ANTHROPOLOGIE X/2, 3 1972

A CONTRIBUTION TO THE OCCURRENCE OF FOUR-FINGER FURROWS IN CZECHS AND GIPSIES

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In almost every human population we can meet individuals where a four-finger furrow, often called Simian crease, has formed on the palmar surface of the hand. According to Weninger and Navrátil (1957) the four-finger furrow occurs in man in two types: typical (classic) and transition.

The four-finger furrow had originally been ascribed to mongoloid idiots, for whom it is typical (Landon-Down 1909, Crookshank 1924), but in later years it was found to accumulate in individuals suffering from other diseases, especially mental disorders (Portius 1937, Shiller 1942, Penrose 1949, Hirsch 1968, and others), but is also frequent, e.g. in notorious alcoholics (Weninger, Navrátil 1957). Through further examinations of different groups of populations significant differences of a social and regional character were discovered in the occurrence of four-finger furrows (Walter 1952, 1957, Weninger, Navrátil 1957, Geipel 1961, Fischer 1964, and others). In 1957, Walter summarized the hitherto available knowledge about the occurrence of four-finger furrows in different populations. Said investigator found that the typical four-finger furrow occurs in Europids in 1.2 to 14.3 %, in American Mongols (Indians) in 5.4 to 15.4 %, in Asiatic Mongols in 7.2 to 15 %, in Negroes in 3.4 to 34.7 %, and in Melanesians and Negritos in 6.6 to 28.3 %. From these figures it is to be seen that in the frequency of four-finger furrows there exist significant differences, on the one hand, among the individual populations, on the other hand, within the same populations, especially in those whose development proceeded in isolation, no matter whether of a regional (e.g. with the Pygmies, Aetians, and others), or social character (e.g. with the Gipsies).

As regards the occurrence of four-finger furrows, the population of Europe is examined best. Yet, there still exist ethnic and nationality groups, where this sign has not yet been studied in a complex manner. This refers primarily to the Czechs, about whom we have no information in this respect, followed by the Gipsies, who have already been studied (Pöch 1925, Schade 1958); however, the data available to us today are diametrically opposed. For these reasons we have tackled the study of the occurrence of the four-finger furrow and its types in the above mentioned sets and publish the results in this paper.

MATERIAL AND METHODS

We studied the configuration of the main creases on the palmar surface with special regard to the occurrence of the four-finger furrow on prints of palms of the Czechs from South Moravia and of the Gipsies from Slovakia. The palm prints were made for dermatoglyphic purposes in different research actions of an anthropological or genetical character.

Czechs from South Moravia (380 males, 365 females). The examined persons came from the villages and towns of South Moravia. Their age varied between 7 and 52 years. The set comprised all social strata.

Slovakian (129 males) and Hungarian (92 males) Gipsies. Both sets were formed of nomadic and half-nomadic Gipsies, living in Slovakia. The palm prints were obtained during anthropological research of illiterate soldiers of Gipsy origin in the years 1962 and 1963. The age of the examined persons at the time of examination varied between 19 and 21 years. For further data see Beneš (1968).

In the study of the course and the configuration of the main palmar creases with regard to the occurrence of the four-finger furrow we observed the instructions of Weninger and Navrátil (1957). We found the classic types of four-finger furrows (Ia, Ib), the transition types (IIa, IIb, III), and the special types (SF 1—4) (Figs. 1—10).

RESULTS AND DISCUSSION

The results at which we arrived in the study of the configuration of the main palmar creases in Czechs and Gipsies are presented in Tab. 1.

From this Table it is to be seen that in the examined sets the normal configuration of the main flexion creases strongly prevails (Fig. 1). The num-

TAB. 1

Four-finger furrow, transition forms and special forms of palmar creases in Czechs and Gipsies (in %)

	Czechs Men (N = 380) Women (N = 365)				Gipsies (males) Slovak Hungarian (N = 129) (N = 92)			
	dext.	sin.	dext.	sin.	dext.	sin.	dext.	sin.
Ia	0,3	0,3	—	0,3	1,5	—	—	—
Ib	0,3	—	0,9	0,6	—	—	—	—
IIa	0,3	0,9	0,3	0,3	0,8	2,0	0,3	5,3
IIb	0,9	0,6	0,9	1,2	—	4,6	1,1	1,1
Special Types (SF)	0,6	0,6	0,9	1,8	3,2	2,4	1,6	1,6
Type III	2,7	0,6	1,8	1,5	8,5	7,0	5,3	5,3
Type M	94,9	97,0	95,2	94,3	86,0	83,7	92,0	86,7

ber of palms affected by one of the classic types of the four-finger furrow (Ia, Ib), the transition types (IIa, IIb), the type III, and the special types (SF 1—4) varies in the examined sets over a range of 4 to 15.1 %. Least are affected the palms of Czechs, while essentially more those of the Gipsies. The sex and the side differences in the occurrence of palms with a different configuration of the flexion creases are indicated, as can be seen, in Tab. 1.

