

2018

1,2 3 1,4 3,5
 1. 100875 2. 730070 3. 730000
 4. 210008
 5. 200433
 2018
 14 15 16 m²

MIS5

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: The Loufangzi site, located in the eastern Gansu province, is an open-air site dated at the middle paleolithic. In 2018, excavations were carried out on the lower part of the cultural layer (Layer 14 and 15) of the Loufangzi site, and plenty of artifacts and animal bones were discovered in 16 m². Lithic raw materials were made of gravel from river nearby, which were mainly quartz sandstone and siliceous limestone. The lithic assemblage includes cores, flakes, tools, chunks etc. The principle flaking technique was direct hard-hammer percussion. Most of tools were retouched by hard-hammer. The typological and technological characteristics of

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2019

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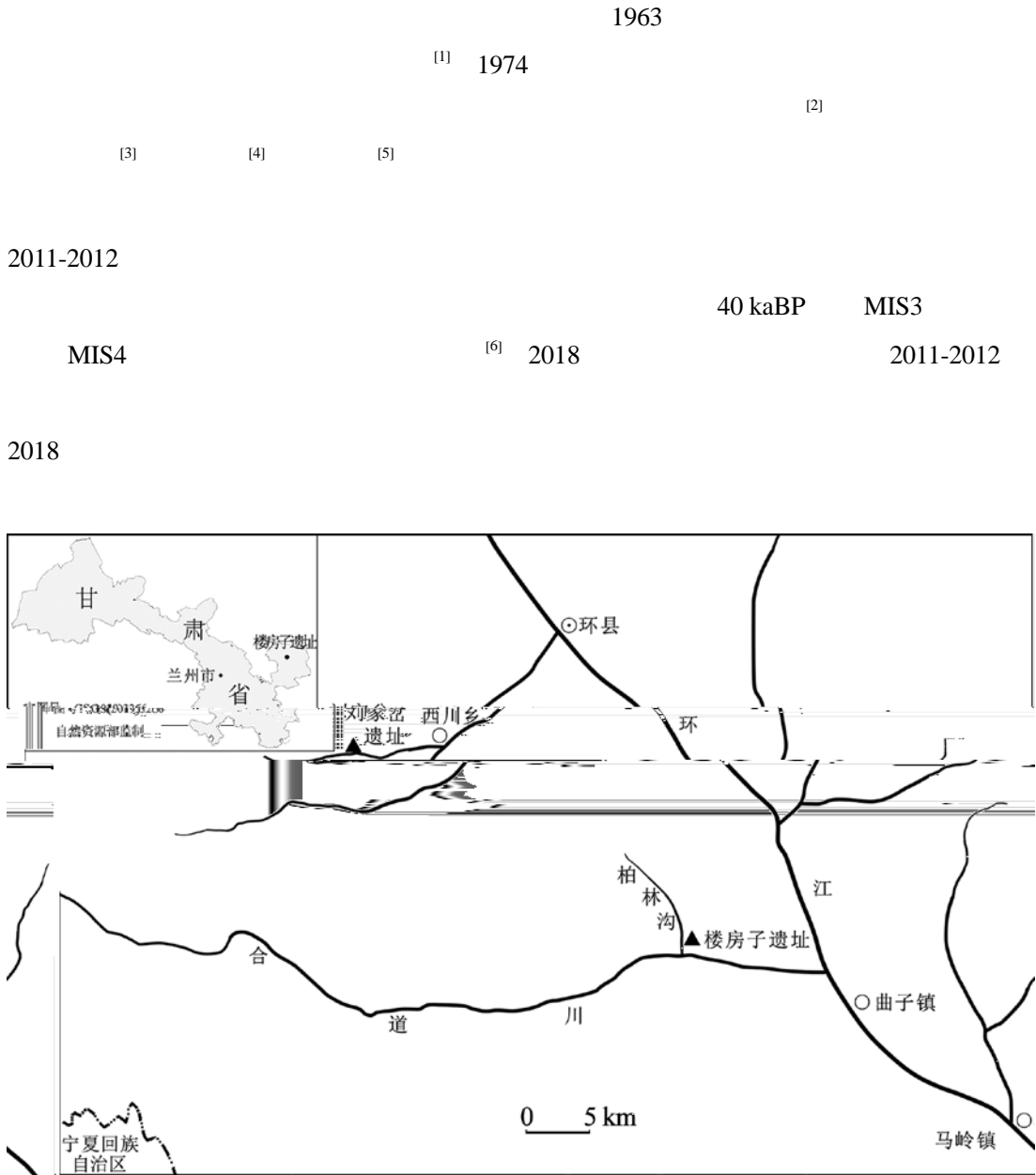
E-mail: 394324536@qq.com

