

Studies on the Tokara Pony

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I. Introduction

The Tokara pony is a pure native horse of south Kyūshū in Japan. This horse is a small island type horse and such a horse can not be found in the inland of Japan with the exception of the southwestern islands of Kyūshū. But, in the Japanese prehistoric age, such a small type horse was kept in the inland of Japan (for example, in south Kyūshū, in the neighborhood of Nagoya and Tōkyō). This fact is important to suppose an origin of the Japanese native horse. So, we wish to state the pedigree of the Tokara pony by comparison with other Japanese native horses and the horses of the East Asia.

II. Environment of breeding place

We call the small horses of Takara Island "the Tokara Pony." This island is a small and southernmost solitary one (about 12 km round) in the Tokara Archipelago about 170 nautical miles south west from Kagoshima of Kyūshū. As it is warm and wet, green grasses grow there in all seasons. The horses are always fastened in the field even in a broiling weather and storm, without distinction of day or night, except they are used as draught horses.

This pony has its origin in the pony brought at about 1,900 A. D. from Kikai Island of the Ōshima Archipelago next to the Tokara Archipelago, and has been kept there in pure, unadulterated and unselected, during about these fifty years. In the Ōshima Archipelago, all horses have been reformed, but until about 1,900 A. D., all of 8,000 horses lived there were as small as the present Tokara pony. Takara island contains 117 families with 598 souls, 152 cattle, 43 horses, 95 pigs, 27 goats and 235 fawls (as of Feb. 1952), and almost all of these domestic animals are unadulterated and unselected.

III. Physical constitution and feature

The Tokara pony has the following physical constitution and feature.

1. The height at withers of its adult is 108 ~ 121 cm, 114.5 cm on the average, and the weight of the body is about 200 kg.

2. Having no white marks on the head and the inferior part of the members.
3. Having a bay, chestnut or black coat. (But we feel difficult to decide the colour of the coat quite distinctly).
4. Having a long and thick mane and forelock.
5. Having the deep colour patches on the neck or on the shoulder

Table 1.
Biometric Constant

Part	Female 22			Male 9		
	<i>M</i>	σ	<i>V</i>	<i>M</i>	σ	<i>V</i>
Withers height	114.45 \pm 0.33 ^{cm}	2.31 \pm 0.23	2.02	114.89 \pm 0.70 ^{cm}	3.11 \pm 0.49	2.70
Back height	110.59 \pm 0.36	2.50 \pm 0.25	2.26	111.11 \pm 0.67	3.00 \pm 0.48	2.70
Croup height	116.55 \pm 0.44	3.05 \pm 0.31	2.61	115.89 \pm 0.72	3.21 \pm 0.51	2.75
Body length	120.65 \pm 0.55	3.64 \pm 0.39	3.01	118.67 \pm 0.81	2.93 \pm 0.57	2.46
Head length	47.58 \pm 0.18	1.14 \pm 0.12	2.39	47.25 \pm 0.26	1.09 \pm 0.18	2.30
Chest width	26.64 \pm 0.24	1.67 \pm 0.17	6.25	28.00 \pm 0.26	1.15 \pm 0.18	4.12
Chest depth	53.43 \pm 0.33	2.22 \pm 0.23	4.15	51.78 \pm 0.57	2.53 \pm 0.40	4.88
Haunch width	38.33 \pm 0.24	1.63 \pm 0.17	4.25	35.17 \pm 0.43	1.57 \pm 0.31	4.70
Croup width	34.30 \pm 0.20	1.35 \pm 0.14	3.92	32.56 \pm 0.28	1.26 \pm 0.20	3.86
Croup length	35.50 \pm 0.28	1.83 \pm 0.20	5.16	34.56 \pm 0.32	1.42 \pm 0.23	4.12
Chest circum	131.71 \pm 0.82	5.56 \pm 0.58	4.22	128.38 \pm 1.50	6.28 \pm 1.06	4.89
Cannon circum	13.49 \pm 0.06	0.39 \pm 0.04	2.92	13.84 \pm 0.11	0.46 \pm 0.08	3.31

Table 2.
Biometric Constant (Percentage for withers height)

