MATERIALS

Morphological Data on the Skeletons of the KANASEKI-Family

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Abstract Metric and non-metric data on the skeletons of the KANASEKI-family, the late Dr. T. KANASEKI and his father, Mr. K. KANASEKI, are presented. Photographs of bones are also shown in plates.

Key Words Craniometry, Osteometry, Nonmetric variants, The KANASEKI-family

The late Dr. Takeo KANASEKI, a famous physical anthropologist in Japan, was born in Kagawa Prefecture on February 18, 1897, and died in 1983 at the age of 86. When he was a professor of Kyushu University (1950-1960), he excavated plenty of Yayoi sites (Doigahama, Mitsu-Nagata, Hirota etc.), and collected many Yayoi skeletons. By examining these skeletons, KANASEKI (1966) established a new theory on the origin of the Japanese, "hybridization theory", that the people who had high stature and a primitive rice agriculture migrated from the Korean Peninsula to the northern part of Kyushu at the beginning of the Yayoi period (3C.

B.C.-3C. A.D).

Dr. KANASEKI's father, Mr. Kisaburo KANASEKI, was born in Kagawa Prefecture, 1859, and died in 1943 at the age of 84. He was an architect.

By Dr. KANASEKI's will, their skeletons were offered and kept in the Department of Anatomy, Faculty of Medicine, Kyushu University. These skeletons were measured chiefly according to MARTIN und SALLER (1957) and to YAMAGUCHI (1973, 1980) for facial flatness measurements. Nonmetric variants were observed as described by BERRY and BERRY (1967), DODO (1974, 1975) and FINNEGAN (1978).

Table 1. Measurements (in mm) and indices of the KANASEKI-family; Cranium

Item with MARTIN's number		K. KANASEKI (father)	T. KANASEKI (son)
1	Max. cranial l.	184	188
5	Naso-basilar l.	104	108
8	Max. cranial b.	138	144
9	Min. front. b.	89	89
11	Biauricular b.	126	130
12	Max. occip. b.	105	106
7	L. of for. magnum	37	35
16	B. of for. magnum	28	27
17	Basi-bregmat. h.	144	146
23	Horiz. circumference	516	526
24	Transv. arc	326	322
25	Medio-sagit. arc	382	387
26	Frontal arc	125	138
27	Parietal arc	138	124
28	Occipital arc	119	125
29	Frontal chord	112	120
30	Parietal chord	122	114
31	Occipital chord	99	103
H.VRR	Vertex rad.	132	128
H.NAR	Nasion rad.	98	99
H.SSR	Subsp. rad.	103	96
40	Basi-alveol. l.	—	(95)
43	Upper facial b.	107	108
44	Biorbital b.	101	102
45	Bizygomatic b.	136	140
46	Middle facial b.	107	107
50	Ant. interorbit. b.	21	26
51	Orbital b. (r)	43	43
	Orbital b. (l)	43	42
52	Orbital h. (r)	35	37
	Orbital h. (l)	34	36
54	Nasal b.	26	29
55	Nasal h.	53	55
57	Min. b. of nasal bone	8	10
8/1	Cranial index	75.0	76.6
17/1	Length-height i.	78.3	77.7
17/8	Breadth-height i.	104.3	101.4
52/51	Orbital i. (r)	81.4	86.0
	Orbital i. (l)	79.1	85.7
54/55	Nasal i.	49.1	52.7

Table 1. (continued)

Item with MARTIN's number		K. KANASEKI (father)	T. KANASEKI (son)
61	Maxillo-alveol. b.	—	(69)
65	Bicondylar b.	125	125
66	Bigonial b.	108	102
68	Mandibular l.	73	70
68(1)	Max. proj. l. of mandible	105	106
70	H. of ascend. ramus (r)	64	60
	H. of ascend. ramus (l)	64	60
70a	Proj. l. of the ramus (r)	54	49
	Proj. l. of the ramus (l)	54	50
71	B. of ascend. ramus (r)	34	31
	B. of ascend. ramus (l)	37	33
71/70	I. of ascend. ramus (r)	53.1	51.7
	I. of ascend. ramus (l)	57.8	55.0
Facial flatness			
	Frontal chord	107	108
	Frontal subtense	19.7	19.8
	Frontal index	18.4	18.3
	Simotic chord	7.8	10.3
	Simotic subtense	2.3	3.4
	Simotic index	29.5	33.0
	Zygomaxillary chord	109	109
	Zygomaxillary subtense	26.3	26.3
	Zygomaxillary index	24.1	24.1