E-mail: ssdu@bnu.edu.cn

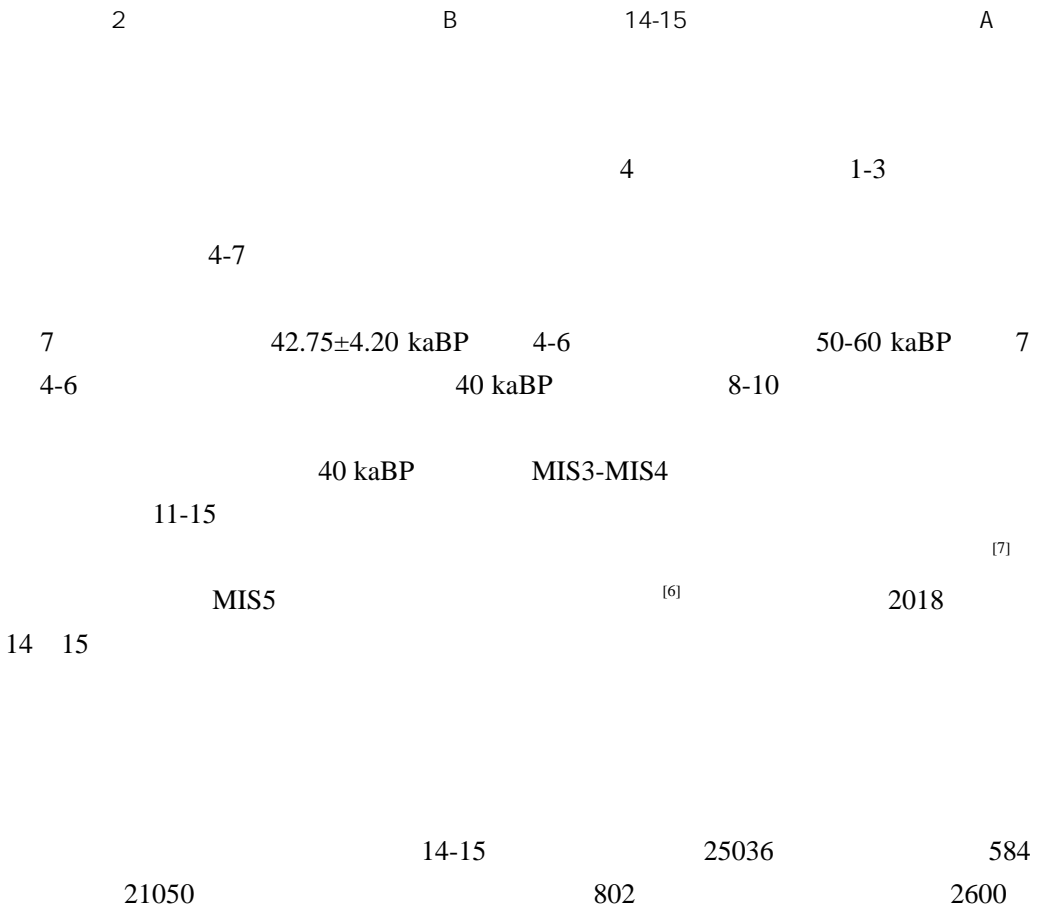
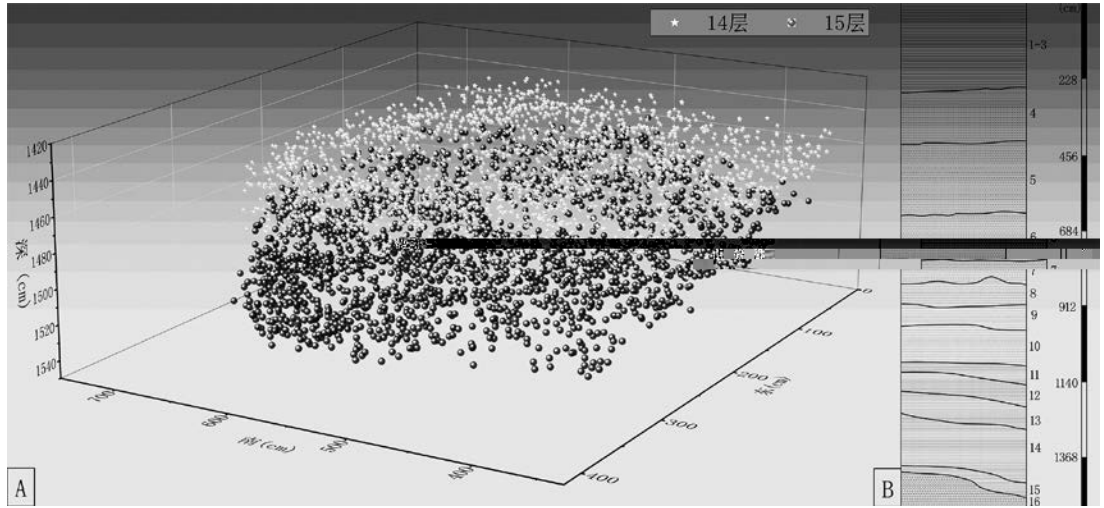
: Mu ZX, Chen GK, Du SS, et al. A preliminary report of the 2018 excavation at the Loufangzi site in Huan county, Gansu province[J]. Acta Anthropologica Sinica, 2022, 41(1): 121-134