Part	Female 22			Male 9		
	<i>M</i>	σ	<i>V</i>	<i>M</i>	σ	<i>V</i>
Withers height	100 ^{cm}			100 ^{cm}		
Back height	96.64 \pm 0.22	1.52 \pm 0.15	1.58	96.78 \pm 0.14	0.63 \pm 0.10	0.65
Croup height	101.86 \pm 0.29	2.01 \pm 0.20	1.97	101.00 \pm 0.30	1.33 \pm 0.21	1.32
Body length	105.65 \pm 0.50	3.34 \pm 0.36	3.16	104.17 \pm 0.60	2.19 \pm 0.43	2.10
Head length	41.53 \pm 0.20	1.31 \pm 0.14	3.16	41.00 \pm 0.32	1.32 \pm 0.22	3.22
Chest width	23.50 \pm 0.22	1.56 \pm 0.16	6.63	24.11 \pm 0.17	0.74 \pm 0.12	3.06
Chest depth	46.57 \pm 0.29	1.94 \pm 0.20	4.17	45.11 \pm 0.56	2.47 \pm 0.39	5.47
Haunch width	33.48 \pm 0.23	1.53 \pm 0.16	4.57	31.00 \pm 0.32	1.29 \pm 0.25	4.16
Croup width	30.40 \pm 0.22	1.45 \pm 0.15	4.77	26.45 \pm 0.37	1.64 \pm 0.26	6.19
Croup length	30.95 \pm 0.24	1.56 \pm 0.17	5.05	30.22 \pm 0.25	1.13 \pm 0.18	3.75
Chest circum	115.24 \pm 0.76	5.16 \pm 0.54	4.48	111.50 \pm 1.09	4.58 \pm 0.77	4.11
Cannon circum	11.77 \pm 0.05	0.31 \pm 0.03	2.61	12.13 \pm 0.13	0.60 \pm 0.10	4.94

of about 10 % of the horses, especially distinct in case of young horses ; and having distinct whirl of hair on both lips.

6. Having very small chestnuts on the posterior members.

7. Having comparatively voluminous head, horizontal short neck, thick and flesh withers, rather narrow breast, oblique croup, X and crooked hock and compact hoof.

8. Generally, well grown fore part of body but poor hind, and very endurable for plain fodder.

IV. Value of measurement on the Tokara pony

We tried the measurement of the body on 31 Tokara ponies of 4 years old and upwards. The biometric constant of these numerical value is shown in Table 1 and 2.

V. Discussion

Nowadays only a few horses as the Misaki horse (Miyazaki prefecture), the Kiso horse (Nagano prefecture), and the Hokkaidō native horse are kept in Japan in almost pure, for the Japanese native horses have been interbred with Anglonorman, Percheron, Arab, Thoroughbred

Table 3.
Mean value of measurement of the native horses in the East Asia
(Female) (cm)

Classification of horses (Students) number	Cheju (Takamine) 29	Miyako (Takamine) 44	Yaeyama (Takamine) 39	Hainan (Katō) 4	Misaki (Mimura) 17	Kiso (Okabe) 403	Hokkaidō (Matsumoto) 103	Mongol 1 (Taguchi) 168	Mongol 2 (Yoshida) 30
Withers height	105.9	116.2	117.6	111.8	130.9	133.1	132.1	128.8	130.5
Back height	103.4	111.6	114.2	109.0	123.4	—	127.3	123.8	125.0
Croup height	108.3	116.2	118.2	113.6	133.0	135.4	131.8	131.0	129.1
Body length	106.3	120.2	116.2	—	133.5	142.2	132.6	133.9	—
Head length	44.2	49.8	49.2	46.7	53.2	54.6	52.2	49.3	—
Chest width	24.4	28.7	26.3	27.5	—	35.4	32.6	—	—
Chest depth	46.9	52.9	53.6	—	61.1	63.4	62.8	63.0	61.8
Haunch width	28.4	31.7	30.6	38.0	45.4	48.4	46.1	38.0	42.4
Croup width	31.0	35.1	33.6	—	39.7	42.9	—	—	—
Croup length	34.5	37.8	37.0	39.5	43.2	43.0	43.1	43.9	—
Chest circum	120.2	132.3	134.0	131.3	148.3	159.2	155.5	149.5	151.8
Cannon circum	13.1	14.0	14.1	15.0	15.6	16.3	16.8	16.8	16.4

Table 4.
Mean value of measurement of the native horses in the East Asia
(Male) (cm)

