A REPORT ON SOME ENGLISH PK TRIALS

BY DENNIS H. HYDE

Abstract. Three dice, thrown from a hand-shaken cup, were aimed at a specified target face. 6,480 trials were completed, without any significant deviation being produced. Analysis for position effects showed no significant salience. There was an apparently significant variation in scoring rate from left to right across the record sheets, but it was the reverse of the usual decline effect, and it was shown to be due to bias in the dice. Various other statistical tests applied to the data were uniformly negative.

Procedure. The trials were unwitnessed. The experimenter acted as his own subject and recorded his own results. The same three dice were used throughout the experiment. They were thrown together from a hand-shaken cup against a vertical baffle, which was placed on a finely corrugated horizontal surface. If one of the dice touched the horizontal surface before bouncing against the baffle the throw was rejected.

The system of recording was identical with that described in a report in the *Journal of Parapsychology*, Vol. viii, p. 95, and the score sheets were the same as the one illustrated on p. 97 of that report. The score for each throw was recorded as 0, 1, 2, or 3 according to how many of the three dice landed with the target face uppermost. The scores were recorded in columns of 24, and as each column was completed the score was totalled. The target face was changed at the end of every third column. When all six faces had had their turn as target, the record sheet was full and contained an equal number of trials for all faces. Each record sheet was made up of 18 columns of 24 throws, that is 432 throws of three dice, which is the equivalent of 1296 single die trials. The expected score per sheet was 216. Five record sheets were completed, this number being prearranged in order to prevent optional stopping.

Results. The total score showed no significant deviation :—

$$N = 6480, D = +29, S.D. = 30.$$

There was no chronological decline through the scoring sheets :—

1st sheet.	D =	+3
2nd ,,	D =	−1
3rd ,,	D =	+15
4th ,,	D =	+11
5th ,,	D =	+1
		+29

Examination for vertical decline down the columns of throws (salience), gave the following negative result :—

Expectation	–	45	135	270
Place 1		54		
,, 2		55	161	
,, 3		52		292
,, 4		41		
,, 5		39	131	
,, 6		51		
,, 7		60		
,, 8		40	140	
,, 9		40		279
,, 10		46		
,, 11		44	139	
,, 12		49		
,, 13		40		
,, 14		34	130	
,, 15		56		265
,, 16		41		
,, 17		52	135	
,, 18		42		
,, 19		44		
,, 20		47	141	
,, 21		50		273
,, 22		42		
,, 23		44	132	
,, 24		46		

It might be urged that this distribution shows the same shape as the typical salience distribution described in American PK experiments, that is with most of the deviation in the first quarter, a decline on the next two and a partial recovery of scoring rate on the last quarter. However, it is clear that shape alone could not fairly be used as evidence of an extra-chance effect, because there are only a very limited number of forms the distribution could take, and it cannot truthfully be said that the particular one observed could have been predicted. The differences in deviation in the various subdivisions of the column are none of them significant. It is true that there is some concentration of deviation in the first quarter of the column, but even when this segment is taken in isolation it is still insignificant (C.R. = 1·47).

If the various position effects described in PK reports were at work at all, abnormal sequences of successes or failures might be expected. In order to test for this a frequency table of various sizes of runs of consecutive failures was prepared. A throw of score o was taken as a failure, all other throws being "" successes ".

Frequency table of runs of failures[1]

Size of run :—	1	2	3	4	5	6	7
Score sheet 1	47	24	13	8	6	2	1
,, ,, 2	51	26	16	8	3	3	2
,, ,, 3	54	27	23	9	2	2	1
,, ,, 4	40	27	22	5	7	0	0
,, ,, 5	47	30	16	5	4	5	2
TOTAL	239	134	90	35	22	12	6
Expectations	222	128	74·3	43·0	24·9	14·4	8·3

Size of run :—	8	9	10	11	12 and over
Score sheet 1	2	2	0	0	0
,, ,, 2	1	1	0	0	0
,, ,, 3	0	0	0	0	0
,, ,, 4	2	0	0	1	0
,, ,, 5	0	1	0	0	0
TOTAL	5	4	0	1	0
Expectations	4·8	2·8	1·6	0·9	—

The distribution is in close agreement with chance expectation.

Another frequency table[1] was computed for various degrees of success in the throw.

Score per throw	0	1	2	3
Observed Frequency	1228	765	157	10
Expected Frequency	1250	750	150	10

This distribution was particularly close to chance expectation.

The only apparently significant effect was a variation in scoring rate from left to right across the scoring sheets (horizontal " decline "). Each sheet was divided into six equal sections, and the scores were evaluated separately :—

Section	1	2	3	4	5	6
Observed score	182	177	158	170	204	218
Expected score	180	180	180	180	180	180

This distribution differed significantly from the theoretical ($Chi^2 = 14\cdot5$), but there was a snag. The six horizontal divisions of the record sheet coincided with a division into trials aimed at each of the six die faces respectively. A bias in favour of a particular face would lead to a high score on that face without the necessity of PK.

To check the hypothesis that the deviations were due to bias, the dice

[1] The theoretical expectations in these two tables, though sufficiently accurate for the present purpose, are not absolutely exact, because the probability of a failure varied slightly on different faces owing to bias in the dice. However, the effect is much too small to alter the argument.

were given to Mr West, who performed 360 control throws and noted the frequency with which each face turned up :—

	1	2	3	4	4	6
Observed score on different faces	182	177	158	170	204	218
Observed die face frequency in control	174	175	137	166	196	234

It will be seen that the bias was almost identical with the observed distribution on the record sheet, that is an excess of sixes and a deficit of threes. The only difference was that the actual bias appeared to be more extreme. This was probably due to the fact that in the control throws no baffle was used, so that bias in the dice would be able to show itself more quickly.

Further confirmation that this left to right score variation was spurious was obtained by choosing smaller units for computation and finding the variation in scoring rate from column to column in the three columns of each of the six subdivisions of the record sheet. There was no change of target face within these subdivisions, so that bias does not enter into the picture :—

Three run " decline "

	1	2	3
Observed score	·368	355	386
Expected	360	360	360

Of course the result was perfectly consistent with the chance hypothesis ($Chi^2 = 2 \cdot 1$).

Since the vertical decline was insignificant, and the horizontal decline invalid, no further information could be obtained by computing the quarter distribution of the page.

Conclusion. The tests were all completely negative. No evidence of PK in any shape or form was obtained. This shows that positive PK results are not guaranteed by repetition of the published American technique.

EXPERIMENTS ON PK WITH INCLINED PLANE AND ROTATING CAGE

BY DENYS PARSONS

I. *Inclined Plane*

Rhine's first controlled experiments (*J. Parapsychol.*, 1943, vii, 30) were conducted with an inclined plane and semi-mechanical release. The first series of experiments described here were based on this method. Four subjects took part and six dice were used. A sloping board was fixed on