AN EXPOSITION OF AND CRITICAL NOTE ON DR. RHINE'S THEORY OF PARAPSYCHOLOGY

PRESENTATION

TO MANY perhaps the subject matter of this paper will sound altogether new. Indeed, nobody should be dismayed for it has been the same with us, and we did not come to know about its existence except from sheer curiosity and chance. It so happened that we came across the word 'parapsychology' through one of the several Journals of Psychology, which led us, through further investigation, to trace the chief exponent of such a novel theory in Dr. J. Rhine, who has written quite a deal on the matter both by himself and in collaboration with others*.

Out of all these publications we have chosen as a source of the present study the book which runs by the title *Parapsychology — Frontier Science of the Mind* (Ch. Thomas, Illinois, 1957), written by Dr. J. Rhine himself, who is actually professor of Parapsychology at Duke University of Durham, North Carolina, U.S.A., and by his assistant in the running of the Laboratory at the same University, Mr. J.G. Pratt.

The reason for such a choice on our part is very simple to understand: it is the author's last publication in this field of investigation, and the best documented treatment as far as experiments go.

In the book the authors presume to have set on sound scientific footing facts about ESP and PK, which formerly had been believed on a merely popular level. But the aim in writing the book was mainly to

* For any as would feel inclined to read the works of Dr. J. Rhine, we are giving a list of the main and best known titles: Rhine J.B., *Extrasensory Perception*, Boston, Bruce Humphries, 1934; Rhine J.B., Pratt J.G., Stuart C.E., Smith B.M., & Greenwood J.A., *Extrasensory Perception after Sixty Years*, N.Y. Holt, 1940; *The Reach of the Mind* N.Y. Wm. Sloane, 1947.

Besides these books, ever since the foundation of *The Journal of Parapsychology*, under the aegis of the Duke University Press, Dr. Rhine has been a constant contributor of articles in the same Journal. Generally new experiments are brought to the knowledge of readers interested in this field of science.

N.B. All numbers of pages given in brackets from sections 1 to 6 inclusively refer to *Parapsychology — Frontier Science of the Mind* by J.B. Rhine & J.G. Pratt. Other similar indications contain the surname of the author we are quoting in the work just previously mentioned in each respective section. Where only the page is given, it is only too clear to which work we are making reference.

serve as a manual for professional people, who in it find 'a concise statement of the known facts of this new field of science, just how the researches are carried on and what general advance has been made in relating the new findings to the older branches of knowledge' (p. v); and for teachers and students alike (ibid.) who are introduced into the field of parapsychology, finding therein definitions of terms, description of methods and a summary of the main facts accumulated to date. In brief, it is presumably the clearest and most far-reaching work on the subject ever written.

DEFINITIONS OF PARAPSYCHOLOGY

But then what is 'parapsychology'? Let us note from the outset that several psychologists do not give the definition of parapsychology itself, but are wont to include it under one of the branches of Psychic or Psychical Research, due perhaps to their non-acceptance of parapsychology as a science in itself. Just to quote one example, the *Enciclopedia Italiana* mentions parapsychology only under the heading 'ricerca psichica', and then the author of the article goes on to explain the Rhine Theory.[1] Or rather because it is the fruit of older psychic research, and hence some would still prefer to call it by its older name – as Dr. Rhine himself would admit (p. 209).

Dr. Rhine's definition is the following: 'A division of psychology dealing with behavioural or personal effects that are demonstrably non-physical (that is, which do not fall within the scope of physical principles)' (p. 208). The object, therefore, of this science is – as he asserts – 'to illustrate the direct influence of human volition on a moving object without the use of any kind of physical energy to achieve the effect' (p. 6).

Other definitions vary substantially even in such as would admit to treat of parapsychology rather than of psychic research.

In *Chamber's Encyclopædia* parapsychology is defined as 'a term given to that branch of psychology which is concerned with such matters as telepathy, apparent clairvoyance and other non-normal modes of acquiring knowledge and like topics. It is used especially in connexion with experimental work on these subjects'.[2]

According to *Everyman's Encyclopaedia* 'Psychical research or para-

[1] *Enciclopedia Italiana* (Rome, 1949) appendix II, p. 626. Cfr. also *Everyman's Encyclopaedia* (London, 1958) vol. II, p. 284; *Encyclopaedia Brittanica* (U.S.A., 1947) vol. 18, p. 668; *Dizionario Enciclopedico Italiano* (Rome, 1938) vol. 9, p. 36).

[2] *Chamber's Encyclopaedia* (London, 1955) vol. 10, p. 425.

psychology is the scientific study of the facts and causes of mediumistic and other alleged supernormal phenomena beyond consciousness'.[3]

In connexion with *Chamber's Encyclopaedia*'s definition we should like to note:

(i) that parapsychology is normal and supposes normal subjects who yield extra chance results (Rhine: pp. 80-1). Good subjects, as Rhine says, are made not born (ibid. p. 133). Hence if by non-normal is meant a privilege of the few, the definition does not apply to our field (p. 83);

(ii) that favourable psychological conditions from the part of the subject and the experimenter should be procured – though these would in no way overturn the balance of one's normality and make one non-normally sensible (pp. 133-6).

The other definition in *Everyman's Encyclopaedia* still opens a wider chasm in that besides non-normality – seemingly the equivalent of 'supernormal', – it adds another point of difference by admitting 'mediumistic' phenomena. But this again runs counter to Dr. Rhine's experiments, from which he came to the conclusion that approximately all score the same average number of runs without showing any superior *psi* powers. This is what he says:

> 'Groups of blind children have yielded results that compared with those of seeing children of the same age, and a few at least of the practitioners of the occult, such as mediums, astrologers, palmists, yogis, and dowsers have been tried. While no group of any size has been found completely devoid of capacity to demonstrate ESP, at the same time no subdivision of the human species has been found to stand out in any really distinctive way as either possessing superior psi powers or superior control over them' (p. 83).