Table 2. Measurements (in mm) and indices of the KANASEKI-family;
Clavicle and scapula

Item with MARTIN's number		K. KANASEKI (father)		T. KANASEKI (son)	
		r	l	r	l
<i>Clavicle</i>					
1	Max. length	—	—	142	148
2	Height of curv.	7	7	12	7
2a	Height of curv. of shaft	—	32	36	31
2(1)	Height of curv. of acrom.	—	32	34	35
3	Length of cord of curv.	90	93	102	101
4	Vert. diam. of mid-shaft	11	11	12	11
5	Sagit. diam. of mid-shaft	16	(15)	15	15
6	Circumf. of mid-shaft	44	(43)	44	42
4/5	Index of mid-shaft	68.8	(73.3)	80.0	73.3
6/1	L-T index	—	—	31.0	28.4
<i>Scapula</i>					
1	Anatomical width	153	148	155	155
2	Anatomical length	102	101	99	99
2a	Length of scapula	112	110	110	112
3	Length of axill. margin	120	123	128	130
4	Length of sup. margin	85	82	81	86
5	Proj. l. of infrasp. fossa	111	108	105	108
5a	Anat. l. of infrasp. fossa	115	111	108	110
6	Proj. l. of suprasp. fossa	46	43	50	48
6a	Anat. l. of suprasp. fossa	50	47	58	54
7	Proj. l. of spine	137	130	133	135
8	Length of spine base	90	88	85	85
9	Max. width of acromion	27	26	30	30
10	Max. length	44	43	46	45
11	Max. l. of corac. proc.	46	47	46	44
12	L. of glenoid cavity	43	41	42	42
13	W. of glenoid cavity	33	32	34	30
14	Depth of glenoid cavity	6	6	5	5
15	Angle between L-W axis	95	91	89	91
16	Axillo-spinal angle	50	45	43	43
17	Axillo-glenoid angle	129	132	121	126
19	Spino-infrasp. angle	70	74	75	76
20	Spino-suprasp. angle	59	56	61	66
21	Spino-glenoid angle	77	85	78	83
2/1	W-L index	66.7	68.2	63.9	63.9
6/2	Supraspin. index	45.1	42.6	50.5	48.5
13/12	L-W index of glen. cav.	76.7	78.0	81.0	71.4

Table 3. Measurements (in mm) and indices of the KANASEKI-family;
Humerus, radius and ulna