The four-finger furrow in its two typical forms (Ia, Ib) was very rare in our sets, while in the Hungarian Gipsies it did not occur (Figs. 2, 3). For a comparison of our results with those of other authors we compiled a list of European nationality and ethnic groups according to the frequency of the occurrence of the four-finger furrow (Ia, Ib). As reference served the list by Walter (1957), which we augmented with newer data (Tab. 2).

From the comparison it followed that the sets examined with regard to the occurrence of a typical four-finger furrow fall to the lower boundary of the variation width for this sign in Europe. Thus the examination of Czechs and Gipsies from Slovakia pertains to populations where the four-finges furrow is rare, as it is the case with the Dutch, the Swiss, the Germans, and others. From the sets that form the middle and upper boundaries of the variation width of this sign it differs markedly. This findings is of interest especially in the Gipsies, about whom the view prevailed for a longer time that they fall among the human group with a relatively high number of four finger-furrow carriers (14.3 %). In 1961, Schade published data on the Balkan Gipsies, where the four-finger furrow occurred only in 3.4 %. In the Slovak Gipsies the frequency of the four-finger furrow was still lower, while in the Hungarian Gipsies we could not record it. The new data obtained from more numerous sets than was that of Pöch (N = 56) would speak in favour of the former view on the occurrence of the four-finger furrow in Gipsies.

The transition types of the four-finger furrow IIa and IIb were rare in the Czechs, while in the Gipsies somewhat more frequent (Tab. 1, Figs. 4,

TAB. 2

Frequency of four-finger furrows (Ia and Ib) (according to WALTER 1957, augmented)

Population	Men			Women			Both sexes			Author
	N	% ± m		N	% ± m		N	% ± m		
Hungarian Gipsies (Slovakia)	92	—	—	—	—	—	—	—	—	Beneš
Slovakian Gipsies (Slovakia)	129	0,7	0,7	—	—	—	—	—	—	Beneš
Czechs (Moravia)	380	0,4	0,3	365	0,8	0,5	745	0,6	0,3	Beneš
Swiss	?	?		?	?		?	1,2		Hanhart
Germans (children of Berlin)	400	1,6	0,6	—	—	—	—	—	—	Geipel
Dutch	—	—	—	—	—	—	1056	1,5	0,4	Rittmeister
Austrians (Vienna)	816	2,3	0,5	545	1,8	0,5	1361	1,8	0,3	Weninger, Navrátil
Austrians	890	2,4	0,6	586	2,0	0,6	1276	2,0	0,4	Weninger, Navrátil
Germans — twins (Berlin)	384	3,4	0,9	460	2,1	0,7	844	2,7	0,5	Geipel
Germans (Marienfeld)	521	3,4	0,8	557	2,5	0,7	1078	2,5	0,4	Weninger, Navrátil
Germans	7008	3,5	0,2	6164	2,3	0,2	13172	2,9	0,1	Portius, Schiller, Walter
Wallachians (Aromunians)— Yugoslavia	98	3,1	1,7	—	—	—	—	—	—	Schade
Gipsies (Yugoslavia)	59	3,4	2,3	—	—	—	—	—	—	Schade
Spanish	390	3,8	1,0	105	1,5	1,5	495	3,5	0,8	Jordan, Pons
Poles	580	3,5	0,8	—	—	—	—	—	—	Lasiński
Turks	120	4,2	1,6	140	2,8	1,4	260	3,5	1,1	Tunakan
Mohammedans (Yugoslavia)	98	6,1	2,4	95	1,0	1,0	193	3,6	1,3	Schade
Danes	150	4,7	1,7	150	3,3	1,4	300	4,0	1,1	Björk
Macedonians	218	4,6	1,4	100	3,0	1,7	318	4,8	1,1	Schade
Greeks	2857	5,3	0,4	1054	2,7	0,5	3641	4,6	0,3	Kumaris, Katrifsis
Finns	?	3,4		?	1,3		?	4,8		Drander, Karikoski, Kervinen
French	308	6,8	1,4	248	5,6	1,5	556	6,5	1,0	Lestrange
Corsicans	38	7,9	4,4	—	—	—	—	—	—	Russmann
Arabs	—	—	—	—	—	—	530	7,9	1,2	Hanhart
Gipsies	—	—	—	—	—	—	56	14,3	4,7	Pöch

