

## THE LINES ON THE HUMAN PALM

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The study of the lines on the human palm is a very ancient one, which either out of superstitious belief or as an interesting pastime has received the attention of many people. The well-known 'Cheiro' and others like him have done much in recent times to create a scientific interest in this subject. "It cannot certainly be denied that Palmists do succeed in finding a great deal about the history of a person by examining his hands. How is it done and why should the doing of it be possible? Is there a correlation between the hands, their peculiar shape, colour, and consistency, on the one hand, and the character, medical history, and biography of the person to whom the hands belong, on the other hand?" Aldous Huxley (1936), from whom the above quotation is taken, is of opinion that such a correlation exists and that if the means by which the correlation is effected has not been found out "it is due to the intrinsic difficulty of the problem, and to the fact that the sort of people who might be expected to answer the question, do not believe that the correlation really exists." On the other hand, it will be admitted that many of the claims put forward on behalf of palmistry are unjustifiable.

The only satisfactory way of finding out whether the claims of chirologists are justified seems to be the application of statistical methods. "Large numbers of individuals must be examined with a view to finding out first, whether similar configurations of the hand do in fact stand for similar clinical and psychological conditions and for similar events in the person's past history, and second (if such uniformities can be discovered) whether any of the existing systems of interpretation are correct".

The problem as stated above is a very wide one, and is beyond what any individual worker can undertake. In the present paper is set forth the results of a first study of a particular aspect of the problem. The configuration of the three main lines observable on most human palms is analysed herein, as far as it could be dealt with by measurement of lengths alone. No attempt is made to take account of the curvature or even the relative positions of these lines. A study of the distribution of the lengths of these lines, as well as their mutual correlations, in samples representing populations with different social and intellectual status has yielded certain interesting results.

A study of the lines on the hand is important also from a quite different point of view. Dr. Teichmak-Seysenegg (1939) in a paper on the physiological significance of these lines refers to the possibility of application to criminology. If a system could be developed by which the formation of these lines could be used for the registering and identification of individual persons, it will supply a valuable extension of the present use of finger prints for this purpose.

The primary material used in this investigation consists of the palm-prints of a sample of 200 college students from Madras and a sample of 400 labourers from Parur, North Travancore, collected during the summer of 1937. The lines chosen for measurement were denoted by  $L_1$ ,  $L_2$ ,  $L_3$ ,  $L_4$  lying close to the base of the fingers,  $L_5$  encircling the thumb and  $L_6$  running between these two. In all hands these three are the lines which appear most clear

and definite, and on the working class hands these are almost the only lines present, the more delicate lines having been probably worn away by rough use<sup>1</sup>. The lines on the right hand and on the left hand we shall distinguish by the letters *r* and *l* so that the lines measured are  $rL_1, rL_2, rL_3, lL_1, lL_2, lL_3$ . These lines were measured from their impressions on the prints by using a piece of thread. The measurements were made correct only to the nearest millimetre, as considering the method of taking prints and the nature of the lines measured, we are not justified in expecting greater exactness. When a line was branched at an extremity, that branch was selected which gave the maximum length. This is a purely arbitrary convention adopted for the sake of definiteness and uniformity. In most hands  $L_1$  and  $L_2$  appeared at their start and for a certain length as one line. Very rarely  $L_1$  also was found united with the other two. In all such cases the common portion of the lines was added on to the lengths of both or all the members. In this manner six measurements, three on either palm, were made on the palm-prints of the 200 college students and of the 400 labourers.

On a superficial examination the two classes of palms seem to be clearly differentiated. The palms of the student class are in general characterised by the presence of a large number of smaller lines in addition to those under consideration in the paper and also by the well marked appearance of all the lines. The labourers on the other hand have very few lines, most often only the three here considered and even these lines are very coarse and broad. As certain differences in the average lengths of these lines are revealed by our study it is important to note that while the comparative coarseness of the lines on the labourers' hands may be attributed to the rough work which they do, differences in the lengths of lines could not be explained away in this manner. For while  $L_1$  and  $L_2$  have significantly greater lengths in the case of the students  $L_3$  is definitely shorter. It is clear also that these differences could not be due to any discrepancy in age or stature, which may be correlated with the lengths of these lines.

#### DISTRIBUTION OF THE LENGTHS OF LINES

The distribution of the length of these lines (see Table 1) shows that there is likely to be considerable differences in the factors causing variation in the lengths of these lines. Generally the line  $L_3$  on the hands of the two classes of people manifest a greater range of variation and higher skewness of distribution than either  $L_1$  or  $L_2$ . It was therefore felt necessary to obtain mathematical representations of these distributions. A Pearsonian frequency curve was fitted to each distribution. The equations of these curves are given on page. . . . and the expected frequencies together with the corresponding observed frequencies are shown in Table 1.