Classification of horses (Students) number	Cheju 430	Yaeyama (Takamine) 22	Hainan (Motohashi) 10	Szechwan (Yoshida) 3	Misaki (Mimura) 3	Kiso (Takamine) 33	Mongol 1 (Takamine) 94	Mongol 2 (Yoshida) 30	Hailar (Yoshida) 11	Hi (Yoshida) 6	Sappaitze (Yoshida) 15
Withers height	114.0	119.1	114.0	110.3	134.6	135.6	130.7	132.3	137.0	138.0	132.0
Back height	—	115.1	109.3	105.3	129.0	129.9	125.3	128.2	135.0	136.0	129.0
Croup height	113.0	118.1	112.6	107.0	134.1	137.3	131.7	130.5	136.0	137.0	131.0
Body length	114.0	116.4	112.8	—	133.4	142.9	133.9	—	—	—	—
Head length	44.0	49.8	49.4	—	53.4	54.9	55.6	—	—	—	—
Chest width	27.0	28.2	26.4	—	—	34.7	36.0	—	—	—	—
Chest depth	49.0	53.9	52.8	52.3	60.5	63.1	62.6	62.8	64.6	66.0	63.0
Haunch width	36.0	29.4	35.5	—	45.3	37.8	37.0	42.7	47.0	46.0	43.0
Croup width	—	31.1	32.7	—	39.9	43.1	42.0	—	—	—	—
Croup length	—	36.9	37.2	—	44.2	47.1	45.2	—	—	—	—
Chest circum	131.0	135.1	129.5	128.3	146.2	155.8	155.9	153.5	157.0	159.0	153.0
Cannon circum	15.0	14.9	14.9	13.3	15.9	16.8	17.7	16.5	15.0	16.2	16.0

and other European breeds since the end of 19 century. In the East Asia except Japan, the Mongol horse, the Szechwan pony etc. are kept purely or almost purely. Each measurement about these horses has been tried by many students as above (Table 3 and 4).

As a means to compare the Tokara pony with others, here we insert Table 5 and 6 to show what position of the standard deviation of

Table 5.
Distribution of mean value of other horses in the table
of standard deviation of the Tokara pony.

	female					M									
	5 σ	4 σ	3 σ	2 σ	1 σ		1 σ	2 σ	3 σ	4 σ	5 σ	6 σ	7 σ	8 σ	9 σ
CHEJUDO	1	2	6	2	1										
MIYAKO				1	3		5	3							
YAEYAMA			1	1	3		3	4							
HAINAN				1	5		1	1	0	1					
MISAKI									1	4	2	3	0	1	
KISO										1	2	2	4	1	1
HOKKAIDŌ										4	4	0	1	1	1
MONGOL 1										1	3	2	1	1	0
MONGOL 2										1	2	1	1	1	1

Table 6.

Distribution of mean value of other horses in the table of standard deviation of the Tokara pony.

	male																
	-5σ	-4σ	-3σ	-2σ	-1σ	M	+1σ	+2σ	+3σ	+4σ	+5σ	+6σ	+7σ	+8σ	+9σ	+10σ	
CHEJUDO				1	2	3	1	0	1								
YAEYAMA					2	1	4	3	2								
HAINAN						2	3	5	1	1							
SZECHWAN				1	2	2	1										
MISAKI										1	1	2	4	2	1		
KISO										1	0	2	2	4	0	2	1
MONGOL 1								1	0	0	4	2	1	4			
MONGOL 2											1	3	3				
HAILAR								1	0	2	0	1	3				
ILI											2	1	2	1	1		
SAPPAPAITZE											1	4	2				

the Tokara pony the mean value of 12 characters of the body measured by many students occupies.

The mean values of 12 characters of Cheju, Miyako, Yaeyama, Hainan and Szechwan horses make a group around the mean value of the Tokara pony, and a group of Misaki, Kiso, Hokkaidō, Mongol, Hailar, Ili and Sappapaitze horses is in the outside of the mean value of the Tokara pony. Consequently, the Tokara pony belongs to a small type in these two groups in the East Asia.

Next, the horses in the north region of China Continent and in the inland of Japan have the withers height of 130 cm and upwards and the weight of the body of 280 kg or so.

Native horse	Student	Withers height	Mean value of withers height
Mongol	(Yoshida)	123~136 cm	131.4 cm
Hailar	(")	132~144 cm	137.0 cm
Ili	(")	134~145 cm	138.0 cm
Sappapaitze	(")	127~139 cm	132.0 cm
Misaki	(Mimura)		130.9 cm
Kiso	(Okabe)		133.1 cm
Hokkaidō	(Matsumoto)		132.1 cm

Among them the Mongol horse is kept in the Inner Mongolian region as almost pure breed. The horses of Hailar, Ili and Sappapaitze have been interbred with Arab and Thoroughbred.

But, in the South-West China Continent, in the southern islands of China Continent and in South Korea, we cannot see such native horses being above 130 cm of withers height as Mongol horse etc., all of them are small as the following table shows.

