

RESEARCH REPORT, NARA NATIONAL CULTURAL PROPERTIES  
RESEARCH INSTITUTE NO. 56

**REPORT OF EXCAVATIONS AT BLOCKS 15-16,  
EAST FIRST WARD ON SEVENTH STREET,  
NARA CAPITAL**

TABLE OF CONTENTS AND ENGLISH SUMMARY

**NARA NATIONAL CULTURAL PROPERTIES  
RESEARCH INSTITUTE (NABUNKEN) 1997**

## CONTENTS

Chapter I	Introduction .....	1
	1. Excavations at the Nara Capital .....	1
	A. Investigations of Block 16, East First Ward on Seventh Street .....	1
	B. Excavations and improvements to the grounds at the Nara Palace site .....	2
	2. Publication of this report .....	3
Chapter II	Outline of the excavations .....	5
	1. Progress of the excavations .....	5
	2. Excavated areas .....	7
	A. Location and environs .....	7
	B. Division into sectors and surveying .....	9
	3. Outline of each excavation .....	11
	A. Excavation no. 251 .....	11
	B. Excavation no. 252 .....	11
	C. Excavation no. 253 .....	12
	D. Excavation no. 254 .....	12
	E. Excavation no. 255 .....	13
	4. Excavation logs .....	14
	A. Excavation no. 251 .....	14
	B. Excavation no. 252 .....	14
	C. Excavation no. 253 .....	19
	D. Excavation no. 254 .....	23
	E. Excavation no. 255 .....	27
Chapter III	Site description .....	29
	1. General overview .....	29
	A. Natural topography prior to the construction of the Nara capital .....	29
	B. Topography after abandonment of the capital .....	31
	2. Features of the city street plan .....	32
	A. East First Avenue .....	32
	B. Sixth Street .....	35
	C. Block boundary streets .....	35
	3. Features of Blocks 15–16 .....	37
	A. Features antedating the Nara period .....	38

B.	Features from the Nara and later periods	38
C.	Ritual-related and other features	60
Chapter IV Artifacts		65
1.	Roof tiles and bricks	65
A.	Round eave tiles	65
B.	Flat eave tiles	67
C.	Round and flat tiles	69
D.	Other tiles and bricks	70
2.	Pottery	71
A.	Pottery from the western ditch of East First Avenue	72
B.	Pottery from other roadside ditches	78
C.	Pottery from wells	81
D.	Pottery from pits	83
E.	Pottery from coffin burials and other interments	84
F.	Pottery from postholes	85
G.	Pottery from prior to the construction of Nara capital and from the 10th century and later	86
H.	Glazed stoneware and special ceramic objects	89
I.	Pottery and other ceramic items for ceremonial use	91
J.	Pottery with ink or etched inscriptions.	99
3.	Wooden implements and lacquered items.	100
A.	Wooden implements from the western ditch of East First Avenue.	100
B.	Wooden implements from the northern ditch lining Sixth Street	105
C.	Wooden implements recovered from well SE6657	105
D.	Wooden implements re-utilized at well SE6657	106
E.	Items recovered from wooden coffin burial SX6428	106
4.	Metal objects	107
A.	Copper objects	107
B.	Iron objects	108
C.	Copper coins	110
5.	Glass objects, artifacts related to casting, and stone objects	111
A.	Glass objects and artifacts related to casting	111
B.	Stone objects from the Nara and Heian periods	113
C.	Stone tools from the Yayoi period and before	114
6.	<i>Mokkan</i>	116
7.	Faunal remains	120