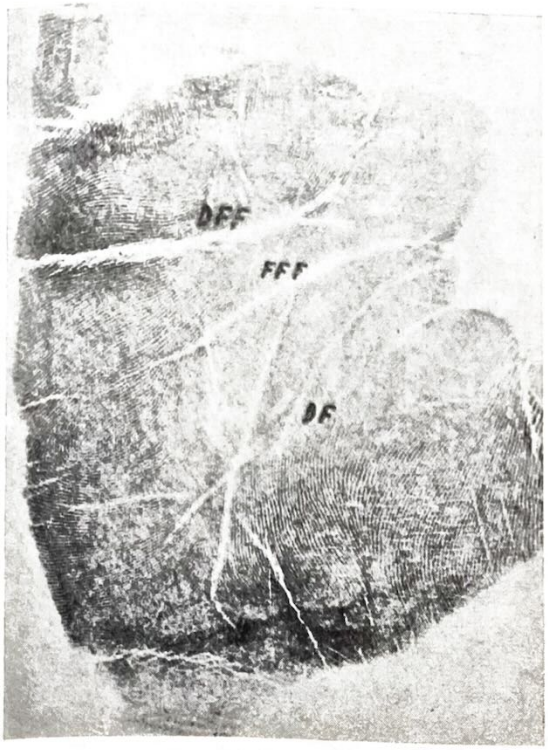

FIG. 1

The main palmar flexion creases: distal transverse crease (Dreifingerfurche DFF), proximal transverse crease (Fünffingerfurche FFF), radial longitudinal crease (Daumenfurche DF).

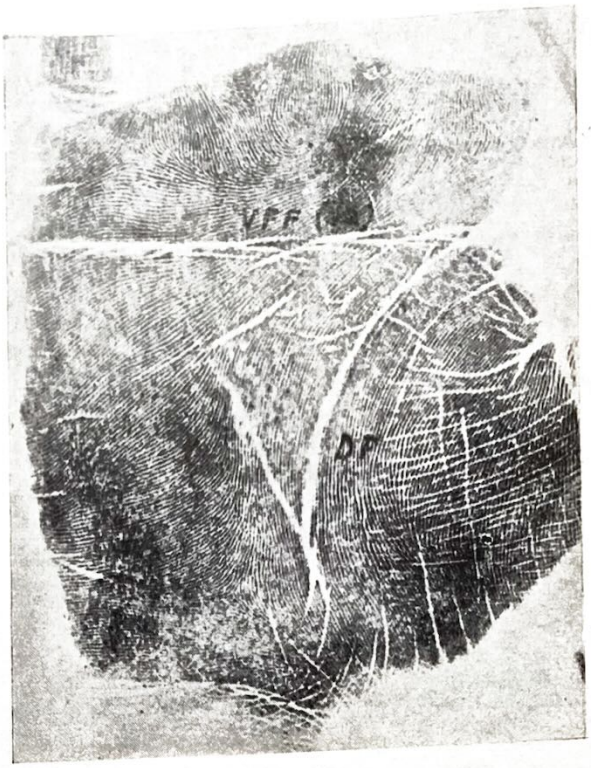

FIG. 2

Classic four-finger furrow type Ia (Simian crease).

FIG. 3

Classic four-finger furrow type Ib (Simian crease).

FIG. 4

Transition type IIa (Gipsy).