South-West China Continent

Native horse	Student	Withers height	Mean value of withers height
Szechwan	(Hsu Chen Ying)	110~120 cm	
"	(Wagner)	100~110 cm	
"	(Yoshida)	107~114 cm	
Yunnan	(Hsu Chen Ying)	110~120 cm	
"	(Wagner)	100~110 cm	
Kwaichow	(Hsu Chen Ying)	110~120 cm	
Tonking	(Kanematsu)	105~120 cm	
Annan	(")	105~120 cm	
Hainan Island	(Katō)	101~121 cm	
"	(Motohashi)		114 cm

Indonesia and Philippine

Baduck-Sumatra	(Yamane)		125 cm
Kaju-Sumatra	(")		115 cm
Java	(")		115 cm
Lombok	(")	115~120 cm	
Soembawa	(")	100~120 cm	113 cm
Timor	(")	100~130 cm	115 cm
Philippine	(Arai)		124 cm

Islands in East China Sea and Korea

South Korea	(Sasada)	110~120 cm	
Chejudo Island	(C. A. S.)*	99~124 cm	114 cm
"	(Takamine)		105.9 cm
Ōshima	(Hayashida)	109~122 cm	
Miyako Island	(Takamine)		116.2 cm
Yaeyama	(")		117.6 cm

Typical small type horses of the East Asia are kept in the mountain districts of Szechwan, Yunnan and Kwaichow under the name of Szechwan pony. These horses have long and thick mane, the same forelock and tail, voluminous head comparatively, thick and low neck, low and short withers, oblique croup, and well grown fore part of body but poor hind. These characters resemble closely those of the Tokara

* Chejudo Agricultural Society

pony, and their withers height and weight of body present similarity to those of the latter. Some horses of Indonesia and Philippine are larger than those of Szechwan. These phenomena are believed that the horses originated from Szechwan pony have been reformed by mating with the western Asia horses, Arabian and Persian horses etc. in Indonesia and Philippine.

In India, Rajputana (withers height 142 cm) and Bombay (142 cm) horses which were influenced by Arabian and Persian horses are kept in the middle zone and the south. And small type horses (under 122 cm) in the foot of the Himalaya Mts. would be in the same pedigree with the Szechwan pony.

