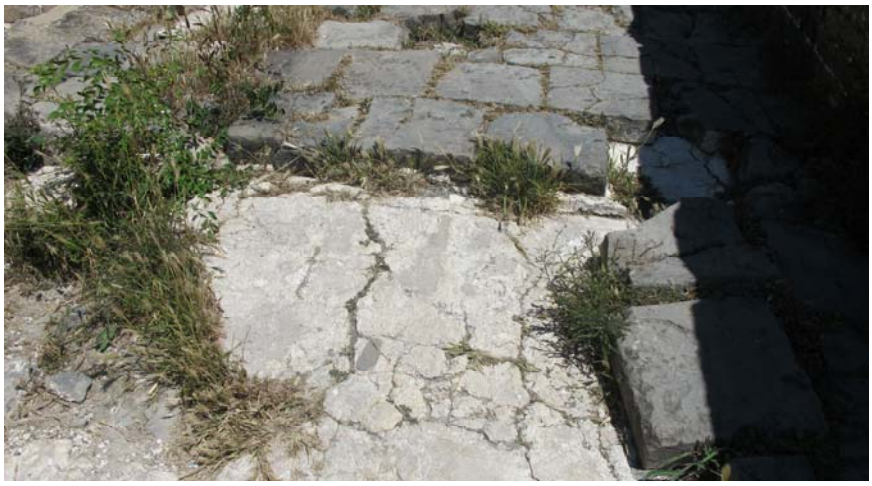
Figure 5. Sticky-Rice and Lime mortar between paving. #5

13

Sticky-Rice and Lime mortar between paving. #8



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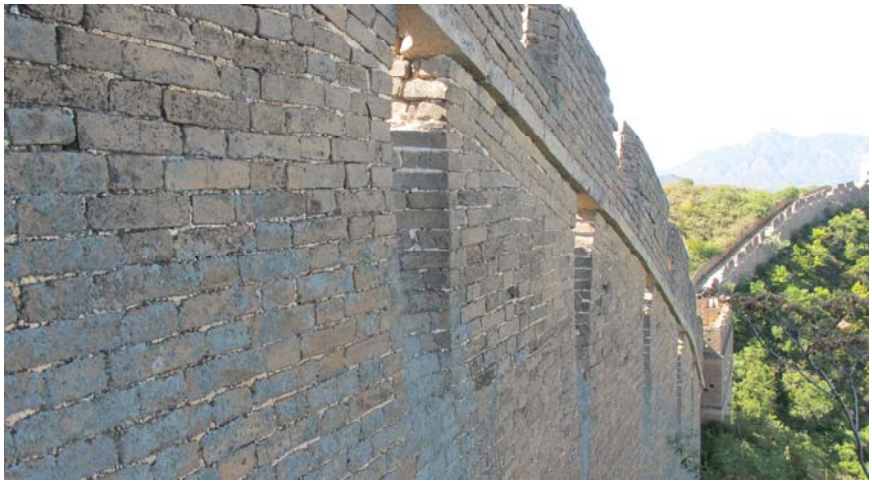
Drainage system. #4



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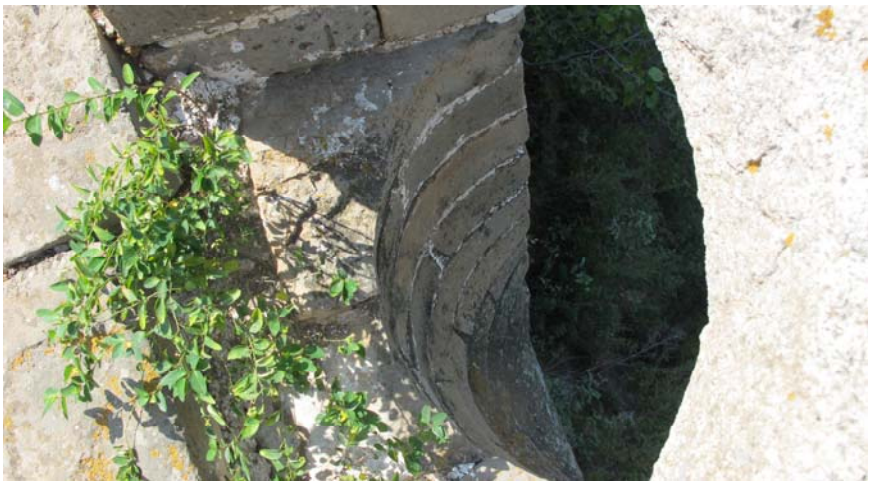
Drainage system. #4



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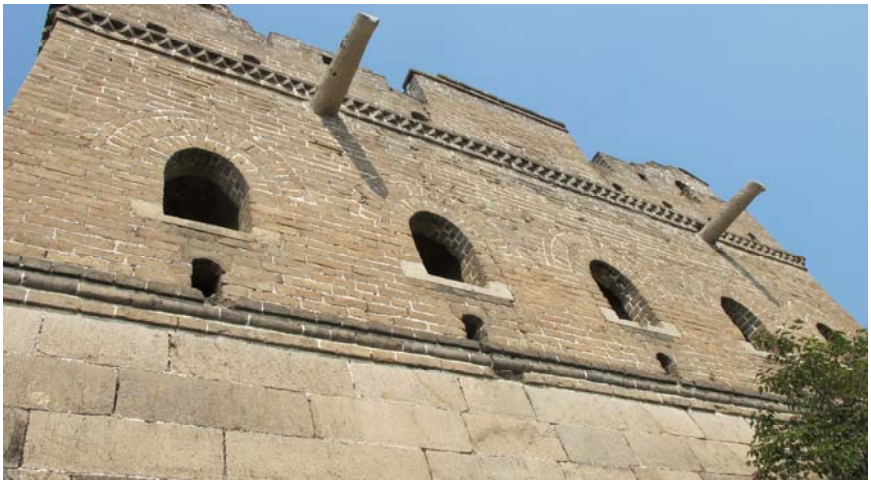
Water drainage spouts draining the top of a tower. #8