artifacts from the lower cultural layer of the Loufangzi site belonged to the small tool technology. Combined with the stratum accumulation and related pollen analysis, we preliminarily think that the age of lower cultural layer of the Loufangzi site is equivalent to MIS5.

Gansu; Loufangzi; Middle Paleolithic; Small stone artifacts; Steep working



		1 km	36°20'47" N	107°20'54" E
1290 m	16 m ²	65 cm	14 15	2011-2012
	14.9 m			
1	0.2 m			
2	0-3 m			3
3	3.6 m	7	6	
4	1.7 m			
			4.5 m	4
5	2.3 m			8
	0.05m	15		
6	1.3 m		16	1
		4.9		
7	0.7 m			
	0-0.1 m	74	111	
8	0.4-0.5 m			
		69	121	
9	0.6 m			309
1208				
10	0.8 m			110
192				
11	0.3-0.5 m		0.1-0.2 m	
	0.2-0.3 m		208	130
12	0.5-0.6 m			
			215	52
13	0.7 m		474	194
14	1-2 m			
		5130		2259
2871		2768	2362	
15	0-0.3 m			
22733		2135	20598	1597
21136				
16				



2.1

10

• 125 •

• 125 •

2.2

2.2.1

682			<i>n</i> =429; 62.90%	<i>n</i> =157;
23.02%		<i>n</i> =59; 8.65%	<i>n</i> =27; 3.96%	
<i>n</i> =8; 1.17%		<i>n</i> =1; 0.15%	<i>n</i> =1; 0.15%	<i>n</i> =380;
55.72%	<i>n</i> =291; 42.67%		<i>n</i> =11; 1.61%	
	44.93 mm	47.08 mm	39.97 mm	153.57 g
	36°	86°		136°

n

Layers	Cores
--------	-------

			3	3		
	490		248		252	
	<i>n</i> =170		<i>n</i> =51		<i>n</i> =14	<i>n</i> =10
<i>n</i> =3					<i>n</i> =100	
	<i>n</i> =101		<i>n</i> =51			
	96		77		19	
		<i>n</i> =54	<i>n</i> =12		<i>n</i> =11	3
		<i>n</i> =13			<i>n</i> =5	
<i>n</i> =1						
	86					
	HL2018TN4W3-15(3):83					
	100.32 mm	45.45 mm	45.73 mm	343.15 g	3: 4	
			30%			
	2			10%		3
	32.78 mm	41.45 mm			8.88 mm	8.57 mm
	65°~79°					
	HL2018TN6W3-15(3):480					
	47.54 mm	66.7 mm	47.8 mm	204.83 g	3: 8	
				80%	50%	
						60%
	10			37.81 mm	23.42 mm	
	8.77 mm	7.35 mm		87°~104°		
	HL2018TN7W2-14(3):643					
	59.75 mm	44.52 mm	28.34 mm	71.72 g	3: 3	
			100%			
				50%		7
	29.7 mm	17.84 mm			5.64 mm	8.57 mm
	62°~85°					
	HL2018TN5W4-14(4):12					
	90.85 mm	82.37 mm	67.35 mm	459.27 g	3: 5	
			100%	50%		
					80%	
		48.87 mm	30.6 mm			12
						9.62 mm
11.65 mm		69°~103°				

