IS ESP A STATISTICAL ARTIFACT?

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ESP experiments can no longer be attacked on methodological grounds. They cannot be dismissed as cases of normal perception in which sensory cues are not eliminated or be attributed to recording errors or to fraud. Further, the statistical methods employed are the same as those used in many other branches of science. Recently, however, Mr. G. Spencer Brown has suggested that the so-called random distributions of digits to be found in well-known tables of random sampling numbers do not behave in practice as we might expect on the theory of the binomial probability model.

Mr. Brown criticizes the notion of a random series of finite length and maintains that such a concept has no meaning. He points out that the idea of a finite random series has no very clear meaning and that, moreover, there is no complete scale of tests by which we could ascertain whether a given series is a random one.

Actually, however, statistical method is concerned more with random *processes* than with random series and it is quite possible to define a random process. Any series produced by such a process—however improbable certain of its features may be—must be regarded as random. The use of tables of random numbers is not justified by logic but by the experience which shows that such tables work very well in practice on the whole.

In a card-guessing experiment all that is necessary is to secure that there is no systematic relation between the subject's guessing habits and the order of the target symbols, and the

use of "random" numbers certainly ensures that this will be the case. That in the absence of ESP, the comparison of a person's guesses with a list of random numbers leads to results which are close to chance expectation, has been abundantly confirmed by the numerous cross-checks in which the guesses of high-scoring subjects have been tallied against target-lists for which these guesses were not originally intended and which were independent of the original target-series.

Again, in many significant card-guessing series such as those of Tyrrell, Martin and Stribic, the Hutchinson-Macfarland series and, above all, in the work with B. Shackleton and G. Stewart, changes in the experimental conditions and in the personnel of the agents employed have resulted in consistent, and often meaningful changes in the fundamental character of the results. The fact that Shackleton and Mrs. Stewart succeeded only when an agent looked at the target cards strongly suggests that their ESP was, in fact, an unknown mode of *communication*. Statistical artifact can be no respecter of persons or of the conditions of an experiment, and such differential methods as were continually employed in the Shackleton and Stewart series furnish a proof of ESP which is independent of any probability model.

Further, the consistent high-scoring over periods of months or years of subjects like Hubert Pearce, C. Jencks, B. Shackleton and G. Stewart are easily distinguished from such accidental and modest deviations from chance expectation as those which Mr. Spencer Brown claims to have observed while comparing columns in random number tables.

Finally, Mr. Brown's experimental findings from tables have not been confirmed by anyone else. Mr. A. T. Oram's matching of all pairs of columns taken once and once only from the tables of Kendall and Babington Smith gave practically no support for Mr. Brown's hypothesis. (See S.P.R. *Journal* Nov.-December 1954, p. 369.)

A similar experiment not yet published has also produced only negative results.

If, indeed, Mr. Brown's hypothesis were true, ESP would still be confirmed by the differential method but, on the other hand, the whole basis of statistical method would be undermined. Fortunately, there is no reason to believe that the hypothesis is true.