Further Definitions and Subdivisions

Parapsychology is divided into two main branches, namely 'extra-sensory perception', abbreviated into ESP; and psychokinesis, abbreviated into PK.

Extra-sensory perception is a parapsychical phenomenon whereby 'knowledge is acquired in a special way – by a mode of perception that is independent of the senses' (p. 7).

Psychokinesis is 'the direct influence exerted on a physical system by a subject without any known intermediate physical energy or instrumentation' (p. 209); or simpler still: 'the direct action of mind upon matter' (p. 13).

[3] Cfr. article *Psychical Research or Parapsychology*, vol. 10, p. 284.

ESP is again subdivided into telepathy, clairvoyance and precognition.

Telepathy is 'the extra-sensory perception of the mental activities of another person'. It does not include the clairvoyant perception of objective events (p. 210).

Clairvoyance is defined as the extra-sensory perception of objects or objective events, as distinguished from the mental states of another person (p. 9).

Precognition is simply the perception of a future event by means of ESP (p. 10); i.e. that could not be known through rational interference (p. 209). To qualify as a genuine instance of precognition, Dr. Rhine enumerates three important points. Such an experience: (i) must refer to a coming event that is more than merely accidental; (ii) it must identify a future happening that could not have been inferred as about to occur; and (iii) finally, it must refer to an event that could not have been brought about as a consequence of the perception (p. 10).

Experiments and Proof of the System

To prove his theory, Dr. Rhine submits his findings to very strict and scientific experiments and to mathematical calculations. Before proceeding to discuss such a scientific treatment, it is worthwhile investigating the experiments themselves. These are to be roughly classified into two groups, and they have been applied to all and sundry with, according to the author, very favourable results, such as to exclude chance.

The ESP Experiment Explained

A. For testing ESP he uses a set of five cards in a pack of twenty-five, normally with five of each of the five geometric designs: star, circle, square, cross and waves. The cards can either be arranged in an even distribution, and then called a *closed* pack, or arranged in a random order, regardless of whether the numbers of symbols are equal, being thus called an *open* pack.

To provide safeguards against sensory cues, he procured cards free from any identifying marks, which he kept out of sight of the person under test. For this reason experiments were tried with people not only behind an opaque screen, but also in different rooms from that of the experimenter to render the pack completely invisible to the subject. The cards were always kept by the experimenter until the run through the pack was finished. Then the calls or 'guesses' were recorded by the experimenter or even by both experimenter and subject. He suggests beginning with a 4-run test totalling 100 trials, safe enough for reasonable

testing, although he would demand a 20-run or 500-trial minimum to test an individual's psychical capacity (simply called *psi*), or to explore a new claim or hypothesis.

B. *Clairvoyance* was also submitted to the same type of test (pp. 146 ff), but for a few changes. In the test the subject tried to identify the cards as, one by one, the experimenter took the top card from the inverted and shuffled pack, and held it in a designated position against the opaque screen. Sometimes the subject had to match each of the cards lying in a row in front of him face up or face down. Precautions were also taken lest the subject should try to lay the cards in even piles, or to fall into a rhythm or pattern of distribution. Besides, machines were introduced to record only the total number of trials and the total number of successes, as soon as the alternative of precognitive telepathy cropped up as a defect in the case for clairvoyance.[4]

As a better controlled procedure, the 'blind matching test' (p. 149) is also suggested in which the five key cards, one of each symbol, are kept unseen by the subject and put in opaque envelopes; and the five envelopes, after being shuffled so that the order is not known, are laid out in a row on the table. The subject proceeds with the shuffled pack of cards held face down in the same way as in the open matching test. In this case he is matching the inverted card in the pack against the concealed card in the envelope, with no sensory contact with either of the two symbols he is trying to match against each other.

There is also another experiment called the 'screened touch-matching' technique which has yielded the most satisfactory results. From under the screen, which has the five cards fixed to its side facing the subject, the shuffled cards were passed face down through a slot to the subject, who, without turning them face up, matched them with their corresponding cards in front of him.

C. *Precognition* tests (p. 151) were also provided to prove the possibility of ESP's reach into the future. The subject was instructed to predict and record what he thought was the order of a given pack of cards, when it was next shuffled and cut. The shuffling and cutting was also tried by a third independent party, who was unaware of the experiment being carried out at that time.

D. This same test was applied to *psychokinesis* in the dice experiment, where a sort of ESP and PK combined was obtained. We shall first explain the PK experiment by itself, and then in conjunction with ESP.

The experiment called 'placement method' (pp. 153 ff) is mainly based

[4] Cfr. Rhine, op. cit., p. 54; Tyrrell G.N.M., 'The Tyrrell apparatus for testing extrasensory perception' in *Journal of Parapsychology*, 5 (1941) 267-92, reported by giving significant evidence of clairvoyance.

on precognition which influences the position of the throw of dice. The subject is told first to select a target face of a pair of dice of the inlaid variety, with no cavities where the spots are marked, which were thrown from a cup with a roughened interior, in a series of twenty-four die throws. Then the number of dice was increased to six or even ten, and so also the corresponding number of targets.

To avoid chance, Dr. Rhine suggests disregarding any lucky throw right at the beginning of the experiment, by saying in advance when the next release will be recorded. Besides, all dice rolling off the table or landing in a cocked position against the sidewall should be ignored and the throw repeated with all the dice. The top of the table, too, is to be blanketed to avoid the dice sliding on a polished surface.

Since the activation of the dice is highly advantageous (both from the side of the experimenter and of the subject)' a mechanical method of release was set up to ensure against subject and experimenter telepathy. In tests with faces as targets, rotating (motor-driven) transparent cages were used (see illustration p. 105) with an electrically operated release box. The subject in the meantime sat down with eyes fixed on the rotating transparent cage until the dice were released.