2.2.2

120

n=85; 70.83%



Fig.3 Cores, flakes, stone hammers and choppers excavated from the lower cultural layer of Loufangzi site

- | | | | | | | |
|---------------------|---------------------|------------------------|----------------------|----------------------|----|----------------------|
| 1 | 2. | HL2018HLTN4W314(2):283 | HL2018TN5W314(4):44 | 3 | 5. | HL2018TN7W214(3):643 |
| HL2018TN5W414(4):12 | 4. | HL2018TN4W315(3):83 | 6. | HL2018TN6W215(2):317 | | |
| 7. | HL2018TN5W314(3):44 | 8. | HL2018TN6W315(3):480 | | | |

4

Tab.4 Characteristics of flakes from lower cultural layer

		Flake types						Platform shapes						
<i>n</i>		4	32	34	7	20	22	4	2	26	34	24	30	
%		3.36	26.89	28.57	5.88	16.81	18.5	3.33	1.67	21.67	28.33	20	25	
		Platform types						Cross section shapes						
<i>n</i>		63	27	20	3	2	4	1		37	30	34	9	10
%		52.5	22.5	16.67	2.50	1.67	3.33	0.83		30.83	25	28.33	7.50	8.33
		Edge shapes						Terminal shapes						
<i>n</i>		12	48	19	2	2	4	33		45	49	13	1	12
%		10	40	15.83	1.67	1.67	3.33	27.50		37.5	40.83	10.83	0.83	10
		Strike points		Strike bubbles			Cone scars		Radiation rays			Concentric ripples		
<i>n</i>		101	19	66	36	18	21	96	3	94	26	74	46	
%		84.17	15.83	55	30	15	17.5	80	2.5	78.33	21.67	61.67	38.33	

n=22; 18.33% *n*=8; 6.67% *n*=3; 2.5% *n*=2; 1.67%
 1.67% 1 119 6^[8]
 4 *n*=63; 52.5% *n*=57; 47.5%
 HL2018TN5W3-14(3):44 VI 50.34 mm
 64.48 mm 24.95 mm 79.13 g 3: 7
 113° 92° 75° 66°
 10% 4

2.3

2.3.1

12 8 3 1
 76.4 mm 59.14 mm 42.32 mm 318.42 g
 HL2018HLTN4W3-14(2):283
 79.08 mm 62.14 mm 49.91 mm 411.27 g 3: 1
 4
 HL2018TN5W3-14(4):44
 107.56 mm 87.15 mm 61.5 mm 761.31 g 3: 2

2.3.2

	1903	<i>n</i> =1454; 76.41%	<i>n</i> =167; 8.78%
	<i>n</i> =85; 4.47%	<i>n</i> =84; 4.41%	<i>n</i> =33; 1.73%
	<i>n</i> =7; 0.37%	<i>n</i> =15; 0.79%	<i>n</i> =14; 0.74%
	<i>n</i> =1; 0.05%		<i>n</i> =43; 2.26%
		5	
		31.12 mm	27.34 mm
	<i>n</i> =962; 50.55%	<i>n</i> =903; 47.45%	14.51 mm
			25.79 g
3		92.16%	<i>n</i> =38; 2.0%

2.3.2.1

	1454	750		704	
	1050				371
	33	3			
	HL2018TN6W2-15(4):190				42.86
mm	51.16 mm	17.6 mm	44.5 g	4: 1	85%
					94.43%
					74°
	HL2018TN6W2-15(4):194				54.69
mm	46.43 mm	18.79 mm	59.22 g	4: 2	
			50%		
	100%	81°		58.7 mm	6.01 mm
	HL2018TN7W3-14(2):X1				30.63
mm	38.54 mm	10.56 mm	18.17 g	4: 3	
					100%
					71°

2.3.2.2

	167	3			86
	81		21.8 mm	74.1 mm	6.6 mm
	HL2018TN7W2-14(3):689				22.51 mm
	59.01 g	4: 4		51.34 mm	46.48 mm
	3.71 mm		80%		
			59.76%	78°	