A.	Faunal remains recovered in the investigations .....	120
B.	Descriptions of faunal remains, by type of item .....	121
C.	Interpretations of the remains .....	122
Chapter V	Analyses based on the natural sciences .....	125
1.	Analysis of fat residues recovered from artifacts and features in Block 16, East First Ward on Seventh Street .....	125
A.	Soil samples .....	125
B.	Extraction of fat residues .....	126
C.	Fatty acid compositions of fat residues .....	127
D.	Steroid compositions of fat residues .....	130
E.	Mathematical analysis of fatty acid compositions .....	133
F.	Singularity correlations by type of fatty acid composition .....	135
G.	Summary .....	136
2.	Diatom analysis of the fill in the western ditch of East First Avenue .....	138
A.	Samples .....	138
B.	Method of analysis .....	140
C.	Results .....	140
D.	Conditions affecting sedimentation of the ditch .....	148
3.	Pollen analysis of the fill in the western ditch of East First Avenue .....	151
A.	Samples .....	151
B.	Method of analysis .....	151
C.	Results .....	151
D.	Observations .....	154
4.	Analysis of metal objects, glass, and items related to glass making .....	156
A.	Materials for analysis and observations .....	156
B.	Results .....	156
Chapter VI	Interpretations .....	159
1.	Reconstruction of the city street grid .....	159
A.	Reconstruction of the city street grid on the four sides of Block 16 .....	159
B.	The position of Block 16, East First Ward on Seventh Street .....	162
C.	Summary .....	164
2.	Evolution of structural features .....	165

A.	Introduction .....	165
B.	Features of Phase I .....	165
C.	Features of Phase II .....	167
D.	Features of Phase III .....	169
E.	Features of Phase IV .....	171
F.	Features of Phase V .....	172
G.	Features of Phase VI .....	174
H.	Summary .....	174
3.	Bricks and roof tiles .....	176
	A. Consideration of factors in the utilization of roof tiles .....	177
	B. Problems presented by roof tiles unearthed in the investigations .....	181
4.	Pottery .....	185
	A. Pottery interments in the vicinity of Block 16 .....	185
	B. Nara period ceremonies as seen through unearthed pottery .....	188
5.	Observations on metal human effigies .....	196
	A. Classification .....	196
	B. Age and features from which these materials were recovered .....	197
	C. Measurements .....	198
	D. Characteristics of metal human effigies .....	199
	E. Summary .....	200
6.	<i>Mokkan</i> .....	202
7.	Wooden coffin burial SX6428 .....	206
	A. Resume of SX6428 .....	206
	B. Compilation of wooden coffin burials and analysis of SX6428 .....	206
	C. Ancient wooden coffin burials in the central part of the Kinai region .....	207
	D. Summary .....	209
8.	Conclusion .....	211
	Supplementary Tables .....	214
	Supplementary Figures .....	239
	English Table of Contents .....	248
	English Summary .....	260
	Transcriptions of <i>mokkan</i> inscriptions .....	(back matter)

# FIGURES

## Figure

1	Map of the excavations and excavation units .....	6
2	Map of the grid system .....	10
3	Features of Excavation no. 251 .....	14
4	Features of Excavation no. 252 .....	15
5	Features of Excavation no. 253 .....	20
6	Features of Excavation no. 254 .....	23
7	Features of Excavation no. 255 .....	27
8	Topography of the period prior to the construction of Nara capital .....	29
9	Points where ancient waterways have been detected in the vicinity of the site ..	30
10	Remnants of the ancient land division in the vicinity of the site .....	31
11	Strata of roadside ditches .....	33
12	Western ditch of East First Avenue .....	34
13	Dam SX6413 and dike SX6452 .....	34
14	Inclination of the western ditch of East First Avenue .....	35
15	Pottery interments .....	61
16	Wooden coffin burial SX6428 .....	62
17	Bridge-like feature SX6420 .....	63
18	Feature SX6422, with interment of boxes made with bent wood .....	64
19	Pottery from ditches SD6411, SD6449, SD6471, SD6472 .....	79
20	Pottery unearthed from postholes .....	86
21	Jomon and Yayoi pottery .....	87
22	Pottery postdating the abandonment of the Nara capital .....	88
23	Miscellaneous baked clay objects .....	90
24	Relative proportions of different types of faunal remains .....	120
25	Sampling points for soil samples from wooden coffin burial SX6428 .....	126
26	Sampling points for soil samples from pottery interment SX6448 .....	126
27	Sampling points for soil samples from pottery interments SX6460, SX6461 .....	126
28	Fatty acid composition of fat residues in samples (1) .....	128
29	Fatty acid composition of fat residues in samples (2) .....	129
30	Steroid composition of fat residues in samples (1) .....	130
31	Steroid composition of fat residues in samples (2) .....	131
32	Dendrogram of fatty acid composition of fat residues in samples .....	134
33	Dendrogram of fatty acid composition of samples .....	135
34	Singularity correlations of fatty acid composition of fat residues in samples ..	136