The experiment for ESP and PK combined in precognition is called 'randomizing procedure' (p. 151). It works out in the following way. A pair of dice is thrown twice and the faces recorded. The die is marked in advance as giving the left digit and the other the right digit of a number. Then, using the telephone directory, the first pair of numbers are made to indicate the page (Rhine suggests between 11 and 66) and the second pair the number of names to count off before beginning on that page. Then, with the beginning point indicated, the rule would be to choose the second column of numbers from the right. Also it should be agreed that numbers 1 and 6 will be circle, 2 and 7 cross, 3 and 8 waves, 4 and 9 square, 5 and 0 star. Then by going down the column and taking the first twenty-five numbers and converting them to symbols, the target would be obtained for the first run. Going on to the next twenty-five would give the target order for the second run and so on.

PSYCHOLOGICAL AIDS IN TESTING

Since we are in the field of psychology it stands quite clear to reason that the experimenter and subject, in so far as they are persons, exert in a way or another influence on conditions for the success or otherwise of the experiments. Still one should note that we exclude in these conditions all sorts of telepathy or similar agencies in thought communication, such as one is wont to encounter in seances and psychical situa-

tions. In similar cases the target perceived is always subjective, while in parapsychology it is objective. This difference is well pointed out by Rhine himself who distinguishes distinctly from their effects telepathy and clairvoyance, although he still seems unable to find any noteworthy, fundamental differences between the two processes, which have basic similarities.

'As the science of parapsychology has advanced, the basic similarity of the processes of telepathy and clairvoyance has become more and more apparent. It now seems doubtful whether they are two different processes after all. At any rate, it would be difficult to offer any specific fundamental difference between the two types of manifestation of ESP, except of course, in the targets perceived – the one subjective, the other objective' (p. 9; pp. 54-6).

It is only those natural psychological aids which each and everyone can exert that we are dealing with. These may roughly be considered under three aspects, namely: (A) subject-experimenter relationship, (B) fit psychological conditions for the subject, and (C) similar conditions for the experimenter, in so far as he is dealing with the subject in the course of experiments.

A. (i) The subject should be prepared: 'it is important that the subject not only understand what the test is for and what his part in it is to be, but he needs to be familiarized with the procedure in order that its novelty will not distract him' (p. 145). Hence the subject should be allowed to see the cards, make a few informal off-the-record trials lest the numbers or signs should distract him later or be recalled with any effort.

(ii) This helps also to familiarize the subject with the experimenter who should win confidence throughout the experiments, and to procure the most normal conditions possible while the subject is undergoing the test. Although to a certain extent the individual qualities of subject and experimenter are independent, yet there is always a mutual effect of the one upon the other. This hint helps to keep one on guard because a decline in scores has been noted by Rhine in similar cases, where a drop not only to chance average but even to a negative deviation was obtained.

'It is not known that the sign of the deviation may be affected by this personal relation. The subject may be highly motivated in the test even if he does not like the experimenter, but the chances are good that dislike will produce a drop in his scoring not merely to a chance average but even to a negative deviation (from the chance mean). But unless the experiment is one in which a negative deviation is anticipated and prepared for, such combinations are, of course, to be

avoided' (p. 136).

As a proof of this assertion Rhine quotes VAN BUSSCHEACH's (of Amsterdam) successful experiment with his pupils in the so-called 'social stratum'.

(iii) Experiments should be brief to avoid taxing the nerves of the subject and experimenter, which else make them lose all the lively interest with which they set out at the beginning. Hence brevity, variety and novelty are needed too.

> 'Generally speaking the shorter an experimental series can be made and still meet its requirements, the better for both experimenter and subject. The shorter a given contribution by a given subject can be made, the better, for in long-drawn-out sessions and experimental series some important element is used up or lost. The spontaneous interest with which the subject approaches the test may decline considerably . . . in the course of a single run . . . One way to help this is to make the procedure as brief, varied and novel as the design of the experiment will allow' (p. 135).

B. (i) The subject, as everyone might easily understand, is the one most interested in the test, and therefore also the one requiring most attention with regard to suitable psychological conditions. The simplicity of tests, which we have stressed earlier, has been found to play a very important part in the satisfactory carrying out of experiments. As a matter of fact, there are many states of mind which, in the subject, can upset psi-hitting, and which, when coupled to a variety of conditions, bring along disastrous results in ESP and PK experiments, notwithstanding the fact that such unfavourable conditions have been of the subject's free choice. It is up to the experimenter to consider these unstabilising influences in the design of his experiments, in the exploratory or pilot-testing stage; and in the selection of subjects who should as a rule be of the extraverted, self-confident, enthusiastic and non-sceptical type (pp. 97-8).[5]

[5] Cfr. also S. G. Soal & F. Bateman, *Modern Experiments in Telepathy* (London, 1953) p. 351: 'With increasing consistency it is coming to light that the above-chance deviations are to a large extent produced by the socially adjusted, extravert types of personality, and the below-chance scores by the introvert, maladjusted types.

Each person was made to guess through 16 packs of ESP cards, and it was noted that those lacking self-confidence began by scoring as well as those who were confident, but whereas the latter group continued to score at a consistent above-chance level, the success of the former was short-lived, and declined rapidly to a below-chance average.

Above-chance scoring was also found to be associated very significantly with emotional stability'.

(ii) The subject should be convinced that the capacity which is being tested, is not a quality of the selected few, but inherent to each and everyone. If therefore some show no evidence of psi-capacity at the beginning under the conditions of the test, they may later prove successful under different circumstances. So, too, the opposite effect was obtained when a good subject had been investigated long and continuously. 'This', Rhine says, 'is in reality a variation of the formula that good subjects are not born but made, for it shows that good subjects can be *unmade* too' (p. 133).