1) HL2018TN7W3-14(2):X1 X

	Scrapers	Spur-like tool	Notches	Points	Denticulates	Borers	Becs	Choppers
	1443	160	96	135	33	4	8	32
	172	17	9	16	1	14	1	5
	92	19	9	7	2	2	0	3
	91	13	7	7	0	3	1	0
	0	0	0	0	0	0	0	3
	807	86	53	75	18	12	4	26
	784	92	56	67	10	12	3	13
	383	37	16	29	9	1	3	4
	54	7	2	3	2	2	1	0
	9	1	0	0	0	0	0	0
50%	34	0	26	14	1	6	0	1
50%-75%	243	35	36	33	7	7	1	9
75%-99%	126	30	12	10	4	2	0	3
100%	1490	159	56	117	24	12	10	30
50°	18	0	0	0	0	0	0	0
50°-80°	1096	82	53	80	23	9	4	21
80°	832	139	79	94	13	14	7	22

	Scrapers	Spur-like tool	Notches	Points	Denticulates	Borers	Becs	Choppers
	122	5	3	18	0	2	0	0
	853	48	50	79	1	10	7	8
	668	103	69	38	18	7	2	20
	250	67	8	39	17	8	2	15
	113	15	6	13	3	1	1	4
	857	74	46	56	18	17	0	7
	919	134	78	103	15	9	10	32
	4	0	0	2	0	0	0	0
	140	11	3	4	10	3	0	1
	154	14	7	14	3	1	0	4
	530	43	7	41	7	4	3	8
	1066	154	109	111	16	19	8	30
	3	1	4	4	0	0	0	0
	2	0	0	0	0	0	0	0
	4	1	4	7	0	0	0	0
	1670	211	119	157	28	25	10	42
	111	4	2	6	2	2	1	0
	106	7	5	4	6	0	0	1