Item with MARTIN's number		K. KANASEKI (father)		T. KANASEKI (son)	
		r	l	r	l
<i>Humerus</i>					
1	Max. length	303	—	305	302
2	Total length	298	—	303	299
3	Upper epiphisial width	50	—	52	50
4	Bicondylar width	63	61	60	59
5	Max. diam. of mid-shaft	27	(27)	26	25
6	Min. diam. of mid-shaft	21	(21)	22	20
7	Least circumf. of shaft	70	71	72	68
7a	Circumf. of mid-shaft	79	(78)	77	74
8	Circumf. of head	140	—	142	141
9	Transv. diam. of head	43	—	44	42
10	Sagit. diam. of head	46	—	46	45
11	Width of trochlea	27	27	25	25
13	D-V diam. of trochlea	28	28	29	27
6/5	Index of cross-sec.	77.8	(77.8)	84.6	80.0
7/1	L-T index	23.1	—	23.6	22.5
<i>Radius</i>					
1	Max. length	233	232	232	228
2	Functional length	218	217	215	212
3	Least circumference	46	45	42	42
4	Transv. diam. of shaft	19	19	19	19
4a	Transv. diam. of mid-shaft	18	18	17	16
4(1)	Transv. diam. of capit.	25	—	22	21
4(2)	Transv. diam. of neck	16	—	13	14
5	D-V diam. of shaft	14	14	13	13
5a	D-V diam. of mid-shaft	13	13	13	13
5(5)	Circumf. of mid-shaft	52	50	48	47
5(6)	Width of lower epiph.	38	36	34	34
3/2	L-T index	21.1	20.7	19.5	19.8
5/4	Index of cross-sec.	73.7	73.7	68.4	68.4
5a/4a	Index of cross-sec.	72.2	72.2	76.5	81.3
<i>Ulna</i>					
1	Max. length	252	251	251	249
2	Physiological length	222	218	220	218
3	Least circumf. of shaft	43	43	40	39
5(1)	H. of upp. art. surface	43	42	44	43
5(2)	H. of hum. art. surface	33	34	34	33
6	Width of olecranon	29	28	29	26
7	D-V diam. of olecranon	27	26	29	26
8	Height of olecranon	20	20	24	24
11	D-V diam. of shaft	14	14	15	13
12	Transv. diam. of shaft	21	19	18	17
3/2	L-T index	19.4	19.7	18.2	17.9
11/12	Index of cross-sec.	66.7	73.7	83.3	76.5

Table 4. Measurements (in mm) and indices of the KANASEKI-family; Pelvis and patella

Item with MARTIN's number		K. KANASEKI (father)		T. KANASEKI (son)	
		r	l	r	l
<i>Pelvis</i>					
1	Height of pelvis	210	209	210	208
2	Max. width of pelvis		266		267
3	Out. sagit. diam. of pelvis		155		165
4	Depth of innominate	172	176	178	178
5	Bi-ant. sup. sp. width		216		218
6	Bi-post. sup. sp. width		70		69
7	Bi-acetabular width		110		117
8	Bi-isch. sp. width		79		90
9	Height of ilium	127	125	126	128
10	Height of iliac wing	96	95	99	98
11	Depth of iliac fossa	9	7	8	8
12	Width of ilium	151	151	153	152
13	Width of iliac wing	87	88	88	90
14	Acetab-symph. width	119	118	121	122
15	Height of ischium	83	81	82	81
17	Length of pubis	82	79	83	82
18	Height of symphysis	41	40	41	42
19	Width of symphy. region		38		36
20	L. of obturator foramen	50	51	54	54
21	W. of obturator foramen	32	32	36	36
22	Max. diam. of acetabulum	56	56	56	56
23	Sagit. diam. of pel. inlet		99		100
24	Transv. diam. of pel. inlet		119		124
25	Oblique diam. of pel. inlet	116	116	118	120
26	Sagit. diam. of pel. outlet		90		101
27	Transv. diam. of pel. outlet		88		94
28	Lat. height of min. pel.	96	98	97	96
29	Ant. height of min. pel.	114	114	115	112
30	True height of min. pel.	126	128	128	127
31	Max. width of sciatic notch	54	48	51	53
32	Depth of sciatic notch	33	33	35	34
33	Infra-pubic angle		58		60
1/2	W-H index	78.9	78.6	78.7	77.9
12/10	Iliac index	157.3	158.9	154.5	155.1
<i>Patella</i>					
1	Maximum height	45	46	44	44
2	Maximum breadth	51	52	49	50
3	Maximum thickness	23	23	23	23
4	Articular height	33	32	27	27
5	Breadth of medial facet	22	23	20	20
6	Breadth of lateral facet	31	31	33	31

Table 5. Measurements (in mm) and indices of the KANASEKI-family; Femur, tibia and fibula