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Drainage channel. #8

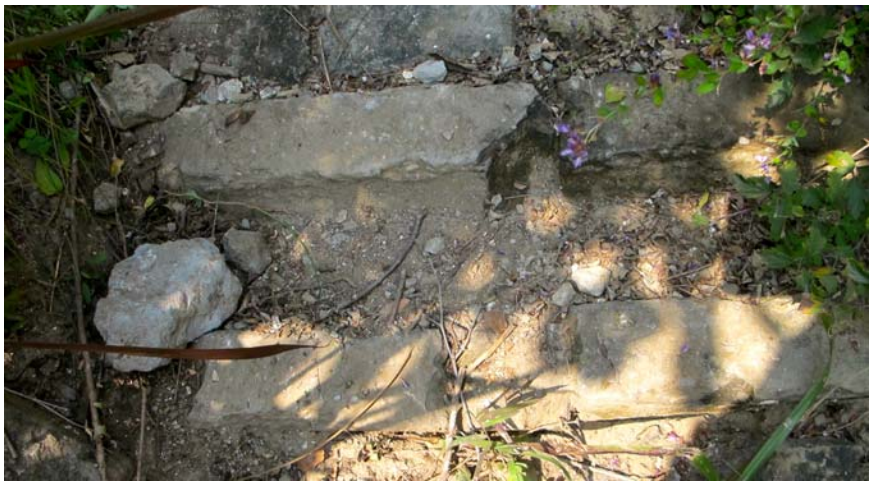

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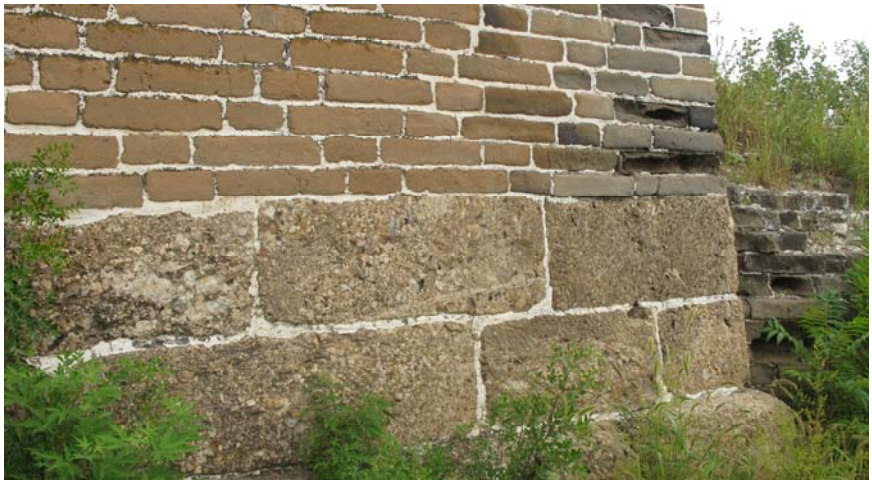
Figure 3. Typical brick on stone construction. Earth foundation. #5



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Typical brick on stone construction. Bedrock foundation. #4

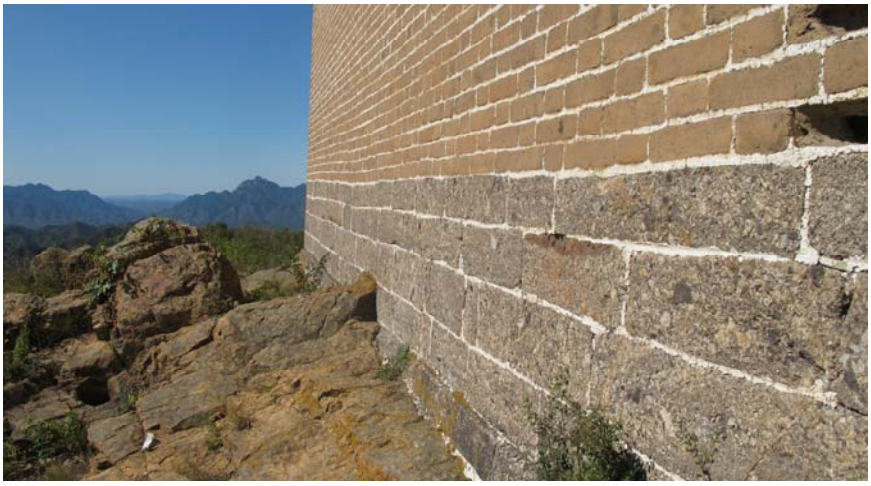

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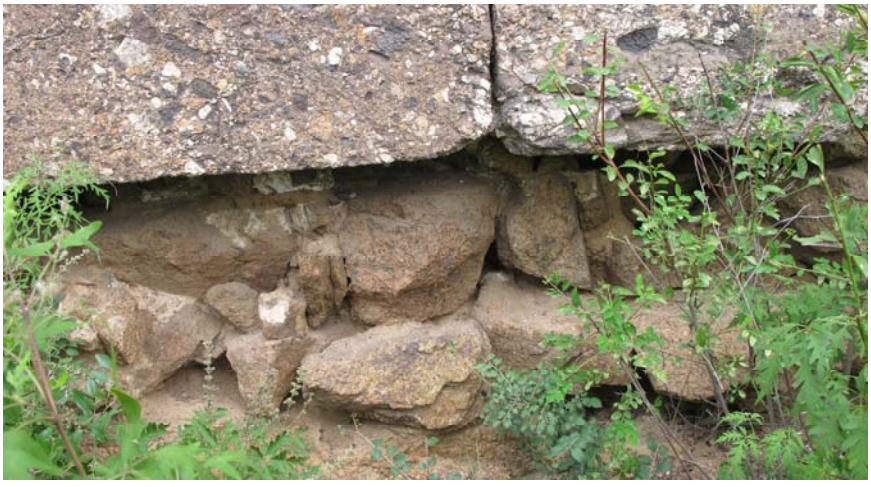
Figure 6. Rubble Foundation, erosion on very steep incline. #5



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Quarried Stone. Single course foundation. #5

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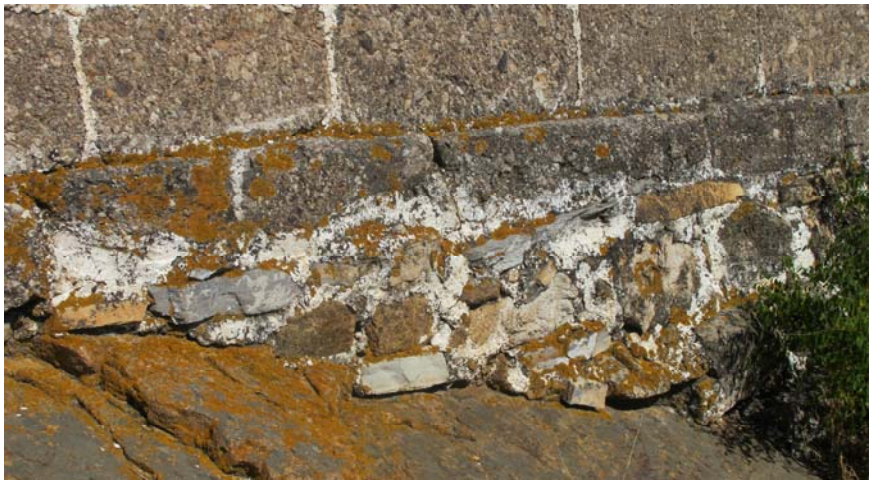
Mortared Rubble on bedrock. #4



