88. Studies on the Dermatoglyphics of the Macaques. III

Plantar Patterns

By Yoshito FURUYA

Department of Legal Medicine and General Institute of Legal Medicine,
Tokyo Medical and Dental University

(Comm. by T. FURUHATA, M.J.A., July 12, 1962)

The results of the investigations on apical configurations and palmar patterns of macaques were reported previously.^{1),2)} The present report concerns the observations on the plantar patterns of the same individual monkeys.

Plantar patterns were classified according to the method of Kubo et al.^{3),4)} (1943) (see the figure).

Pattern frequencies of six pattern territories among three species of macaques are given in Table I. The occurrences of patterns of all areas were generally very high and were over 85% except the thenar area in *Lyssodes fuscata* and *Cynamolgus irus* and third interdigital area in *Lyssodes fuscata*. The thenar patterns occurred 78.38% in *Lyssodes fuscata* and 68.30% in *Cynamolgus irus*, and the third interdigital patterns occurred 52.03% in *Lyssodes fuscata* (Table I). The most common pattern was a loop in the first and second interdigital areas

Morphologic plan of the dermatoglyphics in sole (from Kubo et al.³⁾). I, II, III and IV are interdigital areas designated by the respective numbers.

V: Hypothenar area, VI: Thenar area.

Table I. Percentile frequencies of plantar patterns among macaques

Patterns	<i>Lyssodes fuscata</i>	<i>Cynamolgus irus</i>	<i>Rhesus cyclopsis</i> *
Hypothenar	85.81	90.63	96.26
Thenar	78.38	68.30	94.77
First interdigital	85.14	91.52	100.00
Second interdigital	99.32	99.11	100.00
Third interdigital	52.03	92.41	99.25
Fourth interdigital	95.95	98.66	100.00

* According to Kubo et al.^{3),4)}

Table II. Percentile frequencies of the types of configurations of soles in 74 *Lyssodes fuscata*

Patterns		O	V	A	L	S	W	O/V	V/V	L/V	L/L	S/V	W/V
Hypo-thenar	R	16.22	28.38	0	17.57	16.22	1.35	1.35	8.10	4.05	6.76	0	0
	L	12.16	31.08	0	17.57	20.27	0	1.35	6.76	5.41	5.41	0	0
Thenar	R	14.86	40.54	0	36.49	5.41	2.70	0	0	0	0	0	0
	L	28.38	48.65	0	17.57	2.70	2.70	0	0	0	0	0	0
First int.	R	17.57	2.70	0	70.27	9.46	0	0	0	0	0	0	0
	L	12.16	1.35	0	77.03	9.46	0	0	0	0	0	0	0
Second int.	R	0	0	0	100.00	0	0	0	0	0	0	0	0
	L	1.35	0	0	98.65	0	0	0	0	0	0	0	0
Third int.	R	50.00	2.70	0	22.97	1.35	22.97	0	0	0	0	0	0
	L	45.95	1.35	0	25.68	2.70	24.32	0	0	0	0	0	0
Fourth int.	R	2.70	6.76	21.62	43.24	4.05	18.92	0	0	0	1.35	0	1.35
	L	5.41	12.16	10.81	56.76	5.41	8.10	0	0	0	0	1.35	0

O: Open fields, V: Vestiges, A: Arches, L: Loops, S: Double-Loops, W: Whorls, Acc: Accidentals.

Table III. Percentile frequencies of the types of configurations of soles in 112 *Cynamolgus irus*

Patterns		O	V	A	L	S	W	Acc	V/V	V/r	Un-class.
Hypo-thenar	R	9.82	68.75	0	11.61	5.36	0.89	0	1.79	0.89	0.89
	L	8.04	66.96	0	19.64	3.57	0.89	0	0.89	0	0
Thenar	R	30.35	39.29	0	25.89	0	4.46	0	0	0	0
	L	32.14	47.32	0	17.86	0	1.79	0	0	0	0.89
First int.	R	7.14	3.57	0	84.82	1.79	2.68	0	0	0	0
	L	9.82	0.89	0	84.82	1.79	2.68	0	0	0	0
Second int.	R	0	0.89	1.79	91.07	0.89	5.36	0	0	0	0
	L	1.79	0	0	91.07	0	7.14	0	0	0	0
Third int.	R	8.04	6.25	0	32.14	0	53.57	0	0	0	0
	L	7.14	6.25	0	33.04	8.93	44.64	0	0	0	0
Fourth int.	R	1.79	0.89	4.46	39.29	5.36	47.32	0.89	0	0	0
	L	0.89	0	0.89	49.11	8.93	37.50	2.68	0	0	0

of *Lyssodes fuscata* and *Cynamolgus irus* soles (Tables II and III).