35	Strata in section at Line L, on west side of western ditch of East First Avenue, showing sampling points for diatom analysis .....	138
36	Strata of Line R, western ditch of East First Avenue, showing sampling points for diatom analysis .....	138
37	Strata of Line A, western ditch, showing sampling points for diatom analysis ..	138
38	Main clusters of diatom fossils, Line R, western ditch .....	144
39	Main clusters of diatom fossils, Line A, western ditch .....	147
40	Clusters of fossilized pollen, Lines A and R, western ditch .....	153
41	Lead isotope ratios of lead-glass in the crucible .....	157
42	XRD analysis of weathering products in the glass crucible .....	158
43	Map of streets and avenues related to the investigations .....	159
44	Reconstruction of the streets and avenues forming the four sides of Block 16 ..	162
45	Features of Phase I .....	166
46	Features of Phase II .....	168
47	Features of Phase III .....	170
48	Features of Phase IV .....	171
49	Features of Phase V .....	173
50	Pottery from the jar burial bordering Hakao Kofun .....	187
51	Method of constructing an earthen stove .....	188
52	Pottery from ditch SD1250 .....	192
53	Types of metal human effigies .....	196
54	Examples of bronze human effigies .....	197
55	Scatter plot of wooden coffin burial dimensions .....	206
56	Temporal changes in wooden coffin burials .....	209

## TABLES

Table

1	Aerial photography of the site .....	9
2	Relations between Excavation numbers and the grid system .....	10
3	Waterways in the vicinity of the site .....	30
4	Chronological relationships of features .....	37
5	Unearthed metal objects, by feature .....	107
6	Numbers of glass-related items unearthed from the western ditch of	

East First Avenue, by stratum .....	111
7 Amounts (by weight in grams) of items related to casting recovered from the western ditch of East First Avenue, by stratum .....	112
8 Numbers of unearthed faunal specimens, by feature .....	120
9 Species names of unearthed faunal specimens .....	121
10 Numbers of unearthed faunal specimens, by species and locus on body .....	121
11 Amounts of fatty acids extracted from soil samples .....	127
12 Proportions of cholesterol and sitosterol distributed in the samples .....	132
13 Ecology of diatoms .....	139
14 Results of diatomaceous earth analysis, west side of western ditch of East First Avenue, Line L .....	140
15 Results of diatomaceous earth analysis, western ditch of East First avenue, Line R (1) .....	142
16 Results of diatomaceous earth analysis, western ditch of East First avenue, Line R (2) .....	143
17 Results of diatomaceous earth analysis, western ditch of East First avenue, Line A (1) .....	145
18 Results of diatomaceous earth analysis, western ditch of East First avenue, Line A (2) .....	146
19 Results of pollen analysis .....	152
20 Results of metallic composition analysis of the patinated portions of bronze items .....	156
21 Results of metallic composition analysis of the unpatinated portions of bronze items .....	156
22 Geographic coordinates as measured for streets and avenues related to the investigations .....	160
23 Equations for the geographic coordinates of street and avenue features .....	161
24 Geographic coordinates of the four corners of Block 16 .....	161
25 Distances between the centers of ditches on both sides of major roads .....	163
26 Chronological periods of unearthed roof tiles .....	176
27 Statistical comparisons of measurements of bronze human effigies, by type of shape .....	198
28 Lengths of iron human effigies, by shape and period .....	198
29 Statistical comparisons of measurements of human effigies, by chronological period .....	198
30 Examples of <i>mokkan</i> unearthed from ditches running north-south in the Nara capital .....	203
31 Classification of wooden coffin burials .....	208