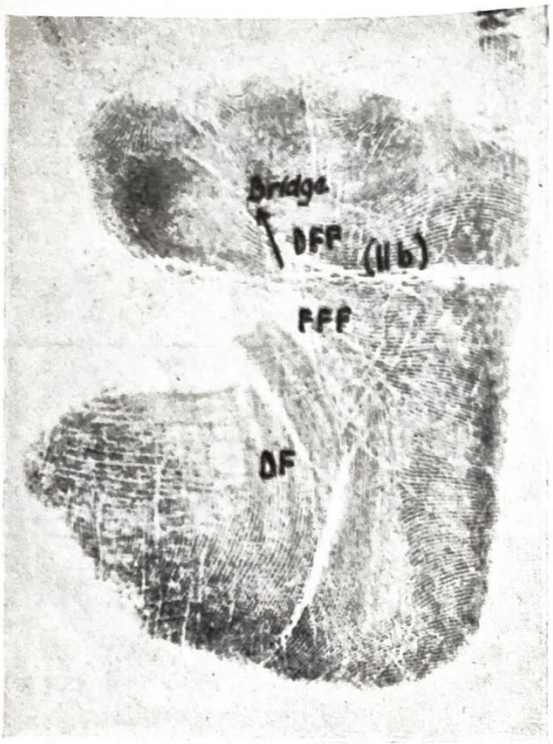

FIG. 5
Transition type IIb.

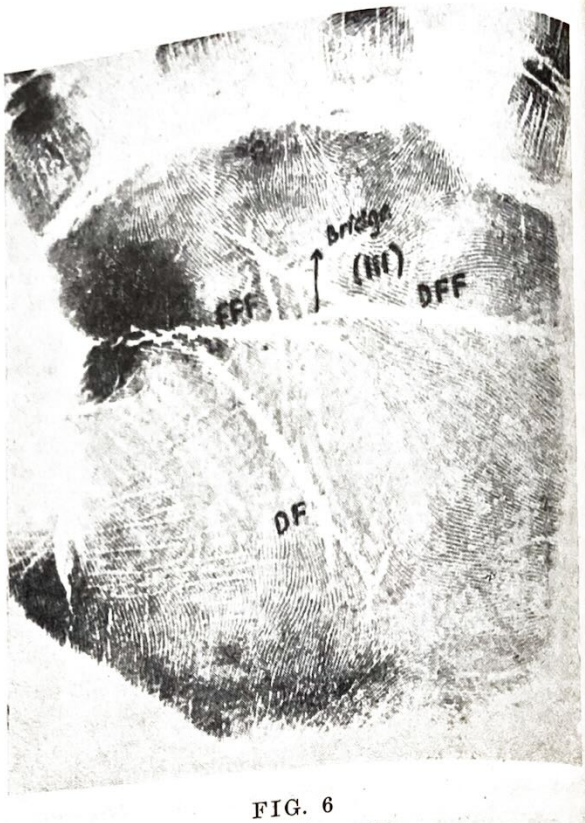

FIG. 6
Transition type III.

FIG. 7
Transition type III (Gipsy).

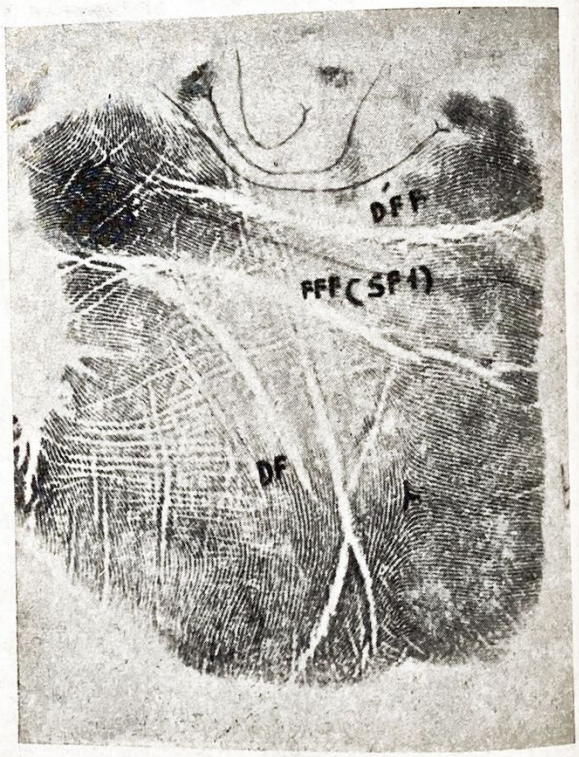

FIG. 8
Special type (Sonderform) 1.

FIG. 9
Special type (Sonderform) 2.