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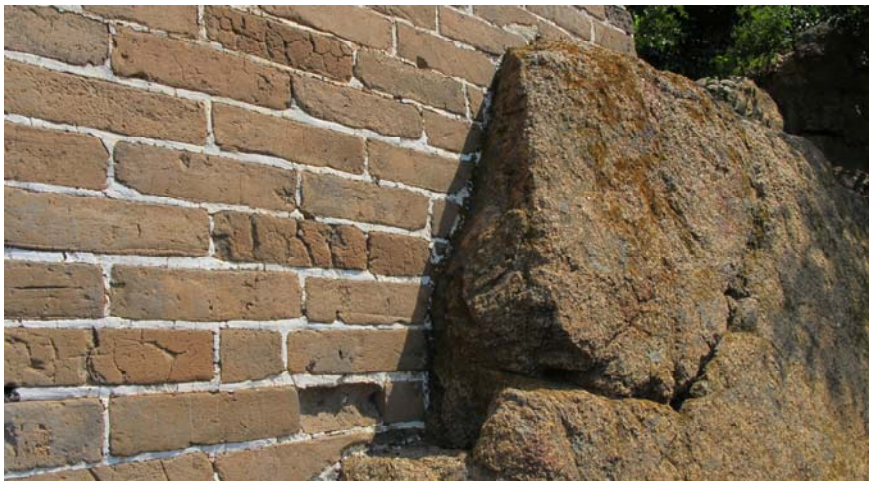
The exception to the rule! #4



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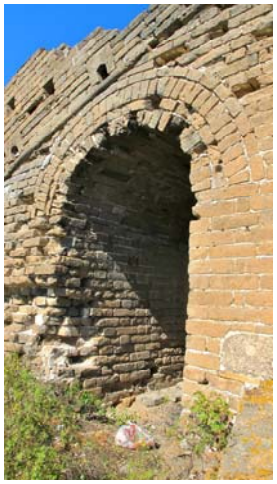
Another exception! #4



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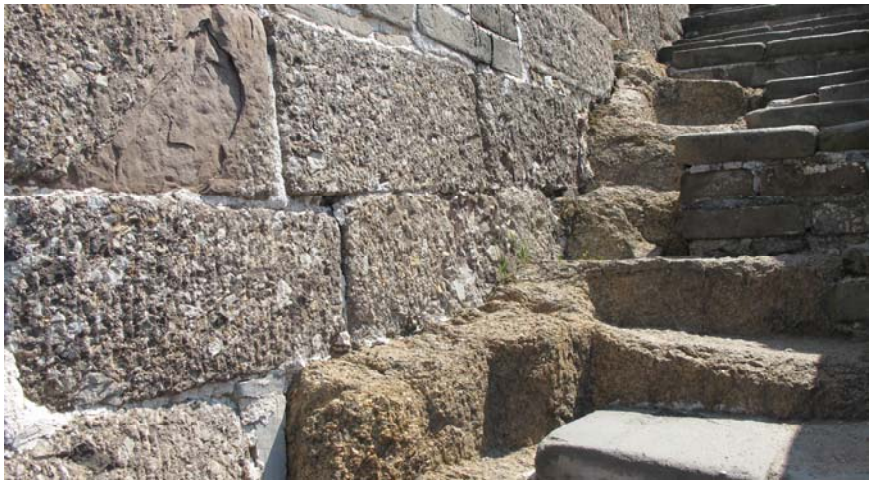
Quarried Stone. #4

26

Quarried Stone. #4



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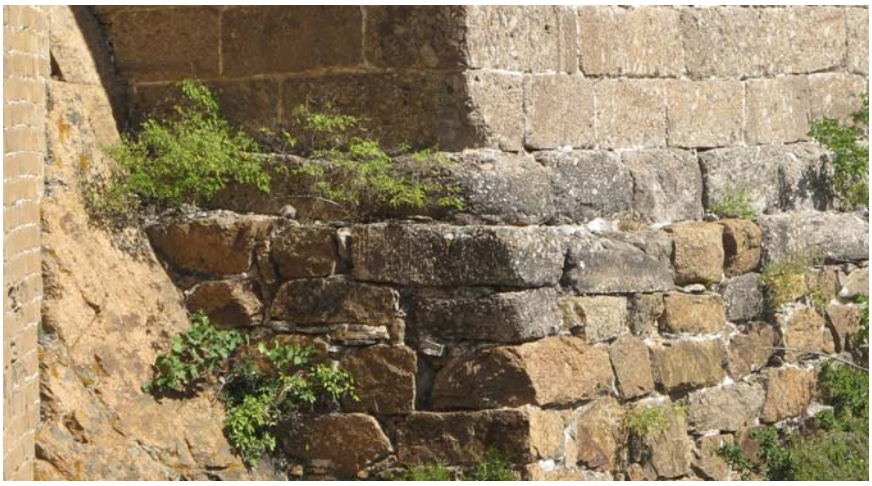
Quarried Stone at tower base. #4



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Quarried Stone on earth foundation. Badly cracked walls. #8