## SUPPLEMENTARY TABLES

Table

1	Architectural features .....	215
2	Unearthed wooden implements, by feature .....	217
3	Pottery and ceramic objects recovered from the western ditch of East First Avenue .....	218
4	Pottery with ink inscriptions .....	223
5	Measurements of coins .....	224
6	Stone implements .....	226
7	Faunal remains .....	228
8	Numbers of <i>mokkan</i> recovered from the western ditch of East First Avenue, by sector and stratum .....	232
9	Haji ware jar burials in Kinai and surrounding regions .....	233
10	Examples of archaeologically recovered metal human effigies .....	234
11	Measurements of bronze human effigies .....	235
12	Wooden coffin burials .....	236
13	Items recovered from wooden coffin burials .....	237
14	Recoveries of eave tiles of styles 6272A and B, 6710A and C, 6663F and J from the Nara capital region .....	238

## SUPPLEMENTARY FIGURES

Figure

1	Distribution of eave tiles .....	240
2	Distribution of bricks .....	241
3	Distribution of round roof tiles .....	242
4	Distribution of flat roof tiles .....	243
5	Distribution of eave tiles of styles 6316A, E and G, and 6710A and C in the Nara capital .....	244
6	Distribution of eave tiles of styles 6227A and D, and 6663F and J in the Nara capital .....	245
7	Distributional densities of items recovered from the western ditch of East First Avenue, by sector and stratum .....	246

## PLANS

### Plan

- 1 Mapping of the features
- 2 6AHC-J East First Avenue
- 6AHD-A
- 3 6AHD-A Sixth Street
- 6AHH-I
- 4 6AHG-R Western roadside ditch, East First Avenue
- 6AHH-I
- 5 6AHH-H, I Western half of the northwest area of Block 16
- 6 6AHH-H, I Eastern half of the northwest area of Block 16
- 7 6AHH-H, I Western half of the northeast area of Block 16
- 8 6AHG-Q, R Eastern half of the northeast area of Block 16 and the western  
6AHH-H, I ditch of East First Avenue
- 9 6AHG-Q, R East First Avenue
- 10 6AHH-G, H Western periphery of Block 16
- 11 6AHH-G, H Western half of the central area of Block 16
- 12 6AHH-G, H Eastern half of the central area of Block 16
- 13 6AHG-P, Q Eastern periphery of Block 16 and the western ditch of East First  
6AHH-G, H Avenue
- 14 6AHH-G, H Northern block-boundary street and eastern block-boundary avenue,  
East First Ward on Seventh Street
- 15 6AHH-G, H Northern periphery of Block 15, western half of the southwest area of  
Block 16, northern block-boundary street
- 16 6AHH-G, H Northern periphery of Block 15, eastern half of the southwest area of  
Block 16, northern block-boundary street
- 17 6AHH-G, H Northern periphery of Block 15, western half of the southeast area of  
Block 16, northern block-boundary street
- 18 6AHG-O, P Northern periphery of Block 15, eastern half of the southeast area  
6AHH-G, H of Block 16, western ditch of East First Avenue, northern block-  
boundary street
- 19 Wells in Block 16
- 20 Ritual pit SX6530
- 21 Round eave tiles (1)
- 22 Round eave tiles (2), specially-shaped roof tiles
- 23,24 Flat eave tiles (1, 2)

- 25,26 Haji ware recovered from ditch SD6400 (1, 2)
- 27-31 Sue ware recovered from ditch SD6400 (1-5)
- 32,33 Pottery recovered from wells (1, 2)
- 34 Pottery recovered from pits
- 35 Pottery unearthed from ritual pits and burials
- 36 Burial features, wooden coffin burial
- 37 Glazed stoneware, inkstone
- 38-41 Pottery bearing human faces drawn in ink (1-4)
- 42 Ceramic miniatures
- 43,44 Horse-shaped clay figurines (1, 2)
- 45 Ink-inscribed pottery (1)
- 46 Ink-inscribed pottery (2), pottery with etched inscription
- 47 Ink-inscribed pottery (3)
- 48-52 Wooden implements unearthed from ditch SD6400 (1-5)
- 53 Wooden implements from ditch SD6451, well SE6457, wooden coffin burial SX6428
- 54 Bronze and iron items from ditch SD6400
- 55 Iron items from ditch SD6400
- 56 Glass objects, items related to casting from ditch SD6400
- 57 Items related to casting
- 58 Stone implements from the Nara and Heian periods
- 59 Stone implements from the Yayoi period and earlier