#### EQUATIONS OF THE FREQUENCY CURVES.

##### College Students

$$\begin{aligned} rL_1 &: y = 7.3491 (1 + x^2/(8.5215)^2)^{-16.9911} \exp. (-11.1533 \tan^{-1} x/8.5215) \\ rL_2 &: y = 0.0196 (1 + x^2/(13.6894)^2)^{-22.2973} \exp. (-30.5126 \tan^{-1} x/13.6894) \\ rL_3 &: y = 10^{217.2292} (x - 48.7743)^{31.2468} x^{-132.9407} \\ lL_1 &: y = 37.8503 (1 + x^2/(5.5507)^2)^{-8.2519} \exp. (-2.4110 \tan^{-1} x/5.5507) \\ lL_2 &: y = 0.0734 (1 + x^2/(0.6642)^2)^{-21.0266} \exp. (-10.8186 \tan^{-1} x/0.6642) \\ lL_3 &: y = 31.7341 (1 + x^2/16.8937)^{-3.1317} (1 - x/2.4043)^{0.1204} \end{aligned}$$

1. From the point of view of the palmist also these are the most important lines.  $L_1$  is called "Line of Heart",  $L_2$  "Line of Head" and  $L_3$  "Line of life" and these are supposed to be respectively the line from which one's feelings, intellectual qualities and physical condition could be inferred.



the purely physical.  $L_2$  is called the "Line of life" and is claimed to be proportional in length to the normal length of life which the subject may be expected to live. This, if true, not only explains the distinction between  $L_1$  and  $L_2$  on the one hand and  $L_3$  on the other but also throws light on the skewness of the distribution of  $L_3$ . For if length of  $L_2$  is proportional to the length of life, the distribution of length of  $L_2$  must be similar to the distribution of duration of life, and it is a well known fact that the distribution of duration of life is highly skew.

The lines on the left hands of student class are more skewly distributed than the corresponding lines on the right hands. For labourers only  $L_2$  shows a tendency to be more skewly distributed on the left hand than on the right.

TABLE 2. COMPARISON OF 400 LABOURERS WITH 200 COLLEGE STUDENTS

	College Students	Labourers	Difference with S.D.		College Students	Labourers	Difference with S.D.
(0)	(1)	(2)	(3)	(0)	(1)	(2)	(3)
Means							
$rL_1$	7.65	7.25	$0.40 \pm 0.08$	$rL_1-rL_2$	0.24	0.11	$0.13 \pm 0.08$
$rL_2$	7.83	6.64	$0.89 \pm 0.09$	$rL_1-rL_3$	0.34	0.21	$0.13 \pm 0.08$
$rL_3$	9.26	9.59	$-0.33 \pm 0.10$	$rL_2-rL_3$	0.41	0.17	$0.21 \pm 0.08$
$lL_1$	7.49	7.27	$0.74 \pm 0.01$	$rL_1-lL_1$	0.20	0.21	$-0.02 \pm 0.08$
$lL_2$	7.68	6.95	$0.22 \pm 0.08$	$rL_1-lL_2$	0.24	0.19	$0.04 \pm 0.08$
$lL_3$	0.18	0.30	$-0.20 \pm 0.12$	$rL_1-lL_3$	0.30	0.19	$0.12 \pm 0.08$
Standard Deviation							
$rL_1$	0.84	0.96	$-0.12 \pm 0.05$	$rL_2-lL_1$	0.34	0.21	$0.13 \pm 0.08$
$rL_2$	1.04	1.07	$-0.03 \pm 0.08$	$rL_2-lL_2$	0.44	0.43	$0.01 \pm 0.07$
$rL_3$	1.15	1.36	$-0.22 \pm 0.07$	$rL_2-lL_3$	0.26	0.15	$0.11 \pm 0.08$
$lL_1$	0.91	0.91	$-0.01 \pm 0.06$	$rL_3-lL_1$	0.27	0.21	$0.07 \pm 0.08$
$lL_2$	1.14	1.23	$-0.09 \pm 0.07$	$rL_3-lL_2$	0.25	0.07	$0.18 \pm 0.08$
$lL_3$	1.33	1.49	$-0.16 \pm 0.09$	$rL_3-lL_3$	0.40	0.42	$-0.02 \pm 0.07$
				$lL_1-lL_1$	0.30	0.31	$-0.02 \pm 0.08$
				$lL_1-lL_2$	0.20	0.34	$-0.16 \pm 0.08$
				$lL_2-lL_3$	0.33	0.20	$0.13 \pm 0.08$

COMPARISON OF COLLEGE STUDENTS AND LABOURERS

In Table 2 the constants of the sample of labourers are compared with those of the sample of college students.  $L_1$  and  $L_2$  have significantly greater lengths in the case of students whereas  $L_3$  is shorter. This reminds us of the remark which we have made already that  $L_1$  and  $L_2$  may be considered to belong to a category different from  $L_3$ . Can it be that  $L_2$  being (according to the palmist) the index of the physical condition, is more developed in the case of those who do manual labour whereas  $L_1$  and  $L_3$  pertaining to the mental traits are more pronounced in the case of students?

The coefficients of correlation are mostly lower in the case of the labourers though only in two instances, the difference is found to exceed twice the standard error. Variation is definitely less in the case of students. All the standard deviations are smaller than the corresponding ones for the working class though only two are significantly different.

REFERENCES

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- TECHERMAN-SEVERINSON, ARMIN (1930) : "Über die physiologische Bedeutung der menschlichen Handlinien" Forsch. Und Fortsch. 16, p.211.