29

Quarried Stone doorpost to left. Rough cut stone bottom. #8

30

Quarried Stone. Water drainage spout. #8

31

Figure 9. Low wall on high peak. #4

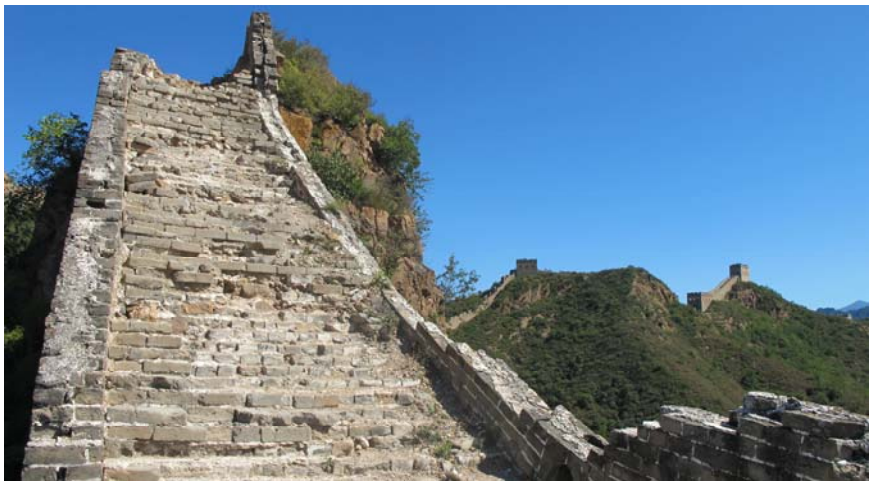

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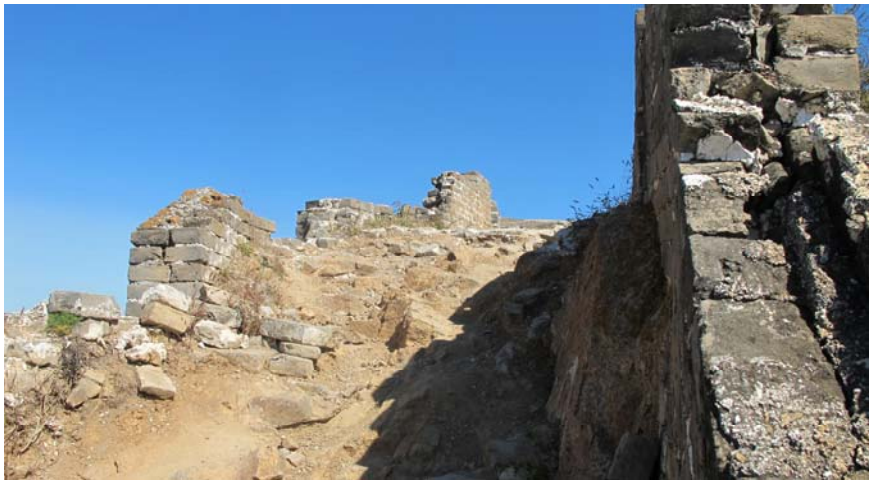
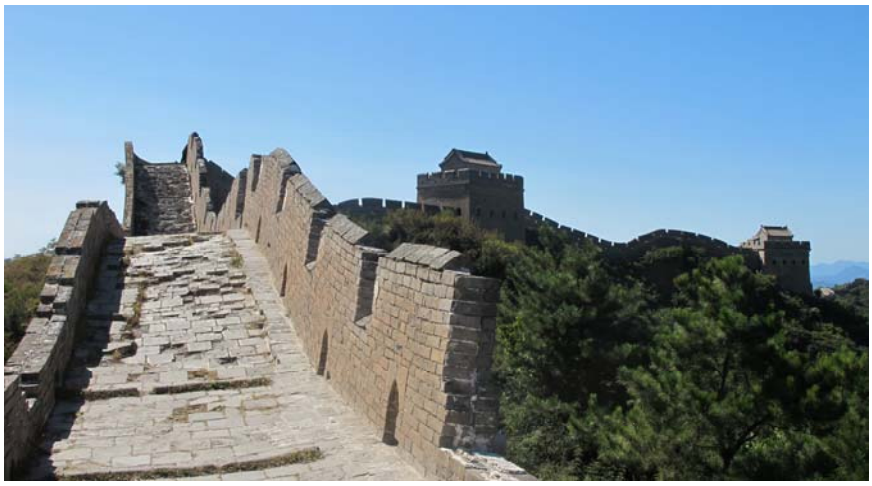
Figure 10. Foot traffic erosion. #4



33

Figure 11. Outward lean. Parapet on right fallen away. #4



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Outward lean & buckle. #4

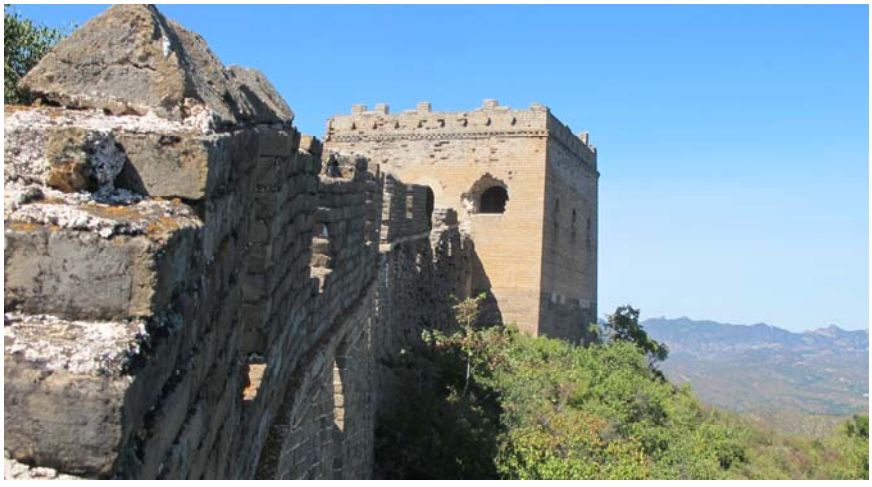

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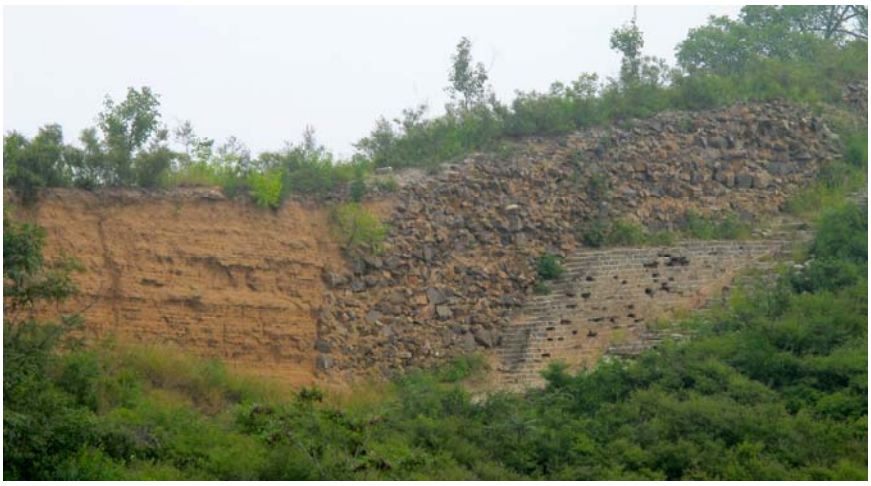
Figure 7. Rammed Earth and Rubble side by side. #5



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Rammed Earth and Rubble side by side. #5

