

## THE HANDS OF MONGOLIAN IMBECILES IN RELATION TO THEIR THREE PERSONALITY GROUPS.

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### HISTORY.

THE literature relating to mongolism is extensive and for the present purpose it need not be reviewed. The hand has been mentioned in almost every study on mongolism. Crookshank (1931) has given it an important place in his provocative book, *The Mongol in Our Midst*, without enlarging our knowledge of the now familiar features in shape and crease lines of the hand. Penrose mentions in *The Creases on the Minimal Digit in Mongolism* (1931) that in a certain number of cases one crease line on the fifth finger is lacking, which makes the fifth finger look almost like a second thumb. Very recently Harold Cummins of the Tulane University, U.S.A., observed a certain anomaly in the dermatoglyphs of the hands of mongoloid imbeciles (1939). He comes to the conclusion that in the finger-tips of these hands there is a noteworthy reduction in the occurrence of the whorls, and that of the five palmar patterns, hypothenar, second interdigital and third interdigital patterns are increased in frequency, while thenar/first interdigital patterns are less frequent, and also that frequencies of hypothenar types depart widely from the normal. C. E. Benda mentions that ossification of the carpal and long bones is early and that growth of the bones comes to an early end; this might account for the short hands in mongolian imbeciles (1939).

### DATA AND OBJECT OF PRESENT STUDY.

One of the authors (C. W.) who is at present engaged in a statistical survey of the main characteristics in form and dermatoglyphs of the hands of mental defectives of all types has observed some stigmata in the hands of mongolian imbeciles which have not been mentioned hitherto in the literature. Her study confirms the findings of Harold Cummins concerning the abnormality of the patterns of papillary ridges on finger-tips and palm, but found them just as often in the hands of any other type of mental defective.

One of us (H.R.R.) has investigated the present group of 73 mongolian imbeciles clinically in a paper, "Personality in Mongolism, with Special Reference to the Incidence of Catatonic Psychosis" (unpublished). He has differentiated three personality groups among them:

- (1) Extraverts (30 cases), approximating to the typical text-book mongol.
- (2) Introverts (31 cases). In this atypical group there were 17 cases described as suffering from primitive catatonic psychosis and 5 cases of pre- or early psychosis of a schizophrenic-like reaction type.
- (3) Mixed (10 cases) showing features of groups 1 and 2.

In the present investigation the same group of cases was examined in order to see whether the hands of the typical and atypical mongolian imbecile differ in some stigmata or not. The material consists therefore of the hands of 71 of the 73 mongols mentioned above (the two other cases died before the investigation could be completed). The ages of the subjects ranged between 8 and 48 years. The

hands in every case were investigated with regard to shape, the nails, dampness or dryness, colour and crease lines. Dermatoglyphs were taken by a method described by one of us (C. W.) in her previous papers. Briefly this was as follows: After having smeared the hands with some greasy substance, liquid paraffin or Nivea creme, for example, the hand is pressed on to a plain sheet of paper. A black powder, copper oxide, is placed upon the fat print so obtained, and then by moving the powder over the print, papillary ridges and creases are clearly brought out. The prints may then be fixed by the same fixative process as is used for coal drawings.

The classical features of the mongolian hand can be enumerated as follows:

A broad, square and short palm, very short fingers, a minute thumb of characteristic shape and a very small fifth digit, which is often deformed and on which sometimes one crease line is lacking. The frequent occurrence of the simian line, the dryness of the palm and abnormal flexibility are also well known characters of the mongolian hand. The cyanotic colouring is indicative of the circulatory deficiency often found in mongolian imbeciles. In addition to these text-book stigmata, particular attention was paid to the form of the nails, the general composition of the crease lines, and the length of the index finger. We did not concern ourselves with abnormalities of the papillary ridges to which one of us (C. W.) will refer in a larger paper on the dermatoglyphs of hands in mental defectives of all types.

Before comparing the frequency of the different stigmata in mongolian hands we must explain why emphasis is laid on certain forms of nails, the shape of the index finger and the particular "confused" crease line pattern to which hitherto very little, if any, attention has been paid. While studying the hands of 650 mental defectives at St. Lawrence's Hospital it was observed that these patients often showed an undeveloped type of nail, that is to say, one in which the hornified substance is reduced to a minimum, and the moon is completely lacking. In the mongolian hands this type of nail was often observed as well as a very short flat and broad one, also without moons. It might well be that a general lack of vitality and resistance or deficiency of the endocrine glands is responsible for the failure of development of the nails.