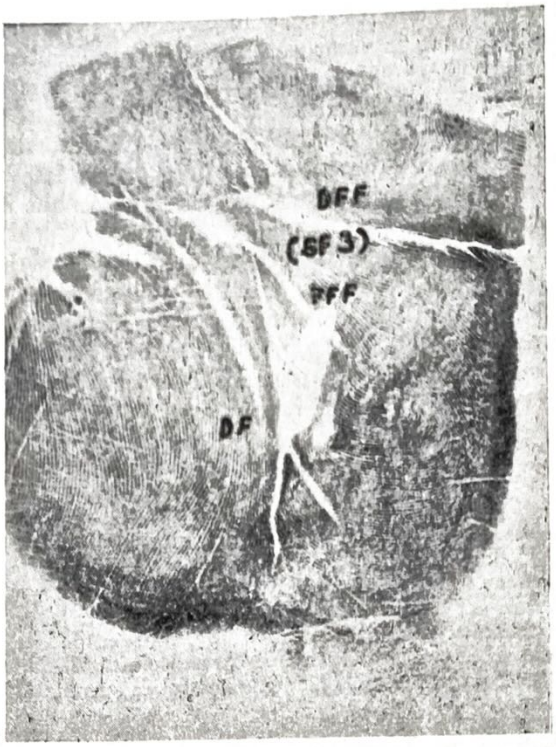

FIG. 10
Special type (Sonderform) 3 (Gipsy).

5). Our data concerning the frequency of the transition types IIa and IIb are in agreement with the data of Weninger nad Navrátil (1957) for Austrians, but differ somewhat from those of Geipel (1961) for Germans. The latter's data on the frequency of the occurrence of the type IIb (5.9 to 10.5 %) in Germans exceeds the data obtained by us.

The configuration of the palmar creasses where the transition part between the three-finger and the five-finger furrow forms an angle is, ranked into one category — type III (Figs. 6, 7). From the literary data it is to be seen that type III occurs in various nationality and ethnic groups in a different number, approximately within the range of 2 to 16 % (Weninger and Navrátil 1957, Geipel 1961, and others). According to the occurrence of type II, the Czechs fall to the lower boundary of this variation series, while the Gipsies form approximately its middle, as can be seen from Tab. 1. The existence of regional differences in the occurrence of type III is thus evident and together with the data of Weninger and Navrátil (1957) and Geipel (1961) is also confirmed by our results. These differences, however, must be treated with great care, for difficulties with the determination of this type are known to exist. Involved are especially those cases where the connecting bridge has approximately the same transverse direction as the three-finger and five-finger furrows (see Fig. 6). In these and similar cases we often were in doubt whether to rank such a configuration of creases into the category of type III or IIb. Another difficulty in the determination of type III lies in the fact that the transition part (bridge) between the three-finger and the five-finger furrows is not "primary" (Tiellner 1953). With advancing age, secondary creases arise, of which some are localized so that they connected fully or partly the three-finger and the five-finger furrow. Thus type II comes into being, which in certain cases need not be so typical as to ranked into the final results. It thus appears that the above mentioned difficulties in the determination of type II exist; moreover, these difficulties may influence the final results. To what extent they do so will require further study.

Tab. 1 also gives the values referring to the occurrence of the special types 1—4 (Figs. 8, 9, 10). These types are ranked into a special category, for their configurations are altogether different from the classic and transition types of the four-finger furrow. According to the data which are available to us today (Weninger and Navrátil 1957, Geipel 1961), its types occur in European and extra-Europaen populations in a number resembling the occurrence of the four-finger furrow (0.9 to 3,2 %). Our data lie on the lower boundary of this variation width.

SUMMARY

By the study of the variability of the course and configuration of the the main palmar creases in Czechs from South Moravia and Gipsies from Slovakia, with special regard to the occurrence of the four-finger furrow, the author arrived at the following conclusions:

1. The classic types of the four-finger furrow Ia and Ib are rare in Czechs and Gipsies. The transition types IIa and IIb are sporadic in Czechs, while

somewhat more frequent in Gipsies. Type III is less frequent in Czechs, but much more often in Gipsies. The special types (SF 1—4) are less frequent in both sets.

2. The side and sex differences were not established either in the total frequency or in the frequency of the individual different types in the examined sets.

3. A comparison of the obtained data with those of other authors shows that the examined sets fall among a population distinguishing itself by the low number of different types in the configuration of palmar creases, which is particularly conspicuous in the typical four-finger furrow and type III.

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