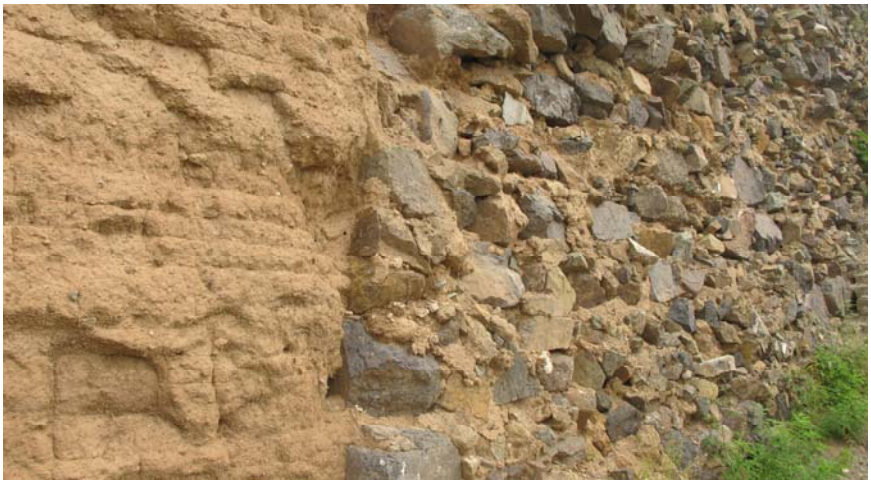

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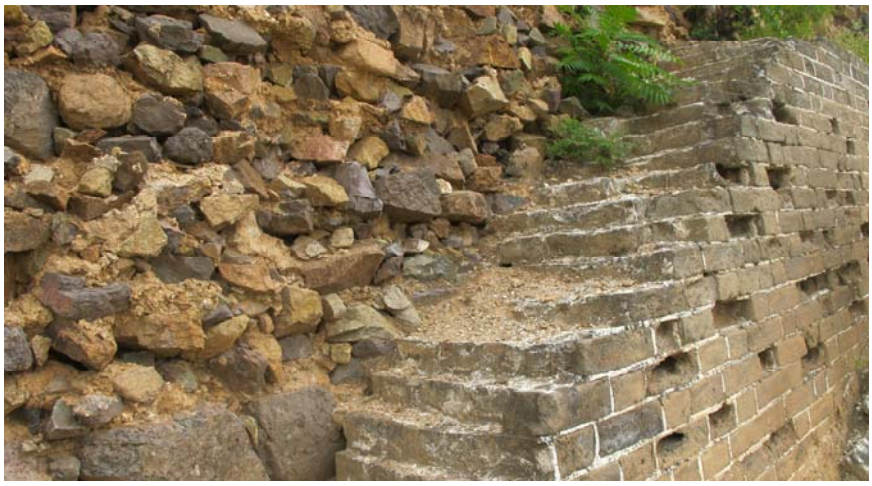
Figure 8. Rubble Core. Brick wall leaning in. #5



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Wall intact but parapet missing. #5

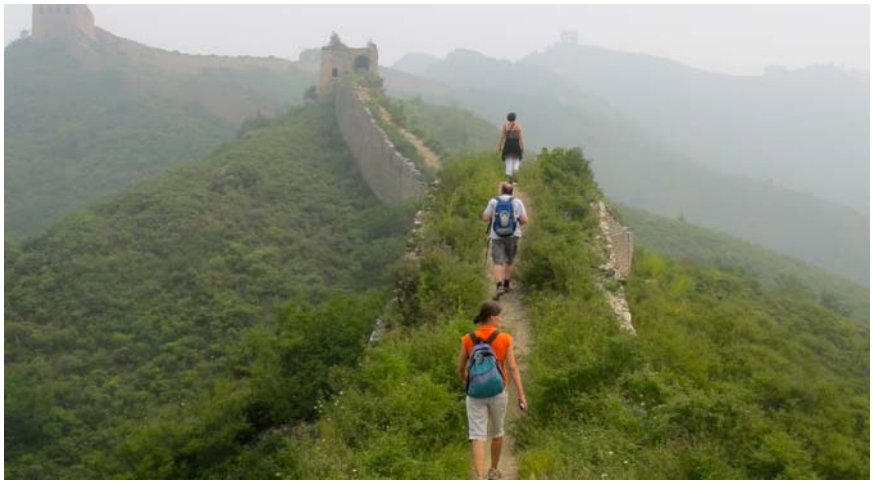

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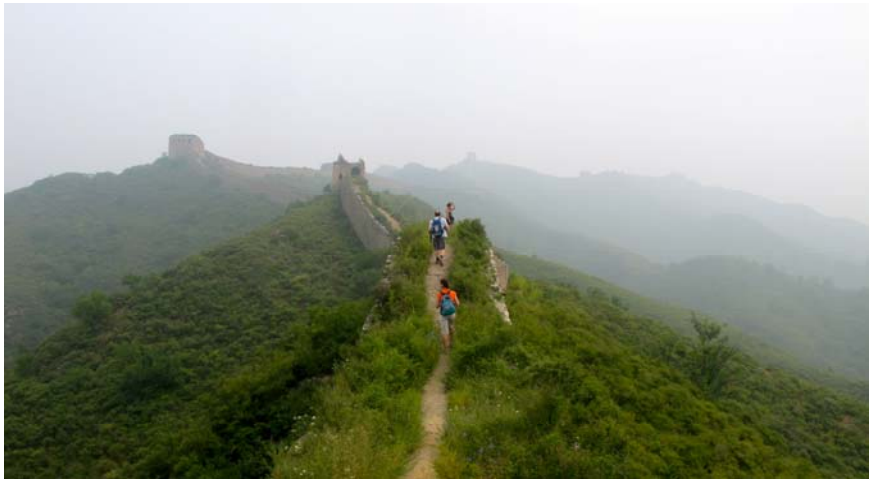
Figure 12. Outer walls brick walls slipped away. #5



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Slip section with Rammed Earth Core torn and exposed at an angle. #5

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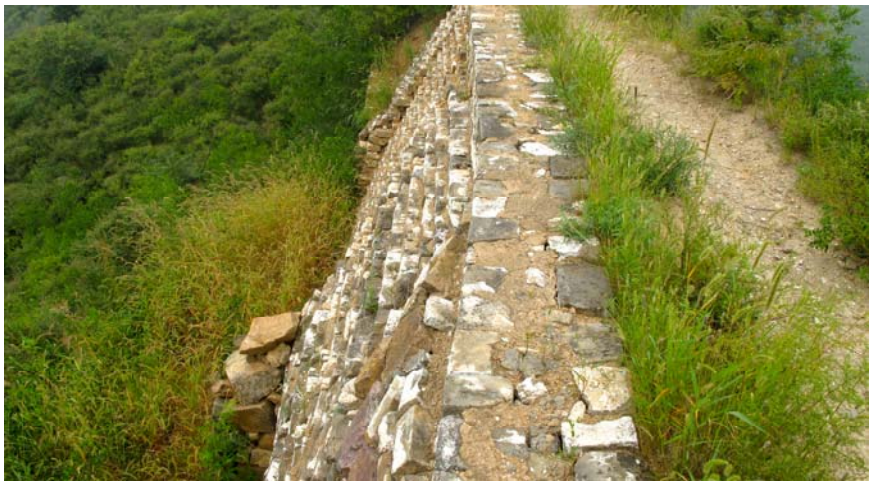
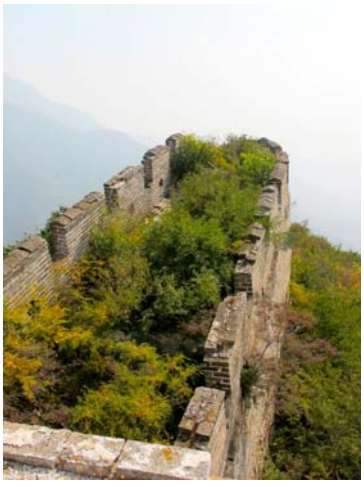
Repairs to a slipped section. #5