The loops were also the most common in the first and second interdigital areas of *Silenus silenus*, *Zati radiata*, *Rhesus mulatta*, *Rhesus assamensis*, *Rhesus cyclopsis*, *Macaca nemestrina*, *Lyssodes speciosa* and *Magus maurus* (Table IV).

Table IV. Plantar patterns in 8 kinds of macaques

Species		Right foot						Left foot					
		Hypothenar	Thenar	First int.	Second int.	Third int.	Fourth int.	Hypothenar	Thenar	First int.	Second int.	Third int.	Fourth int.
<i>Silenus silenus</i>	No. 1	S	O	L	L	W	W	S	O	L	L	L	W
	No. 2	O	O	L	L	V	L	O	L	L	L	V	L
<i>Zati radiata</i>	No. 1	S	L	W	L	L	W	L	L	W	L	L	W
<i>Rhesus mulatta</i>	No. 1	L/L	V	L	L	L	W	L	V	L	L	L	W
	No. 2	V/V	V	L/L	L	L	L	V/V	L	L	L	L	L
	No. 3	O	O	L	L	O	W	O	O	L	L	O	W
	No. 4	O	L	L	L	W	W	O	O	L	L	W	W
	No. 5	L	L	L	L	W	W	L/V	L	L	L	L	W
<i>Rhesus assamensis</i>	No. 1	V	V	L	L	W	W	V	V	L	L	W	W
	No. 2	O	O	O	L	L	V	V	V	L	L	L	O
<i>Rhesus cyclopsis</i>	No. 1	S	L	L	L	W	W	S	L	L	L	W	W
<i>Macaca nemestrina</i>	No. 1	O	O	L	L	L	L	O	O	L	L	L	L
	No. 2	O	O	L	L	W	L	O	O	L	L	W	L
<i>Lyssodes speciosa</i>	No. 1	S	L	L	L	L	W	W	O	L	L	L	W
	No. 2	W	L	L	L	W	A	L	L	L	L	L	L
<i>Magus maurus</i>	No. 1	O	V	L	L	W	W	O	L	L	L	W	W

In 1941, Fukuoka⁵⁾ reported that the most common interdigital pattern was a loop in 11 *Lyssodes fuscata* soles. Kubo et al.^{3),4)} (1943) reported that plantar pattern frequencies were high in *Rhesus cyclopsis* (94.77–100%) (Table I), that the accidentals were frequently found in the hypothenar, thenar and first interdigital areas, that the loops were in the second interdigital area and that the whorls were in the third and fourth interdigital areas.

From the above mentioned, a loop occurs the most commonly in the first and second interdigital areas of the soles of the macaque.

The author is much indebted to the officers of Japan Monkey

Centre, especially to Dr. S. Kotera, for their kind cooperation in collecting the materials for this study.

References

- 1) Furuya, Y.: Studies on the dermatoglyphics of the macaques. I. Apical configurations, Proc. Japan Acad., **38**, 377–379 (1962).
- 2) Furuya, Y.: Studies on the dermatoglyphics of the macaques. II. Palmar patterns, Proc. Japan Acad., **38**, 380–382 (1962).

- 3) Kubo, T. und Kuno, K.: Vergleichende Studien über die Hautleisten von Menschen und Affen in Formosa (in Japanese), *Hanzaigaku Zasshi*, **17**, 156-163 (1943).
- 4) Kuno, K.: Erbbiologische Studien über das Hautleistensystem. II. Die Hautleistenbilder der Vola und Planta von *Macacus cyclopis* (in Japanese), *Taiwan Igakkai Zasshi*, **42**, Suppl. I, 1-28 (1943).
- 5) Fukuoka, G.: A study on the patterns of the palm and sole of the Japanese macaque (*Macacus fuscata* BLYTH) (in Japanese), *Bot. & Zool.*, Tokyo, **9**, 339-348 (1941).