C. Most conspicuous, perhaps, among failures in psi-testing is the fact that some experimenters have found themselves unable to conduct successful psi-experiments; that is, when they have gone through the standard testing routines with their subjects they obtained only chance results. The main fault here, as in the case of deteriorating effect in psi-hitting, is very often due to the experimenters. In such instances either the subjects' psychological conditions were altogether neglected, or something has been apparently lost that was once a potent factor. To account for all this Rhine points out three main defects: (a) prolonged testing, which wears out completely the majority of subjects; (b) no contagious or communicable interest as would help create favourable test environment for subjects; (c) infectious enthusiasm that accompanies the initial discoveries of the research worker (p. 132).

Evaluation of a Total Score

After considering the system in itself, Rhine finally comes to assess the value of the results obtained. Since, as he willingly admits, chance plays its part in the game, its significance should figure anywhere in tabulating the results, if we are to have an accurate evaluation. The complete method based on the *binomial formula* works out in the following way.[6]

Mean chance expectation (MCE) = np (n = number of trials; p = probability of a hit in each one)

Deviation = *observed score* − MCE

Variance = npq, or np (1 − p)
{ general formula for binomial distribution
{ n + p, as before; q = 1 − p, or probability of scoring
{ a miss on any given call.

[6] Cfr. also S. G. Soal & F. Bateman, op. cit., pp. 370-8, where the same formulae are accepted wholesale and explained.

Standard deviation = square root of variance, or $\sqrt{npq}$

Critical ratio (CR) = $\frac{\text{observed deviation}}{\text{standard deviation}}$

From these mathematical considerations Rhine states that the *probability* (P) of scoring hits follows in a more or less fixed pattern by consulting specially prepared tables (pp. 191-7) for the conversion of CR values to P values.

For example: in an ESP series of 25 runs (625 trials) with a total of 160 hits, the P value associated with a CR of 3·5, is ·0005. This means that only about 5 times in 10,000 would a score in a 25-run series deviate from MCE by as much as the observed score through mere chance coincidence. In other words, the fact that the score does not fall between 90 and 160 is very unlikely – so unlikely that the chance hypothesis is not a reasonable explanation of the results. The score of 160 hits on 25 runs is therefore statistically significant (pp. 172-3).

The same formulae hold good for PK in target faces and displacement tests.

It is from this last probability theory that Rhine pins so much faith to parapsychology, and thinks to have set it on sound scientific footing. But not all psychologists would agree on the validity of the binomial formula in similar experiments, where no hard and fast rules can tell how much guessing or hitting has been actually done. It seems very difficult to conclude when a hit has been also guessed by chance or really scored by means of a psi-phenomenon. Some would therefore attack the Rhine hypothesis on the selfsame mathematical grounds which seem to establish parapsychology as a working hypothesis.

We shall now concentrate on this thorny problem and discuss the pros and cons of the theory. To be fair with Dr. Rhine we shall conduct our critical investigation of the system on the authority and by the help of other psychologists. One of these is in favour of the Rhine theory, Mr. S.G. Soal of London University, and another against it, Mr. R.J. Hirst, a lecturer in Logic in Glasgow University.

A Critical Appraisal

A. Mr. S.G. Soal, the first Fulbright Scholar to receive a travel grant in parapsychology in 1949 for research work in Duke University (Rhine, p. 203), in his book on *Modern Experiments in Telepathy* rejects a lot of inept criticism against Rhine. However, he starts by denying 'a priori':

(i) errors in recording the lists of guesses or card-symbols;

(ii) guessing through defective and recognisable cards;

(iii) and confirms the use of the binomial formula to assess results and the standard deviation.[7]

The first two points do not seem worth discussing, since it is hardly possible to give the theory of fraud in experiments a moment's thought, when Rhine worked out every possible and imaginable method to ensure the maximum possibility of correctness.

Yet the use of the formula has been the bone of contention ever since its introduction into the field of parapsychology, because some cannot admit that psychological results, more irregular than fixed, could be subjected to the stability of an unchangeable mathematical formula. But such criticism seems to crumble before the authority of able mathematicians who are in perfect agreement with the valid application of the formula, even given the irregular behaviour of the psyche; and hence criticism should be more sanely directed towards the experiments themselves. But these, again, do not betray any sign of defect, and therefore cannot be dismissed as insufficient or false.

> 'All doubts as to the essential validity of the mathematical method of evaluation employed were dispelled when Sir Ronald Fisher, the English authority on statistics, announced in 1935 that if the records reported were correctly observed, and published without selection, the departure from expectation could not be ascribed to chance. He went on to suggest that criticisms should be directed towards the conduct of the experiments rather than to the handling of the data'.[8]

In the last section of this book entitled *Science and ESP Research* (pp. 346ff), Mr. Soal proceeds to establish the theory of parapsychology as a working hypothesis, and refutes much inept criticism as due to prejudice. His arguments appear sound enough to win conviction from the sober reader because the flaws he notes in critics are true. They very often set out from preconceived assumptions which underlie so often much opposition of scientific men to the facts of extra-sensory perception.

[7] *Ibidem*, pp. 44-5; 49; 53; 37-8.

[8] *Ibidem*, p. 39. Cfr. also M. Brierley, *Trends in Psycho-analysis* (London, 1951) pp. 240-1: '... there can be no doubt of the sincerity of Rhine's conviction that experimental proof of the existence of Psi processes is now adequate, and their general acceptance a matter of time and overcoming of various emotional resistances. Indeed, the statistical methods employed have been examined by competent mathematicians, e.gr. the opinion of the American Institute of Mathematical Statistics, 1937: "If the Rhine investigation is to be fairly attacked, it must be on other than mathematical grounds". The account of the experiments given, though naturally condensed, seems to indicate that every possible error that was thought of was adequately controlled. In short, the evidence demands very serious consideration and cannot lightly be dismissed as "nonsense" or "incredible".'