42

Vegetation in some areas is dense. #8



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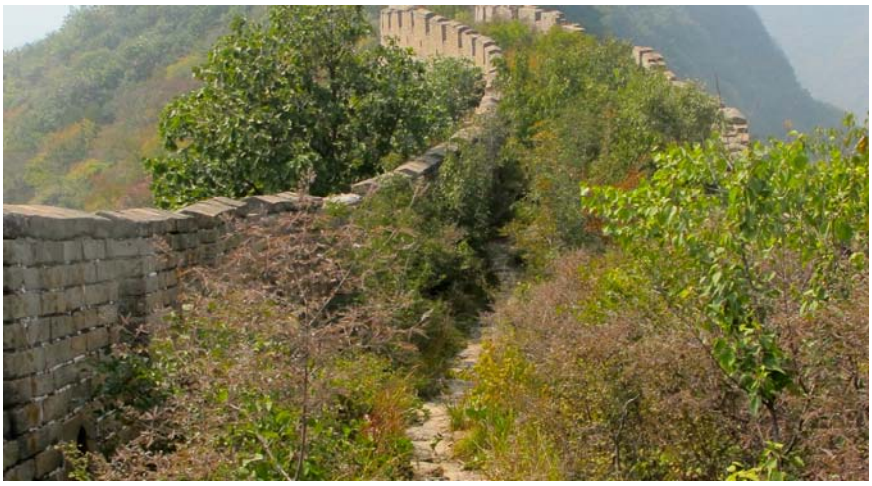
Vegetation in some areas is dense. #8



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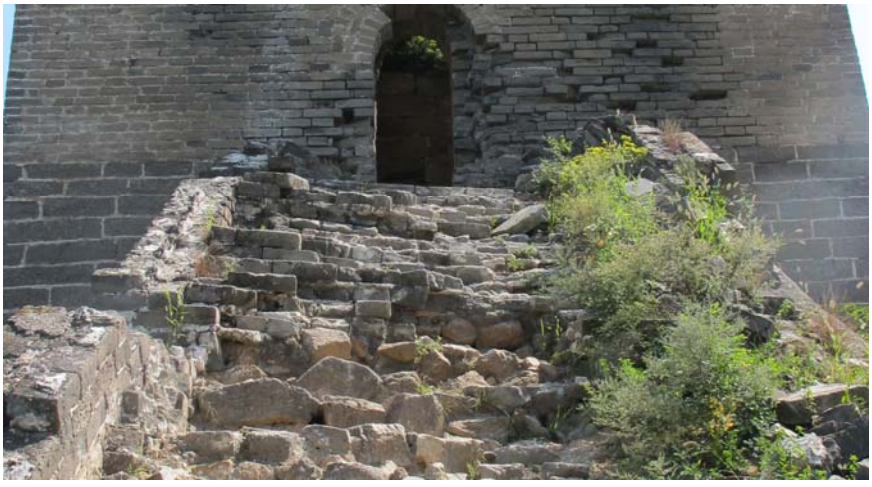
Rubble Core of a superior nature. #4



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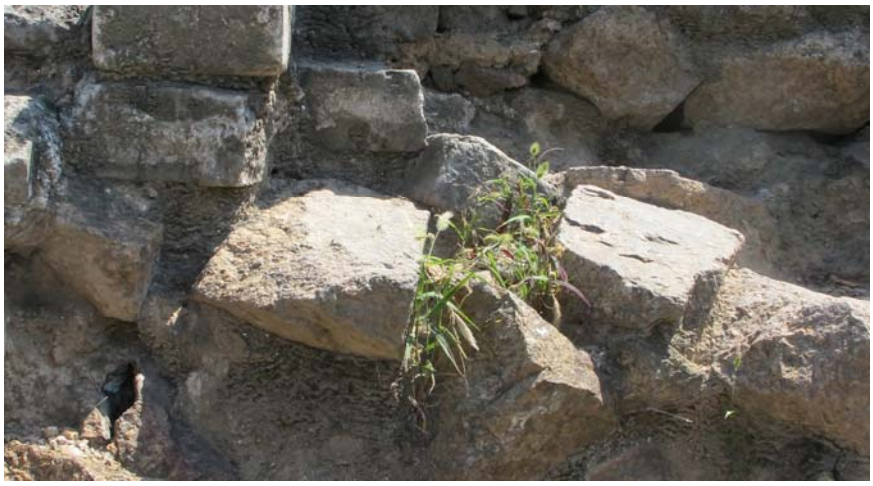
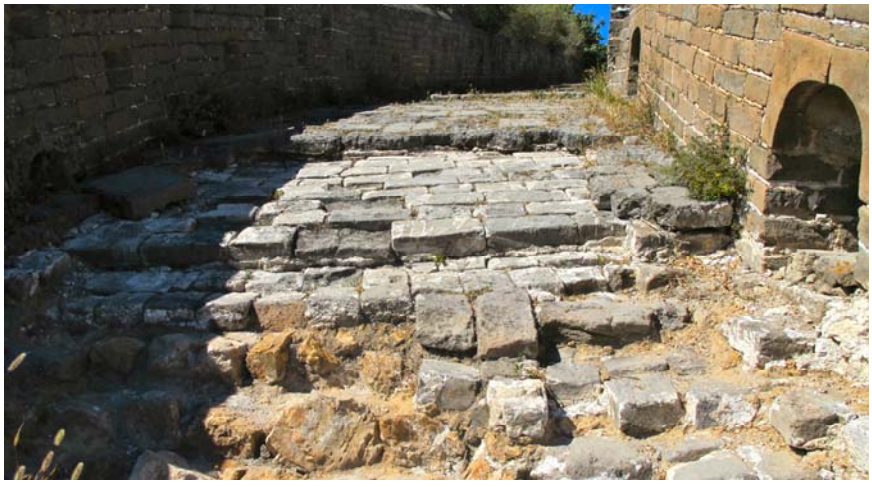
Rubble Core. #4



46

Pavers with Rubble Core under. #5



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Rubble Core & pavers. #4

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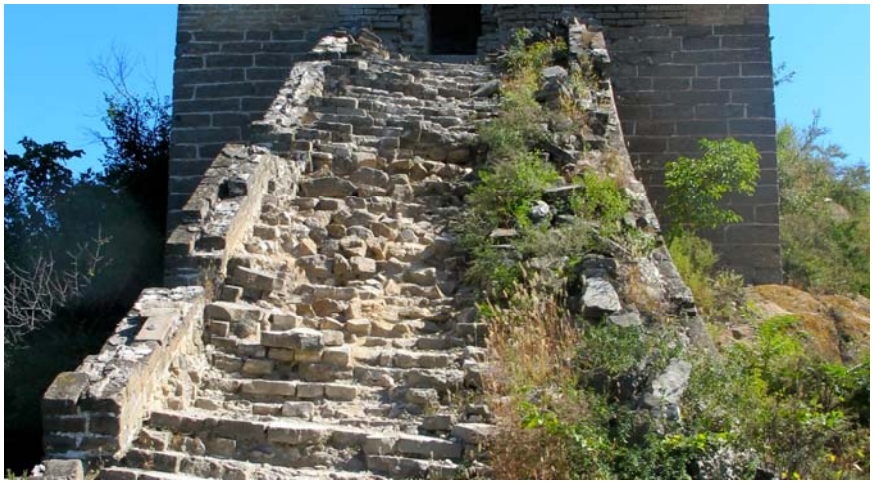
Rubble Core & pavers. #4