## SUPPLEMENTARY PLAN (In envelope inside back cover)

Features of Blocks 15-16, East First Ward on Seventh Street, Nara Capital

## COLOR PHOTOGRAPHS

Frontispiece : Ritual use items from ditch SD6400

### Photo

- 1 (top) Area of investigation, Excavation no. 252  
(bottom) Area of investigation, Excavation no. 254
- 2 Ritual pit SX6530
- 3 Wooden coffin burial SX6428
- 4 (top) Wooden human effigies  
(bottom) *Geta* (wooden clog), wooden seal
- 5 (top) Metal human effigies  
(bottom) Padlock
- 6 (top) Glass-related items  
(bottom) Casting-related items
- 7 (top) Items fashioned from stone  
(bottom) Stone tools
- 8 Wooden *koto* effigies

## MONOCHROME PHOTOGRAPHS

### Photo

- 1 Topography of the vicinity of the area of investigation (1-2)
- 2 Western ditch, East First Avenue (1-2)
- 3 East First Avenue and eastern ditch
- 4 Sixth Street (1-3)
- 5 Northern block-boundary street and eastern block-boundary avenue, East First Ward on Seventh Street
- 6 Area of investigation, Excavation no. 251
- 7-8 Area of investigation, Excavation no. 252 (1-2)
- 9-10 Area of investigation, Excavation no. 253 (1-2)
- 11-16 Area of investigation, Excavation no. 254 (1-6)
- 17-20 Area of investigation, Excavation no. 255 (1-4)
- 21 Bridges, pits
- 22 Ditch, ritual pit, wooden coffin burial

- 23 Wells, interment of boxes made with bent wood
- 24 Pottery interments
- 25 Round eave tiles, design-bearing bricks
- 26 Flat eave tiles
- 27 Round tiles, flat tiles, clay drainage pipe
- 28 Ritual use pottery, baked clay objects, inkstone showing traces of manufacturing techniques
- 29–31 Haji ware unearthed from ditch SD6400 (1–3)
- 32–35 Sue ware unearthed from ditch SD6400 (1–4)
- 36 Pottery recovered from roadside ditches and postholes
- 37–39 Pottery recovered from wells (1–3)
- 40 Pottery recovered from wells (4), pottery unearthed from pits
- 41, 42 Pottery from burials (1, 2)
- 43 Pottery preceding the construction of the Nara capital, pottery postdating its abandonment
- 44 Glazed stoneware, special ceramic items
- 45–56 Pottery bearing human faces drawn in ink (1–12)
- 57, 58 Ceramic miniatures (1, 2)
- 59–61 Horse-shaped clay figurines (1–3)
- 62, 63 Ink-inscribed pottery from ditch SD6400 (1, 2)
- 64 Ink-inscribed pottery, pottery with etched inscriptions
- 65, 66 Wooden implements recovered from ditch SD6400 (1, 2)
- 67, 68 Wooden implements recovered from ditch SD6400 and well SE6657 (1, 2)
- 69, 70 Metal items recovered from ditch SD6400 (1, 2)
- 71 Coins recovered from ditch SD6400 and burial SX6428
- 72 Glass-related items from ditch SD6400
- 73 Items related to casting
- 74 Items fashioned from stone in the Nara and Heian periods
- 75–79 *Mokkan* (1–5)
- 80 *Mokkan* (6, reutilized as wooden *koto* effigies)
- 81 Faunal remains unearthed from ditch SD6400 and pit SX6530
- 82 CT scan X-ray photographs (bronze bells, mirror)
- 83, 84 Diatom fossils from ditch SD6400 (1, 2)
- 85 Fossilized pollen from ditch SD6400