Item with MARTIN's number		K. KANASEKI (father)		T. KANASEKI (son)	
		r	l	r	l
<i>Femur</i>					
1	Max. length	415	418	418	418
2	Physiological length	411	414	416	414
6	Sagit. diam. of mid-shaft	28	(28)	30	30
7	Transv. diam. of mid-shaft	28	(28)	28	29
8	Circumference of mid-shaft	90	(87)	93	93
9	Subtr. transv. diam. of shaft	32	33	31	33
10	Subtr. sagit. diam. of shaft	28	27	29	29
13	Upper width	94	—	92	93
15	Vert. diam. of neck	35	—	33	35
16	Sagit. diam. of neck	27	—	26	26
17	Circumference of neck	105	—	101	103
18	Vert. diam. of head	49	—	48	48
19	Transv. diam. of head	47	—	48	48
20	Circumference of head	153	—	151	152
21	Bi-epicondylar width	83	—	85	84
23	Max. l. of lat. cond.	63	62	62	62
24	Proj. l. of med. cond.	61	62	61	61
25	Post. h. of lat. cond.	39	37	40	38
26	Post. h. of med. cond.	38	—	41	41
8/2	L-T index	21.9	(21.0)	22.4	22.5
6/7	Pilasteric index	100.0	(100)	107.1	103.4
10/9	Platymeric index	87.5	81.8	93.5	87.9
<i>Tibia</i>					
1	Total length	341	—	333	333
1a	Max. length	345	—	338	334
1b	Condyle-malleolar length	332	—	325	320
3	Width of upper epiphysis	80	—	80	80
6	Width of lower epiphysis	57	—	54	55
7	Sagit. diam. of low. epiph.	37	—	37	37
8	Max. diam. of mid-shaft	31	—	33	32
8a	Max. diam. at nut. foram.	38	37	37	35
9	Transv. diam. of mid-shaft	23	—	24	26
9a	Transv. diam. at nut. foram.	26	25	27	27
10	Circumf. of mid-shaft	86	—	91	90
10a	Circumf. at nut. foram.	100	98	101	100
10b	Minimum circumf. of shaft	76	76	75	80
9/8	Index of cross-sec.	74.2	—	72.7	81.3
9a/8a	Cnemic index	68.4	67.6	73.0	77.1
10b/1	L-T index	22.3	—	22.5	24.0
<i>Fibula</i>					
1	Max. length	—	344	344	342
2	Max. diam. of mid-shaft	—	16	17	18
3	Min. diam. of mid-shaft	—	10	13	12
4	Circumf. of mid-shaft	—	42	49	50
4a	Upp. min. circumf. of shaft	43	42	42	43

Table 5. (continued)

Item with MARTIN's number		K. KANASEKI (father)		T. KANASEKI (son)	
		r	l	r	l
4a'	Low. min. circumf. of shaft	44	44	44	44
4(1)	Width of upper epiph.	—	26	30	30
4(2)	Width of lower epiph.	23	23	21	21
3/2	Index of cross-sec.	—	62.5	76.5	66.7
4a/1	L-T index	—	12.2	12.2	12.6

Table 6. Nonmetric variants in the KANASEKI-family

		K. KANASEKI (father)		T. KANASEKI (son)	
		r	l	r	l
<i>Cranium</i>					
1	Ossicle at the lambda		—		—
2	Os Incae		—		—
3	Biasterionic suture	—	—	—	—
4	Sagittal groove left		+		—
5	Condylar canal patent	+	+	+	+
6	Hypoglossal canal bridging	—	+	+	—
7	Jugular foramen bridging	—	—	—	—
8	Asterionic bone	—	—	—	—
9	Occipitomastoid warmians	—	—	—	—
10	Pterygospinous foramen	—	—	—	—
11	Foramen of HUSCHKE	—	—	—	—
12	Parietal notch bone	—	—	—	—
13	Metopism		—		—
14	Supra-orbital foramen	+	—	—	—
15	Medial palatine canal	—	—	—	—
16	Transverse zygomatic suture	—	—	—	—
17	Clinoid bridge	/	/	+	—
18	Mandibular torus	/	/	—	—
19	Mylohyoid canal	—	—	—	—
20	Supraorbital nerve groove	—	—	—	—
<i>Postcranial skeleton</i>					
21	Atlas facet form double	—	—	—	—
22	Atlas posterior bridge	—	—	—	—
23	Atlas lateral bridge	—	—	—	—
24	Transverse foramen bipartite (C3-C7)	—	—	—	—
25	Sternal foramen		—		—
26	Supra-scapular foramen	—	—	+	—
27	Supra-condyloid process	—	—	—	—
28	Septal aperture	—	—	—	—
29	ALLEN's fossa	—	/	—	—