1. Several scientific men presume to subject everything to the laws of physics, and only phenomena falling within their limits can possibly be true. But a moment's reflection would show the absurdity of this contention, since not everything worth knowing about the universe has already been discovered; so that now it is not merely a question of the filling in of the details. Hence 'it is true that very great progress has been made in the physical sciences, but we remain in the deepest ignorance concerning the probable relation between cerebral and mental phenomena'.

2. Mis-reports and mis-statements frequently play their part too in criticism. A case in point is that of Prof. Skinner, a psychologist now at Harvard University, and Prof. Evelyn Hutchinson, of whom the latter had written a long and careful account of the Shackleton experiments for the *American Scientist*. In a later issue of the same Journal, Skinner wrote a letter attacking card-guessing experiments in general, and the Shackleton experiments in particular. 'The letter contained so many mis-statements and errors of fact that it was clear both to Evelyn Hutchinson and to S.G.S. that Skinner had not read the Shackleton report at first hand. For instance, he spoke of packs of cards shuffled by hand whereas no such packs were used in our experiments. He also hinted that recording errors might afford a possible explanation of the results, whereas separate records were kept of card lists prepared before the experiment and of Shackleton's own guesses recorded by himself and these independent records could be re-checked at any future time'.

It is therefore likely that, since nowadays there is very little criticism of the experimental evidence that need be taken seriously, more often than not the would-be critic betrays the fact that he has not even taken the trouble to make himself conversant with the published reports which he presumes to criticise.

3. So far no critic has succeeded in proving that the best experiments are faulty. 'It will not do for him to find errors in, say, the early work of Rhine and then conclude that later experiments based upon an incomparably more rigorous technique are equally invalid. On the same ground we should have to reject most of the present-day physics because the pioneers often did not refine their methods at the first approach . . . Moreover, the later series of successful experiments in ESP provide confirmation of the findings of previous workers. We are no longer dealing with an occasional isolated success but now with a whole series of well-conducted and highly significant experiments carried out under stringent conditions'.[9]

[9] Mr. Soal refutes D.H. Rawcliffe, *The Psychology of the Occult* (London, 1952) who attempts to show that successful experiments in parapsychology are, without exception, based on methodological errors.

Mr. Soal then goes on to discuss whether ESP is a *statistical artifact*, after having established the validity of experiments on methodological grounds. Mr. Spencer-Brown, in an article entitled 'Statistical Significance in Psychical Research', published in *Nature*, 25th July 1953, suggests that the so-called random distributions to be found in certain well known tables of random numbers do not always behave in practice as we should expect them, according to accepted probability theory. He therefore accepts the validity of the formulae in card-guessing, but attacks the fundamental concept of randomness itself, on which the formulae are based.

The answer to this contention, namely that ESP phenomena are merely examples of hitherto unnoticed defect in accepted probability theory is based on three considerations:

(i) persistent scoring above chance expectation under first class experimental conditions;

(ii) in many series, changes in the experimental conditions or in the agents, produce consistent and highly characteristic changes in the nature of the results;

(iii) the dependence on character and psychological conditions remove the theory of statistical artifact, based on the binomial formula.

If, therefore, the theory of statistical artifact is to be universally admitted, it should work evenly in all experiments. But, as Soal wisely notes, 'statistical artifact is no respector of the experimental conditions, the difference can be due only to the fact that in one case the sender looked at the cards and in the other he did not'.[10]

This defence of the Rhine theory and experiments on ESP and PK – it should be underlined – was built up after 1948, because till that date experiments in England had been done, with but very scanty success.[11]

[10] Soal & Bateman, op. cit., p. 353.

[11] M. Brierley, op. cit., pp. 237-8: 'Much difference of opinion still exists among psychologists as to the validity and utility of the work (i.e. parapsychology), but the experimental study of telepathy has become a recognised scientific pursuit... The aim of the experiments is, in the first instance, to establish the fact of telepathy. Rhine uses special cards. Carrington uses drawings, and other test objects have occasionally been used, but the principle of most of the experiments is the same. Elaborate precautions having been taken to ensure that the subjects have no opportunity to receive information through sense channels, the experimenter chooses a series of test objects at random and the subjects or recipients guess what these are... The experiments and the methods of statistical analysis have been subjected to much criticism, but the experimenters are themselves convinced that they have established telepathy as a fact of nature. Dr. Soal, of London University, repeated Rhine's experiments for five years without success but, on re-examining his results, discovered that two of his subjects displayed pre-cognition, since they guessed the card next ahead in the trial series more often than they should have done by chance, an occurrence which aligns with some of Dunne's views on Time'.

The reason for all this bad luck is most probably ascribable to tact in conducting experiments, although Mr. Soal does not give us the reason for it himself. Yet it is most significant that after 1949, – i.e. after obtaining the Fulbright grant, – he was completely for the theory. And this fact, in our opinion, helps a great deal to exonerate Mr. Soal of any biased approval, since he may be considered as a sort of convert to the field of parapsychology.

This curious fact, namely the failure of experiments especially in PK, was also underlined by Mr. W.H. Salter who, reporting for 'The Society for Psychical Research' (London, 1948), mentions the success of Dr. Rhine in dice throwing as early as 1943, and the disappointingly negative results of carefully imitated experiments in England.