At the same time an abnormality of the shape of the index finger, which was either too short or on the contrary too long (the same disproportion occurs in regard to the thumb, too), was noted in the hands of mental defectives by C. W. in a good many cases, as well as the fact that sometimes the second, third and fourth fingers were of almost equal length. As this latter deviation of finger length had also been noted 4 times among 30 cases of dementia praecox, we found it particularly interesting to investigate this phenomenon in the mongolian hands in order to find out if there might be any correlation between the finger length and the introverted group of mongolian imbeciles who have developed or are likely to develop psychosis. The "confused" crease line pattern has also been observed during the same investigation and previously during researches at Parisian clinics in many hands of different types of mental defectives, but especially in mongolian imbeciles. This abnormality consists in an irregular pattern of accessory crease lines which normally follow the direction of the papillary ridges, as e.g. Hepburn (1897) has pointed out. In these cases, apparently an irregular type is seen, the lines crossing each other in all directions and giving therefore the impression of a lack of system which is even more accentuated when the difference between these creases and the four principal crease lines of the palm is not definite. This is often the case in the hands of mental defectives. One of us (C. W.) suggested calling this arrangement the "confused" pattern (7).

In the table the percentage of the features described is given in relation to the three clinical groups.

From the table it is possible to effect a comparison of the different described features of the hands of mongolian imbeciles in relation to three personality groups. As we have material of an almost equal number of the extravert and introvert group, the most interesting conclusions can be drawn from comparing these two groups, while results concerning the mixed group might only serve as a modifying factor.

The extraverted or the text-book mongolian imbecile shows the classical features of the hand more frequently than the introverted "mongol" (see

*Percentage Incidence of Features in the Hands of the Three Mongol  
Personality Groups.*

Features.	Personality groups.		
	Extraverts.	Introverts.	Mixed.
1. Too short fingers . . . . .	100	83.4	90
2. Square broad palm . . . . .	96.6	79.3	90
3. Too small thumb . . . . .	96.6	89.6	90
4. Too small 5th finger . . . . .	90	58.6	70
5. Cyanotic colour . . . . .	—	20.6	10
6. Dryness of palm . . . . .	83.3	96.6	90
7. Hyperflexibility . . . . .	73.3	65.5	80
8. Confused crease line pattern . . . . .	53.3	41.3	40
9. One crease line only 5th finger . . . . .	23.3	24.1	10
10. Simian line . . . . .	43.3	51.7	60
11. Rudimentary nails . . . . .	20	17.2	20
12. Flat short broad nails . . . . .	36.6	44.8	30
13. Curved short broad nails . . . . .	33.3	20.4	40
14. Long narrow nails with moons . . . . .	—	13.8	10
15. Index abnormally short . . . . .	20	3.4	20
16. 2nd, 3rd and 4th fingers equally long . . . . .	13.3	17.8	10
17. Human digital formula . . . . .	10	20	20

table). The most marked difference in frequency shows in the length of the 5th finger.

Cyanotic colouring of the hands occurs only in the introverted type according to our table.

Long nails with moons occur only in the introverted type. They are generally found in long hands with long fingers, hands of the bony, motoric type (see Wolff, 1941).

It is interesting to note that the extraverted type showed a too small index finger in 20 per cent., the introverted only in 3.4 per cent.—while an abnormally long index finger never occurred in the extraverted group but was found in 6.8 per cent. in the introverted.

The almost equal length of the 2nd, 3rd and 4th finger is more often found with the introvert than the extravert mongol. The difference in frequency is nevertheless not a striking one. It is also noteworthy that the human digital formula (the index finger is longer than the 4th finger) occurs more often in the introvert than in the extravert group of mongolian imbeciles. The features of the hand of the mixed group show on the whole more resemblance to the extravert than to the introvert group.

#### CONCLUSION.

(1) One of the most "classical" features of the mongolian hand, a too short fifth finger, occurs in the introvert group in only 58.6 per cent., in the extravert group in 90 per cent.

(2) The hands of the introvert group differ too from those of the extravert in the length of the index finger, this in a good many cases being longer than even in normal hands. The opposite, the too short index finger, seems very rarely to occur in the introvert and more often in the extravert group.

(3) The almost equal length of the 2nd, 3rd and 4th finger occurs in both types, but somewhat more often in the introvert.

(4) The "confused" crease line pattern occurs in both types in about 50 per cent., but more frequently in the extravert than in the introvert.

(5) The fact that there is a marked difference in the colouring of the hand in the two groups, the introvert showing cyanosis in 20 per cent. and the extravert in 0 per cent., confirms only that psychotic or prepsychotic conditions influence strongly the circulatory and vegetative nervous systems.

(6) Flat, square, short, undeveloped nails were found most often on the hands of the investigated mongolian imbeciles. A long and narrow nail with well-developed moon was the rarest form and only occurred in the introvert group.

(7) The tendency towards lengthening of the fingers and the palm in general and of the index and 5th finger in particular in the hands of the introvert mongolian imbecile seems to be the most striking feature of the hands of those studied.

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