49

Rubble Core. #5

50

Rubble Core with some foot traffic erosion. #5



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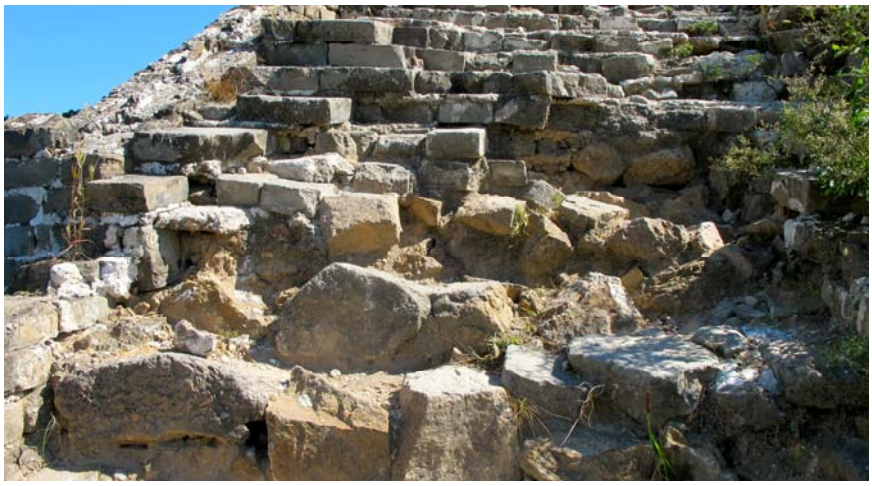
Rubble Core & pavers. #4



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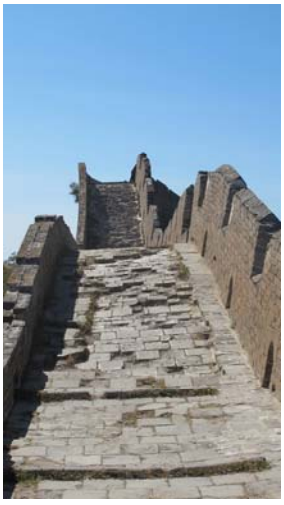
The serpentine nature of the Wall aids longevity. #4



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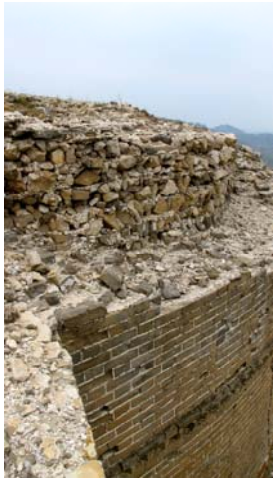
The serpentine nature of the Wall aids longevity. West of #14

54

Rubble Core constructed in courses with mortar between. West of #14



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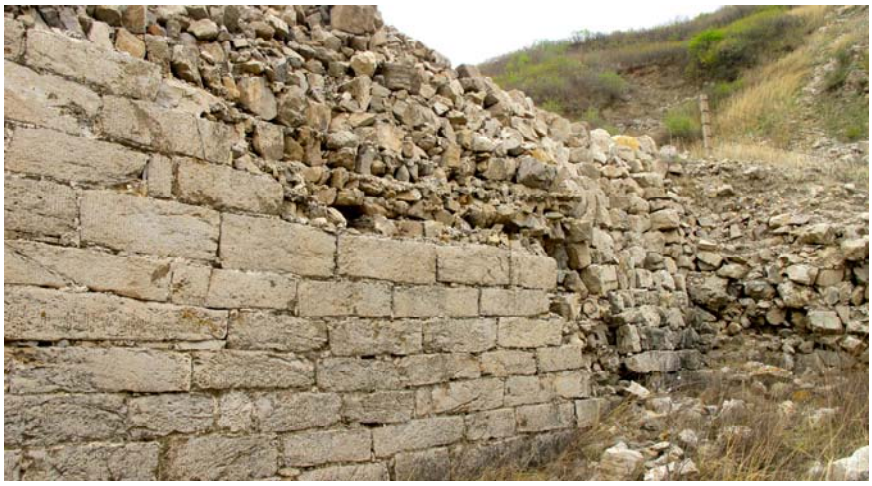
Rubble Core constructed in courses with mortar between. West of #14



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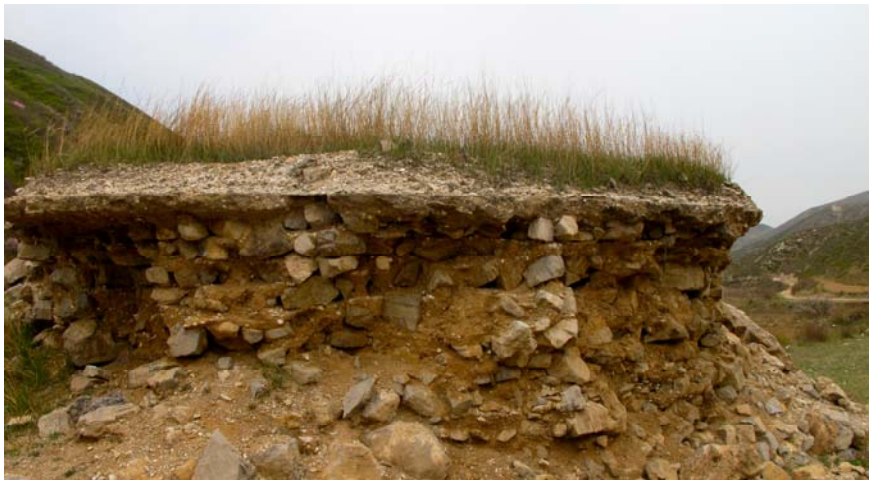
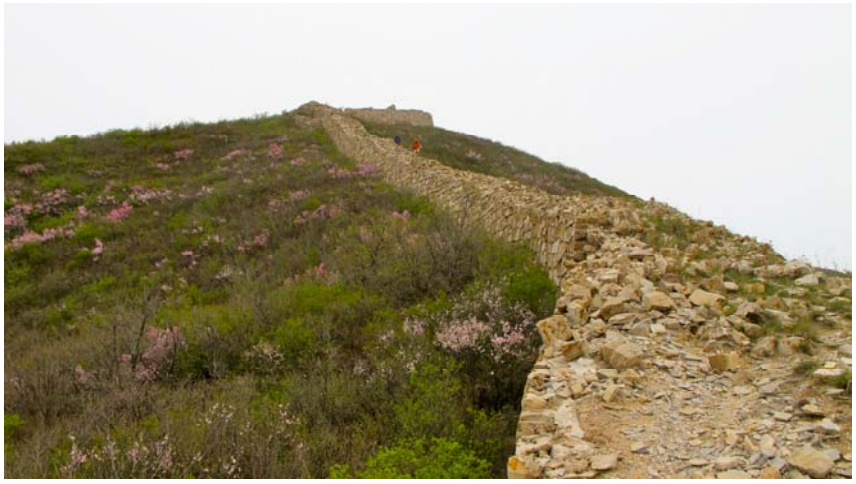
Rubble Core constructed in courses with earth between. West of #14