> 'In the *Journal for Parapsychology*, published at Duke University, U.S.A., Dr. Rhine in 1943 reported on experiments conducted by him in dice throwing, in which he claimed that he had been able to make dice fall as he wished them, by sheer willing, without muscular effort directed to that end. To this faculty he gave the same *psychokinesis* usually abbreviated to PK. Very careful experiments in this country (England), made on the same lines, have so far mostly failed to produce positive results'.[12]

It is therefore no wonder that Mr. Soal was so sceptical before as to admit *unconscious whispering* in card guessing, and to scorn the *ludicrously* small number of successful experiments and good subjects. This is what he wrote in 1947 in his book *The Experimental Situation in Psychical Research* (London, 1947), substantiated by facts, not excluding his own experiences:

(a) 'Is there any possible abnormal explanation that we have overlooked? Well, there is the remote possibility that as the Agent looked at each card he whispered the name of the card to himself without being consciously aware that he was doing it. It is well known that certain persons when they read a book to themselves, their lips are moving most of the time. This is specially true of people who are only semi-literate. Now though these sounds emitted by the Agent might be far too faint for Mr. P. to be consciously aware of them in the next room, they might yet be of sufficient intensity to set a train of thought moving in his hand. That is to say some part of his mind might register them and thus Mr. P. might get a clue to the initial sound of the name of the animal.

That the above possibility is more than a mere hypothetical conjecture is confirmed by the case of the Latvian child Ilg K, studied

[12] W.H. Salter, *The Society for Psychical Research* (London, 1948) p. 46.

by Prof. V. Neureiter, Dr. Hans Bender and others' (p. 12).

(b) 'The number of experiments carried out and the number of subjects discovered are both so ludicrously small that there is hardly a finding reported that has been adequately confirmed. Take for example the phenomenon of displacement in card-guessing. By this is meant the discovery that certain subjects tend to guess correctly one or two places ahead of or behind the card which the Agent is looking at. I found 2 persons who displayed this peculiarity in their guessing. But is this a rare phenomenon or is it fairly common among persons who possess card-guessing gift? Again Dr. Rhine and several of his followers found the majority of card-guessing subjects succeeded even when no Agent looked at the cards and the order of the cards in the pack was unknown to anyone until the time of checking up. But both Basil Shackleton and Mrs. Gloria Stewart failed entirely in the case when no one looked at the cards. Would it always be found that card-guessers whose performance shows displacement of guesses succeed only when an Agent knows the order of the cards? We do not know' (pp. 14-5).

B. Mr. J.B. HIRST, who wants to prove his thesis that the mind cannot work independently of the body, considers Dr. Rhine as one of his chief adversaries, since he defends dualism by advancing the findings of parapsychology. These in point of fact amount to a direct denial of Hirst's basic assumption in the claim that in psi-phenomena there are examples of activity which the mind pursues independently of and without the body being involved. Mr. Hirst makes his criticism converge on ESP and dismiss PK on the ground that it is 'rather more dubious as experimenters are apparently not all agreed that it really occurs – the figures obtained' – he explains – 'may not be significant, or the effects may be due to the experimenter's choosing the target under unconscious guidance of ESP, or to slight unconscious physical reactions by agent or experimenter'.[13]

This theory on PK does not sound new to Dr. Rhine who considers precognition through ESP as a counterhypothesis to PK. But let us note here that, first of all we should recall what has already been stated regarding mechanized experiments, in which it is very hard to tell that ESP was to account for a selected face of the dice to fall. Secondly, if the target face was agreed upon in advance of the experiment by the throwing of a dice, there seems to be in play a certain vicious circle: because precognition itself would be through the PK influence on the

[13] R.J. Hirst, *The Problems of Perception* (London, 1959) pp. 204-5. Until further notice all numbers in brackets from pp. 203-7 refer to pages in this book.

die. Hence, PK in the first place accounts for PK in the second.

Let us now hear Dr. Rhine's answer to this objection of Mr. Hirst:

'At any rate, it is possible to rule out precognition as a counterhypothesis to PK. To do so it is necessary only to agree upon a rigid order of target face and to adhere to it throughout the series of tests. Better still, as sometimes happened, the subject was allowed to determine his own target for a given unit by throwing a die. Then, if precognition entered into it, it would have to be through the PK influence on this die. At least one investigation has been made with the use of an elaborate design (Latin Square Method) of selecting the target sequence by which is excluded the step choice of target on which the counterhypothesis depends. But the best answer to the precognition counterhypothesis is given by the QD (Quarter Distribution) analyses already described. It adds something too that these were made on the data long after the tests were finished. These give the best evidence of PK, and show that the hits were not a 'selected chance distribution' as the precognition counterhypothesis assumes' (pp. 62-3).

To confirm his argument, Dr. Rhine cites other results obtained by different people engaged in the same research, who are in agreement with the independence of PK from ESP:

'In general it can be said that a good case has been made for the occurrence of PK as an aspect of psi. It is the newest of the distinguishable psi-phenomena and as a result much of the research has been concentrated in the Duke Laboratory, just as it has with precognition. Among the important independent confirmations that have, however, been carried out in other centres of research is that by McConnell, Snowden, and Powell of the University of Pittsburgh, in which a completely mechanized operation was involved, including the photographic recording of the fall of the dice' (p. 63).

Hirst's Arguments Examined

I. The first argument brought by Mr. Hirst against ESP is based on the notion of the *unconscious* which Rhine attributes to this psi-capacity. He is, therefore, inclined to ascribe all guesses to luck rather than to any other psychological function. Hence such extrasensory knowledge should not go by the name of *perception*, since it is more akin to an activity of the unconscious.

'If the phenomena are mental in this important way we would expect them to be conscious, but they are not. In laboratory ESP subjects have no mental image or picture or consciousness of the unseen card they guess, and they do not know or even feel confident when they

have guessed correctly. Hence it is very tendentious to call ESP *perception*, and if it establishes anything about the mind it is about the unconscious mind, which anyhow is a problem for dualism' (p. 204, Hirst).

(a) But according to Dr. Rhine, perception is not taken in the Aristotelian sense, for he takes *percipient* as the equivalent of *subject* which is in turn defined as 'the person who makes the calls in an ESP turn' (Rhine: p. 209). Hence perception is rather synonymous with the act of guessing in an extrasensory test, and, imperfect and misleading though it may be, cannot be replaced or expressed by a better word.