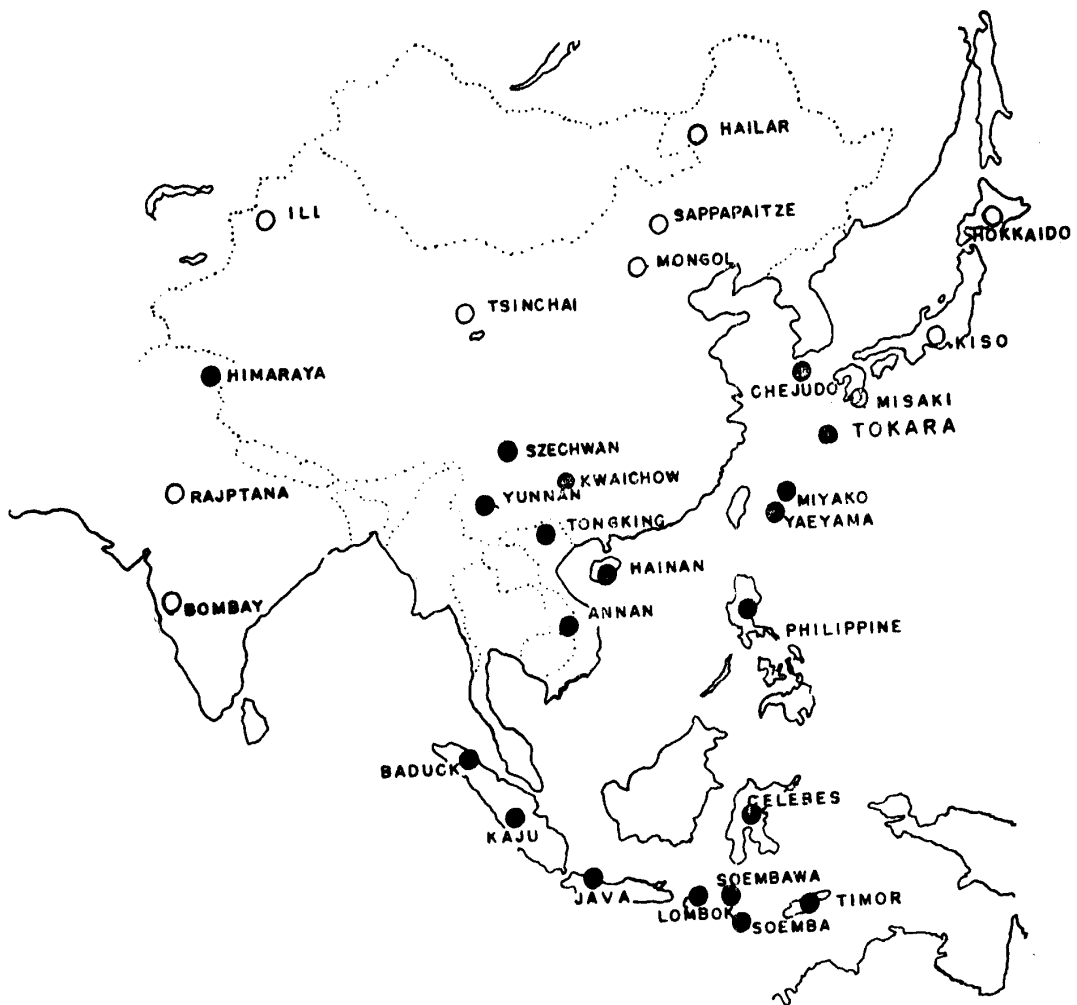


Fig. 1. Classification of the horses in the East Asia

Medium type ○
 Small type ●

Consequently, a typical small type horse of the East Asia has been kept in the mountain district of Szechwan, Yunnan and Kwaichow, southwest of China Continent. The Tokara pony, therefore, as well as the horses of the south west islands of Japan would be in the same pedigree with the Szechwan pony.

VI. Conclusion and summary

We call the horses of Takara Island "the Tokara pony." This island is in the Tokara Archipelago about 170 nautical miles south west from Kagoshima, Kyūshū, Japan.

The Tokara pony is the only small island type horse still alive in Japan, and the height at withers of its adult is 108~121 cm, the weight of the body is about 200 kg.

This pony is almost similar in size to the horse of a small size which belongs to the prehistoric horse in Japan (Jap. J. Zootech. Sci. Vol. 25; 2~4 1954), and also has nearly the same size with the horses of the south west China Continent and in the south of it (Szechwan, Hainan Island, Miyako pony etc.).

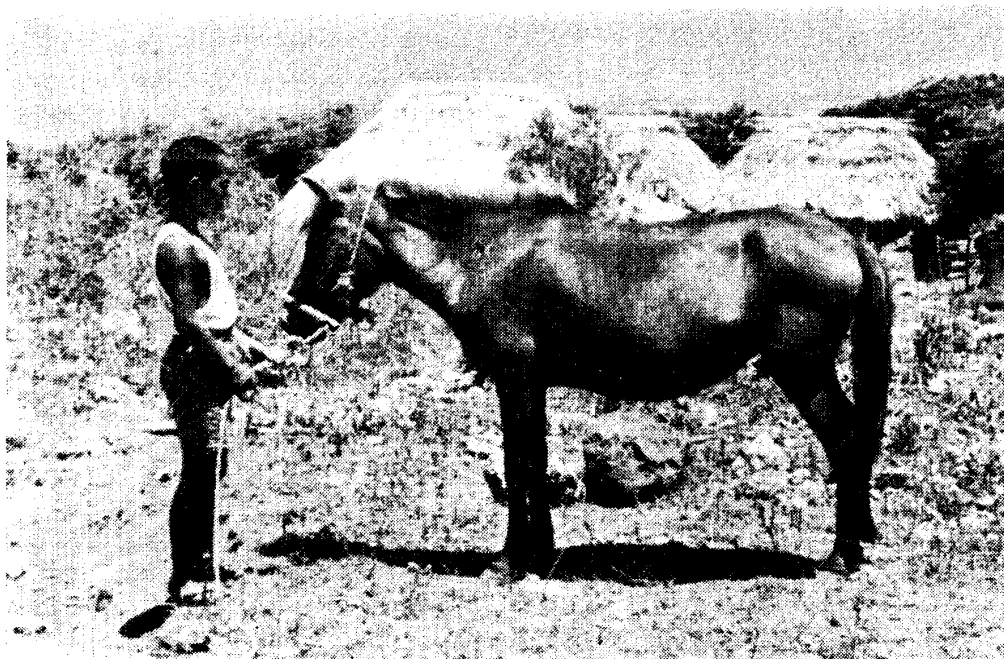


Fig. 2. The Tokara Pony.

female, 5 years old,
withers height, 114.5 cm.

In the East Asia, nowadays, there are two types of horses; the small type as Szechwan pony and the medium type as the Mongol horse.

We believe that the Tokara pony belongs to the former and has the same pedigree with the Szechwan pony.

VII. Literature

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