57

Stone parapets fall far sooner than brick on steep sections. West of #14



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Steeper still the Wall readily falls to pieces. West of #14

59

Only 1 course of (removed?) Pavers over inferior Rubble Core. #8

60

Inferior Rubble Core with little earth between. #8

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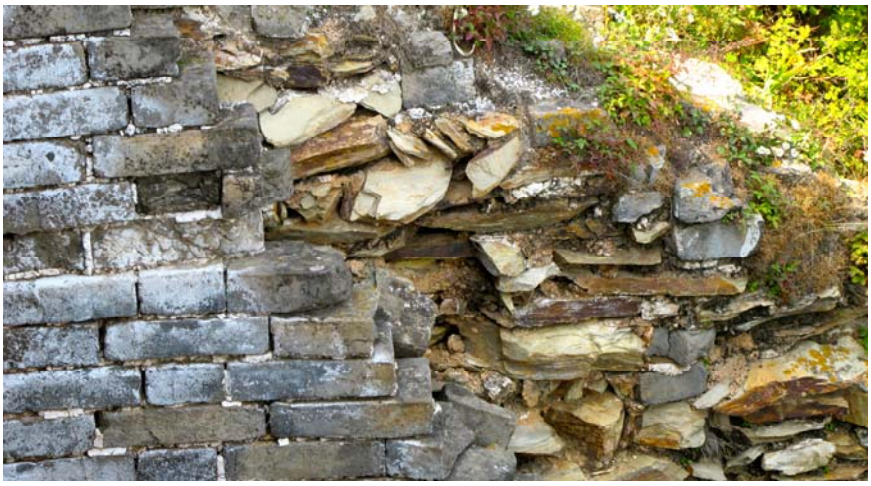
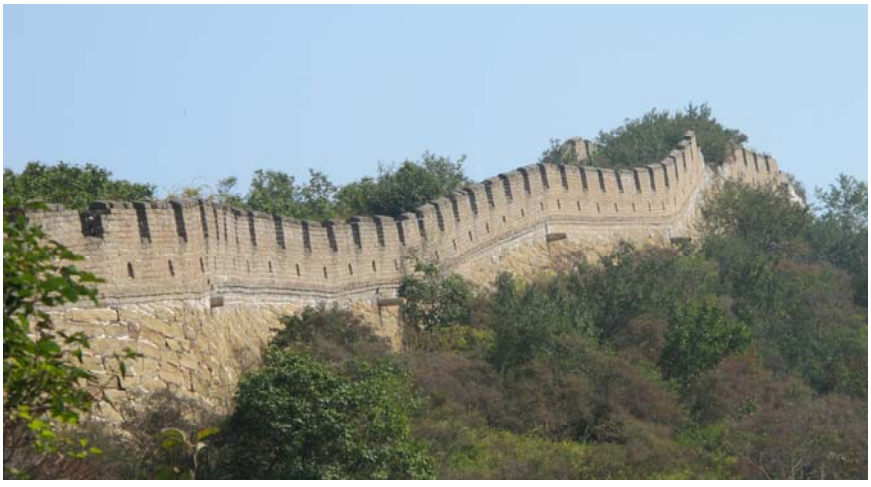
Inferior Rubble Core with little earth between. #8



62

Drainage spouts on an inclined section. #4



63

Poor design. #8

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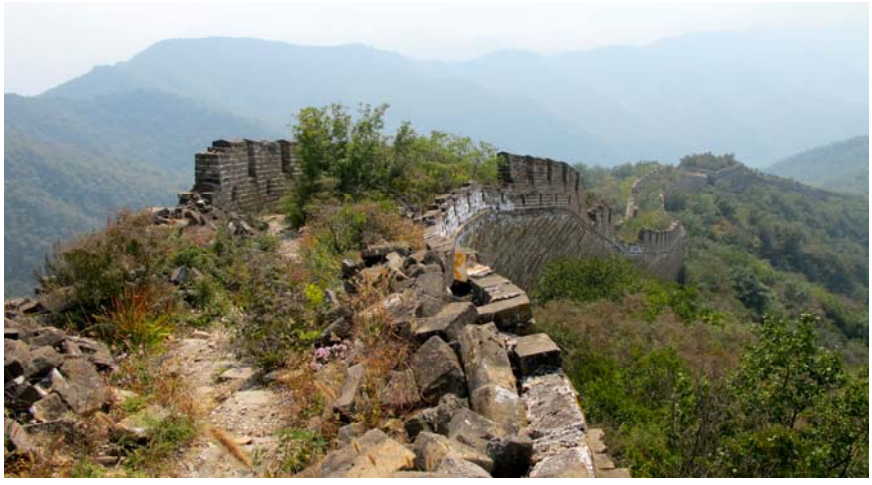
Poor design. #8



65

Parapet walls fallen in. Note extreme angle of wall. #8

66

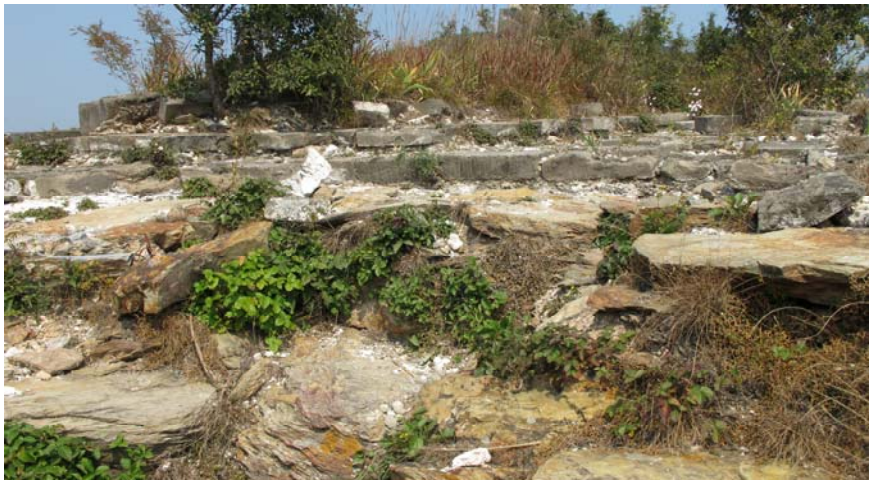
Chaotic, but a haven for small animals & plants. #8

67

Parapet walls fallen in. Outer wall collapsed. #8

68

Large rocks in Rubble Core. #8



69

Outer Wall and inner Core meld and bonded together with mortar. #8

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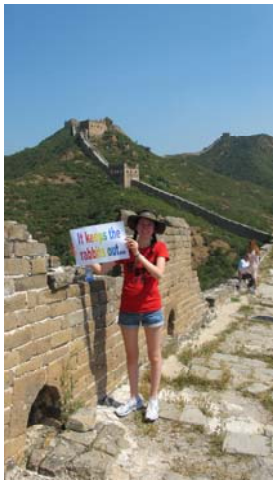
The End!



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