Table 6. (continued)

	K. KANASEKI (father)		T. KANASEKI (son)	
	r	l	r	l
30 Third trochanter	—	/	—	—
31 Exostosis in trochanteric fossa	+	/	+	+
32 Vastus notch	—	—	—	—
33 Lateral tibial squatting facet	—	/	+	+
34 Lateral talar extension	—	—	—	—
35 Anterior calcaneal facet double	—	—	—	—

+ presence; — absence; / unobservable

抄 録

金関家骨格の形態学的資料

土肥直美

故金関丈夫先生および御尊父の遺骨について形態学的調査を行なったのでその資料を報告する。計測は主として MARTIN und SALLER (1957) に従い、顔面平坦度については YAMAGUCHI (1973, 1980) に従った。また、非計測的計質の観察は BERRY and BERRY (1967), DODO (1974, 1975), FINNEGAN (1978) を参照して行なった。

References

- BERRY, A.C. and R.J. BERRY, 1967: Epigenetic variation in the human cranium. *J. Anat.*, 101: 361-379.
- DODO, Y., 1974: Non-metrical cranial traits in the Hokkaido Ainu and the northern Japanese of recent times. *J. Anthropol. Soc. Nippon*, 82: 31-51.
- DODO, Y., 1975: Non-metric traits in the Japanese crania of the Edo period. *Bull. Natn. Sci. Mus. Tokyo*, Ser. D, 1: 41-54.
- FINNEGAN, M., 1978: Non-metric variation of the infra-cranial skeleton. *J. Anat.*, 125: 23-37.
- KANASEKI, T., 1966: People of the Yayoi period. In: *Nippon no Kokogaku, III*. Kawade Shobo, Tokyo, pp. 460-471. (In Japanese)
- [金関丈夫, 1966: 弥生時代人。日本の考古学Ⅲ。弥生時代。河出書房, 東京, pp. 460-471]
- MARTIN, R. und K. SALLER, 1957: *Lehrbuch der Anthropologie*. Bd. I. G. Fischer, Stuttgart.
- YAMAGUCHI, B., 1973: Facial flatness measurements of the Ainu and Japanese crania. *Bull. Natn. Sci. Mus. Tokyo*, 16: 161-171.
- YAMAGUCHI, B., 1980: A study of the facial flatness of the Jomon crania. *Bull. Natn. Sci. Mus. Tokyo*, Ser. D, 6: 21-28.

Plate 1. Skeletons of Mr. K. KANASEKI (a) and Dr. T. KANASEKI (b). 1: left lateral view of the skull. 2: frontal view of the skull. 3: superior view of the skull. 4: frontal view of the sternum. 5: superior view of the clavicle.

Plate 2. Skeletons of Mr. K. KANASEKI (a) and Dr. T. KANASEKI (b). 1: anterior view of the humerus. 2: posterior view of the scapula. 3: anterior view of the ulna. 4: anterior view of the radius.

Plate 3. Skeletons of Mr. K. KANASEKI (a) and Dr. T. KANASEKI (b). 1: lateral view of the innominate bone.
2: anterior view of the femur.

Plate 4. Skeletons of Mr. K. KANASEKI (a) and Dr. T. KANASEKI (b). 1: anterior view of the tibia. 2: anterior view of the sacrum. 3: anterior view of the fibula. 4: superior view of the calcaneus. 5: anterior view of the patella.

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