(b) Dr. Rhine seems to be misinterpreted by Hirst's suggestion of the unconscious. Dr. Rhine admits the unexplored regions of the unconscious *negatively*, in that he falls back to unconsciousness to explain with probability conspicuous psi-missing as an effect of abnormal mental life.

'And of course, above all, the two branches are concerned with the more submerged area of personality, the unconscious level of mental life. When more pieces of the puzzle of man's nature have been fitted together and the pattern of unconscious mental functioning becomes clearer, there will likely be other common ground discovered; we suggest that the psi-missing effect that is so conspicuous a part of parapsychological study may be found to have its comparable effect in abnormal mental life' (Rhine: p. 107).

(c) It in no way follows that all mental phenomena are strictly conscious in themselves as in sensory perception: the basic process in itself may be unconscious, and in ESP 'the individual in his conscious recognition of the phenomena gets only a converted *aftereffect* or secondary result (Rhine: p. 87). This aftereffect is brought to consciousness through ESP's operation in four ways:

(i) by intuitive experiences;
(ii) by experiencing a veridical or meaningful dream or hallucination;
(iii) in a symbolic way, such as in a dream or day dream;
(iv) by experiencing a pictorial realization of a meaningful event in such a dream or day dream (ibid.).

It is, therefore, for this reason too that Dr. Rhine admits that subjects 'do not feel confident when they have guessed correctly' (Rhine, p. 88).

II. The second argument of Hirst tries to bring into contradiction the Rhine theory of mind working independently of the body by pointing out that in ESP and PK the mind acts on physical objects like cards and dice. Hence his objection:

'But if psi-phenomena are instances of the mind acting independent of

the body and showing its immaterial nature by escaping physical boundaries, why are they predominantly instances of the mind's perceiving or acting on physical objects like cards or dice?' (Hirst: p. 205).

We think that the term *immaterial* is equivocal. Rhine does not say that the independence of ESP or PK from matter is such as to dispense with physical objects altogether. It is in the nature of the process itself whereby physical objects are influenced that the notion of immateriality is applied. In other words, since Rhine himself uses the notion of causality, such physical effects, we may be permitted to say, are produced by a final cause without the help of any physical external instruments. Such a process is clearly explained in the complex case of ESP influencing PK, in which Rhine expressly asserts that 'it is necessary to suppose that some other perception than that of the senses must direct this influence exerted upon them'.[14]

III. The third argument proves the fantastical inefficiency of ESP when compared with normal perception of the senses. In America, Mr. Hirst writes, 70% of the guesses were wrong if you consider the sum total of chance and ESP hits on the other side; while in England you get 77% failures. From this evaluation of poor results he goes on to conclude that 'the phenomena are admittedly elusive in that the capacity of good subjects declines so that they get runs of chance or worse than chance results. Even if this is not luck evening out, it is, especially with the inefficiency, a very poor advertisement for mind, and suggests that the beneficial effects of the phenomena are chimerical' (Hirst: p. 205).

(a) The low margin of hits should not be compared with the sensorimotor system in human beings, in which both object and sentient always meet, and the subject is always sure, for example, that a few feet away there is a tree; nor should it be compared with the activity of the brain which draws conclusions from materially acquired premisses e.g. that if you

[14] Rhine, op. cit., pp. 70-1: 'The complexity of the target from a physical point of view is even greater when we consider that ESP is necessary in PK experiments too. If the falling dice are to be influenced so that the target face or combination is to be favoured in the results, it is necessary to suppose that some other perception than that of the senses must direct this influence exerted upon them. In most experiments the dice fall too rapidly for visual perception to follow. In other experiments the subject does not actually see the dice at the time of release. Sometimes the dice are thrown in considerable numbers at one time so that the eye cannot follow the complete movements with sufficient clarity to allow the intelligent direction of a casual influence through PK. Accordingly, we must suppose an extrasensory aspect to the PK operation – one that operates too fast for sensorimotor reaction time. ESP itself could only function in such a case by operating on something else than a physical type of causality'.

strike your finger with a hammer you will feel pain as a result of the impact. The case is not analogous. In ESP and PK we are exploring a completely new realm of activity for the mind, aware of or influencing an external event not apprehended by sensory means.

(b) Again, the low percentage of hits seems in a way to undermine the theory of Rhine in that, if taken in itself, it offers very poor consolation for the pains taken in establishing a theory. But what Rhine wants to prove is that there is a certain relationship between scores and the mind guessing them if, as a safeguard, scoring by chance is deducted, as in the binomial formula. The legitimate conclusion is that one can with a certain degree of almost surety predict the probability value of scores for any given individual.

IV. In the fourth objection raised, namely that even allegedly trans-physical capacities are greatly influenced by physical factors, e.g. drugs and narcotics by which results fall of badly (Hirst: pp. 205-6), Rhine's point is missed altogether. The immaterial aspect of the process in parapsychology has already been exposed in refuting the second contention of Hirst, and need not be repeated here. These physical factors together with favourable psychological conditions are not and cannot be ignored by Rhine, seeing that the psyche depends always on the suitable physical conditions of the subject. The mind always depends on the brain, as the vision depends on the sanity of the eye. If therefore, the argument of Hirst were to be applied correctly to the immaterial process, it would be tantamount to an absurdity: namely that you can have a mind without a brain.

The last two contentions of Hirst, however, seem to be quite reasonable since they attack the Rhine theory in its weak points.

V. One cannot tell with certainty 'how common good ESP subjects are or how many score chance or less than chance results... there is the suggestion that below-chance results are due to *seeing* the right answer but avoiding it and giving a wrong one. This allegation of unconscious deception is not very plausible, and one is left wondering whether runs of luck, good and bad, are not much more common than is allowed for on the current theories of probability on which Rhine relies' (Hirst: p. 206).

