

HALINA WOJCIECHOWSKA

INHERITED ABSENCE OF DIGITAL *c* TRIRADIUS
A PRELIMINARY REPORT

On grounds of the dermatoglyphic studies in primates it was reported [Bychowska 1930] that the presence of digital triradii on human palm is connected with the higher manipulation ability of human fingers. The fourth and fifth fingers as the least active of all the fingers sometimes have no digital triradius.

Lack of the *d* triradius occurs sporadically but the absence of the *c* triradius is more frequent. The majority of investigators [Loth 1910, Plato & Niswander 1967, Plato 1970, Plato & Gajdusek 1972, Plato et al. 1975, Rogucka 1973, Steinberg et al. 1975] report a higher percentage of the absence of the *c* triradius in the left hand in both sexes and more frequent absence of the triradius in females than in males. Taking for granted the smaller general manipulation ability of the left hand fingers, predominant absence of *c* triradius in that hand remains in agreement with the above statement. The popular opinion, however, concerning the higher manipulation ability of female fingers does not agree with the result obtained.

Our results for Polish population are approximately the same as those of other investigators. Examination of palm prints of many families aroused our interest in the problem reported in this paper, namely of inherited absence of the *c* triradius. We are trying to find out if the absence of *c* triradius in children is or is not connected with any special parental type of the *C* line direction.

Material for this study consists of 80 families in which *c* triradius is absent in at least one member of the family. This material was chosen from the large family material collected by the Department of Anthropology The Jagiellonian University. Most families examined have 3 and 2 children — total number of children is 144. The *C* line terminations were classified into four modal types: ulnar, radial, proximal, absent, based on the direction of the *C* line path (Fig. 1, 2, 3).

Relations based on the above categories of the *C* line in parents and offspring (concerning sex and laterality) turned out to be not statistically significant by χ^2 procedures, but closer inspection of the material studied

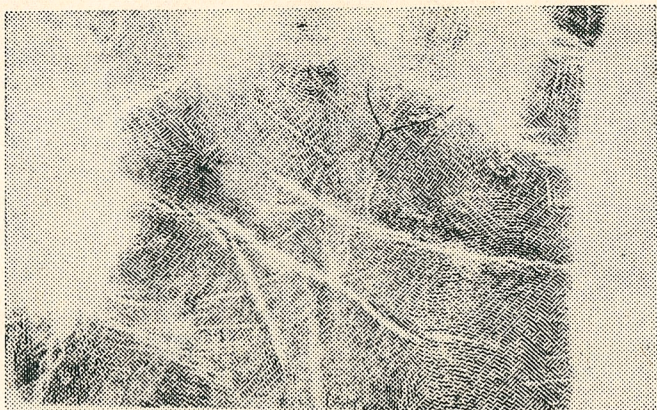


Fig. 1. The proximal form X of the main line C

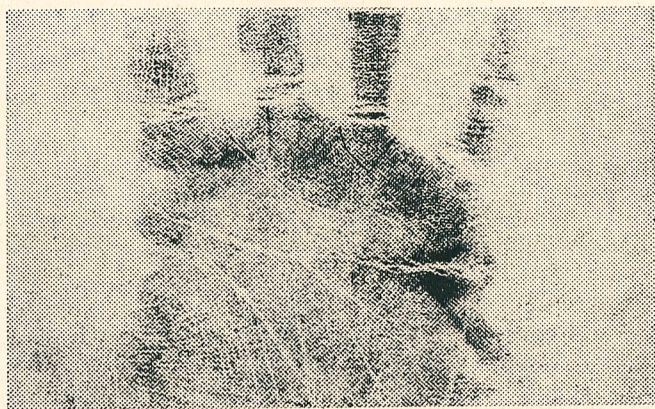


Fig. 2. The proximal form α of the main line C

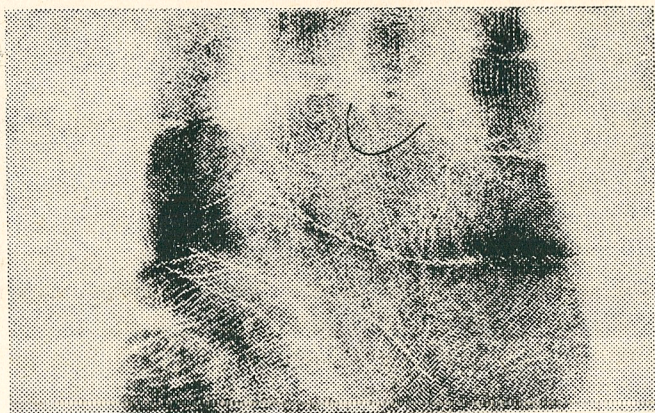


Fig. 3. The absence of the digital c triradius

Table 1. The groups of families in which the absence of digital c triradius occurs

	Number of families where	
	c is absent in children	c is present in children
1. c is absent in both parents	3	2 (in 2 form X)
2. c is absent in one parent	26	28 (in 22 form X)
3. c is present in both parents	21	—

allows us to notice the phenomenon of inheritance. There are some families in which the absence of the c triradius appears in one of the parents and all the children in the family and others where the absence is noticed in one of the children only or remains without trace. The material studied was divided into groups of families as given in the table 1. For every family from group 1 and 2 the percentage of children inheriting the absence of the c triradius was calculated. The values obtained range from 0 - 100% the mean value is 25;8%. It turned out that greater percentage of children inherit the above trait when mothers have it. When the absence of the c triradius occurs in fathers the percentage of children inheriting it is smaller. It is very probable that among various conditions which cause the inheritance of the given trait the age of the parents (generally lower in mothers) may play a very important role.

Group 3 from the table 1 is not numerous, still it is very important and interesting as regards the question of a possible influence of parental form of the C line direction on the absence of the c triradius in children. We observe that: in 12 out of the families of group 3 in parental formula of the C line the proximal form is found, in 7 families parents have different (radial and ulnar) direction of the C line, in 2 families only parents represent the same (ulnar) direction of the C line. In children from groups 1 and 2 having c triradius present, the proximal form X is found in 24 out of 30 families.

The above observations allow us to form the following hypotheses:

1. The inheritance of the absence of the c triradius from mothers seems to be stronger than from fathers
2. Parental, proximal form of the C line seems to have some influence on the reduction of the c triradius in children ($X \rightarrow 0$).
3. The different direction of the C line path in parents seems to have some influence on the reduction of the c triradius in children or on the formation of proximal form X ($R+U \rightarrow 0, X$).

The material at our disposal lets us observe the above mentioned phenomena. Larger material still collected might allow us to prove the above hypotheses also statistically.

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DZIEDZICZNY BRAK TRÓJRAMIENNIKA PODPALCOWEGO c.
DONTESIENIE WSTEPNE

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Zbadano materiał obejmujący 80 rodzin, w których przynajmniej jedno spośród rodziców (lub dzieci) charakteryzowało się brakiem trójramiennika podpalcowego c. Stwierdzono, że procent dzieci odziedziczających brak trójramiennika waha się od 0 - 100. Wydaje się, że badana cecha jest silniej odziedziczana po matce niż po ojcu. Brak trójramiennika c u dzieci w rodzinach gdzie jest on obecny u obojga rodziców wydaje się mieć związek z odmiennym u ojca i matki przebiegiem linii głównej C jak również występowaniem u nich jej formy proksymalnej.