2.3.2.3

85 11

40 45

99 14.21 mm 55.95 mm 6.46 mm

2.34 mm 10.16 mm 0.93 mm

32.68% 58.09% 16.82%

HL2018TN7W1-14(2):515 57.27 mm 45.28

mm 31.48 mm 76.84 g 4: 7

49.53% 76° 20.33 mm 3.77 mm

0.37 74.98%

84°

2.3.2.4

84 1 47 35 ,2

53 31

73.48° 98° 51°

HL2018TN5W2-14(2):X7 28.52mm 39.84mm

9.33mm 9.86 g 4: 8

62° 100% 67° 53°

HL2018TN7W2-15(1):3 79 mm 66.47

mm 31.42 mm 207.81 g 4: 9 80%

100% 77.73% 100% 84° 83° 83° 1

79° 2 80°

2.3.2.5

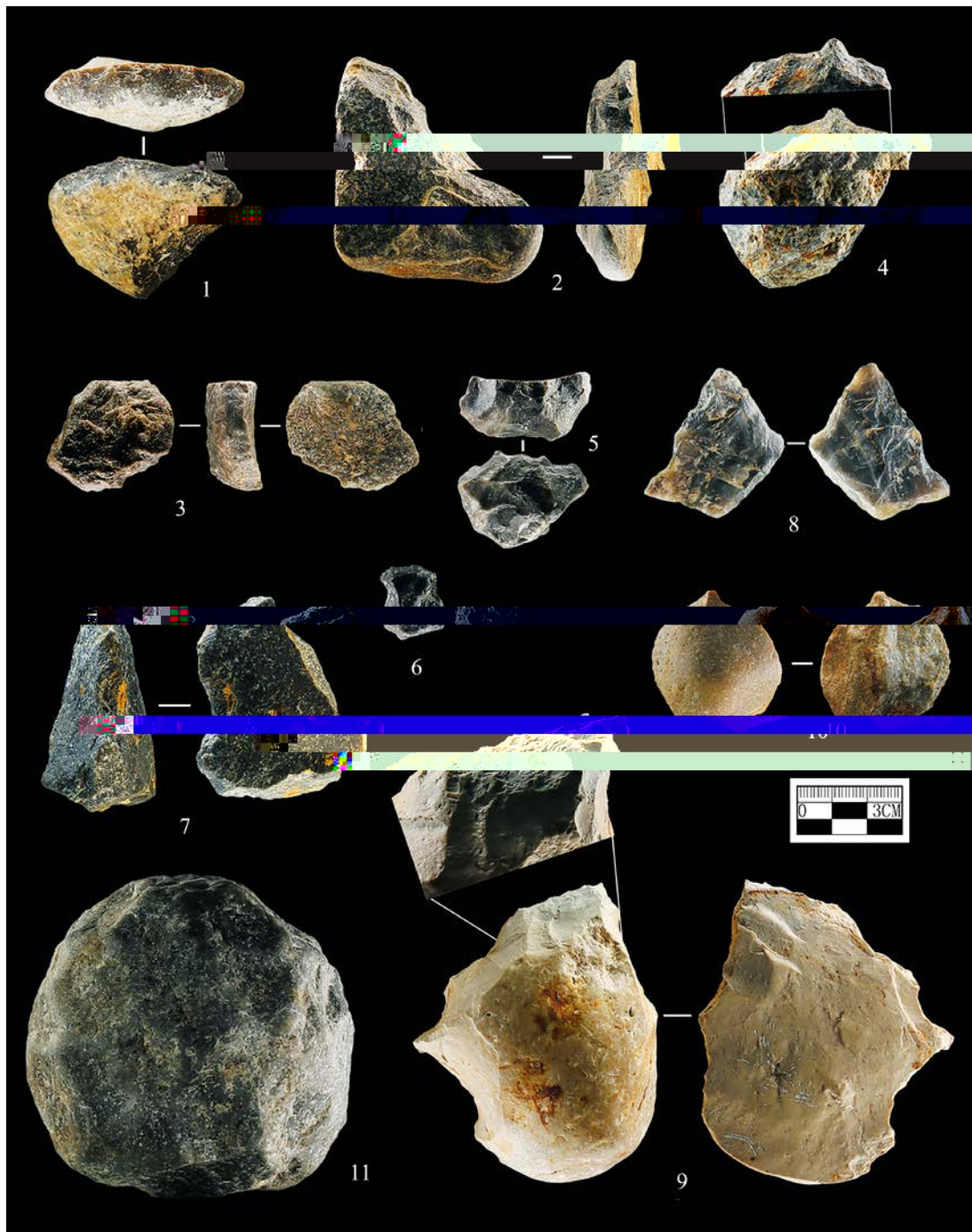
33

19 14 4.66

1.62 mm 3.41 mm 0.67 mm

0.66 mm 1.68 mm 0.2 mm , 8.22 mm

20.78 mm 2.9 mm



1 3. HL2018TN6W2-15(4):190 HL2018TN7W3-14(2):X1 2. HL2018TN6W2-15(4):194
4. HL2018TN7W2-14(3):689 5. HL2018TN7W2-14(2):186-1 6. HL2018TN7W1-14(2):498-2
7. HL2018TN7W1-14(2):515 8. HL2018TN5W2-14(2):X7 9. HL2018TN7W2-15(1):3 10.
HL2018TN7W2-15(2):X30 11. HL2018TN4W3-15(4):56

HL2018TN7W2-14(2):186-1

34.87 mm 28.93 mm 18.42 mm 21.66 g 4: 5
 88.95% 95°
 5 1.86 mm 0.53 mm 9.12 mm 6.29 mm
 6.55 mm 7.37 mm

2.3.2.6

14 5 8 1
 67.08° 79° 52°
 39.39 mm 36.61 mm

HL2018TN7W2-15(2): X30

24.83 mm 27.96 g 4: 10
 79° 81°
 35.97% 20.75%

2.3.2.7

7 5 2
 80°
 HL2018TN7W1-14(2):498-2 37.31 mm 29.8 mm 16.15 mm

29.16 g 4: 6
 66° 95°
 100%

2.3.2.8

43 35 8 63.68 mm
 52.07 mm 30.93 mm 348.69 g
 202.45 mm 185.16 mm 109.27 mm 6000 g
 22.17 mm 24.05 mm 14.12 mm 9.19 g
 77.76°

HL2018TN6W2-15(2):317

62.55 mm 41.64 mm 24.43 mm 88.46 g 3: 6
 77° 71.2%

2.3.2.9

1 HL2018TN4W3-15(4):56 80.37
 mm 98.18 mm 93.44 mm 411.27 g 4: 11

1

2

3

4

5

6

1948 90% 80° 832 42.71%

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- [1] [A] [M]
- 1982: 108-137
- [2] [J] 1977, 15(3): 211-222
- [3] [J] 2019(5): 66-77+2
- [4] Bettinger RL 6 [J] 2010,
- 55(10): 887-894
- [5] [J] 2012, 31(3): 209-227
- [6] 2011~2012 [J] 2019,
- 39(6): 1443-1456
- [7] [D] 2018: 35-45
- [8] Nicholas T. The old owan reassessed: A close look at early stone artifacts[J]. Academic Press, 1985, 12(2): 101-120