To this observation we need add nothing further, and we are of the same opinion as Hirst in this respect.

VI. Finally, Rhine's theory and hypothesis is inadequate in that it still leaves us in the dark as to how these allegedly mental capacities work. There is even disagreement among the investigators as to which of the phenomena are the best established: e.g. British investigators seem to find more precognition than Rhine, and much less clairvoyance and psy-

chokinesis; and they also differ as to whether the phenomena can all be explained in terms of one psi-capacity, and as to which this is.[15]

We have to admit that in Rhine's work we can find no adequate answer to these serious objections. Nay, he himself confesses especially this last difficulty; and this without doubt marks one of the weakest points of his theory. He takes for granted, for instance, that there is some mental energy but leaves 'for a later stage of research an account of its peculiar qualities', because 'most of the energies now recognised were at one stage as mysterious as this one'. The proof of this mental energy so far has only reached an experimental stage, and cannot be defined in square set terms, although we have some effects of a completely immaterial nature.[16] But – we might be permitted to argue – an immaterial effect can have for its cause something material, as in the case of intellectual perception wherein the mind depends upon the brain to develop a thought or idea!

C. More independent criticism from MARJORIE BRIERLEY in *Trends in Psycho-analysis* is more lenient and kind with Dr. Rhine. Yet there is always the difficulty of accepting the hypothesis as working. The just and impartial critic, like Brierley, finds himself on the horns of a dilemma: Rhine on the one hand cannot be accused of insincerity or fraud, and the data furnished by him is worthy of serious consideration; on the other hand there are many points of interrogation especially in the psychological aspect of the theory, which has been unfortunately subjected to the hard and fast rules of impeccable mathematics. Hence she suggests a new cause for the theory, namely *fate neuroses* as a possible explanation of PK.

> 'In the view of the force of unconscious belief in the 'omnipotence of thought' and the amazing subtlety of many of its disguises, a psychoanalyst may still be justified in hesitating to yield too readily to the

[15] Hirst, op.cit., pp. 206-7. The immaterial nature of the process, however, to our judgement, should be sustained in the way explained further up. Hence there is no begging of the question, as Hirst points out; but he is simply missing the point of Rhine and disappointingly misunderstanding him.

[16] Rhine, op.cit., p. 74: 'To make sense with the present situation, this mental energy would have to be one that does not stimulate the sense organs. There are already known energies in the same category. Second, such an imperceptible energy would have to be convertible to other energy states which would be perceptible to the senses. There are many known energies that are only recognisable through such translation or conversion. These are facts of familiar elementary physics. The only unique feature of this physical energy lies in the fact that it functions without any restrictive relation, yet known, to space-time-mass criteria. But that is only to say again that such energy is not physical, since the space-time-mass criteria are the defining concepts of the field'.

increased pressure of experimental evidence. Further, it is well known, e.gr. among biologists, that impeccable mathematics can, on occasion, make nonsense of natural phenomena; it is also possible that the highly artificial conditions of experiment introduce sources of error not yet apparent. However, there is no fundamental contradiction between the findings of psycho-analysis and telepathy, nor are phenomena such as 'fate neuroses' inconsistent even with the assumption of PK' (Brierley: p. 241).

But the notion 'fate neuroses', vague as it is in meaning, makes the theory pass on from the frying pan to the fire without shedding any new, special light on what Rhine could not explain. There still remains the question how this 'fate neuroses' works in determining what is neutral without foreboding either good or evil, as in the Rhine experiments.

Is the Rhine Theory a Working Hypothesis?

From the foregoing critical treatment it is evident that for the time being one cannot accept the theory of Rhine as a working hypothesis. There are serious objections which cannot be ignored, but on the contrary demand a deeper investigation of the findings to date until one can prudently accept or rule out the theory entirely. The novelty of the theory, however, asks for more sober judgements concerning its validity, and for more patience and experimental experience.

If the theory were to be sufficiently proved, it would add a considerable contribution in its practical application to science by explaining some natural events hitherto classed as above nature owing to their mysterious character. But here, too, there is much that will not be acceptable to the catholic scholar if the theory is stretched too far and posited as a substitute for religious conceptions regarding the supernatural origin of miracles, the survival of the soul after death and the like.[17] These last elements constitute the object of another science and

[17] Rhine is rather sceptical about Religion; he thinks that his hypothesis should in time replace religion: cfr. pp. 118-22 the subtitles *Parapsychology & Religion*, *The hypothesis of Spirit Survival*.

The *Chamber's Encyclopaedia*, op.cit., vol. 11, pp. 287-9, in an article to this effect accepts the validity of the Rhine theory, and likewise is also dismally materialistic (as opposed to spiritualistic in the catholic sense). He starts by including such a notion in the very definition of psychical research which 'is that branch of inquiry which is concerned with applying scientific methods to the study of phenomena once classed as 'supernatural'. It was recognised at an early stage that no observable event can possibly be 'above' nature or even outside it, and the term 'supernormal' was soon introduced as a preferable alternative' (p. 287). He then proceeds to enumerate the contribution

would be utterly out of reach and beside the scope of a natural science like parapsychology.

To wind up we should like to summarize our opinion on this theory in a few items:

1. Rhine's methods of procedure in experiments seem to be really consonant with the rigour of scientific research.

2. Rhine's sincerity and integrity should also be presumed in furnishing data and reporting his findings.

3. The use of the binomial formula – though it considers also chance results – leaves us in the dark as to the exact and precise number of hits or misses through chance or psi-capacity. The formula in itself may be true as far as mathematics go and able statisticians assert; – but still the doubt so many cherish is not dispelled.

4. One is left wondering whether the irregular behaviour of the human psyche obeys always in meek submission to the rigidity of an immovable mathematical formula to assess its hits through chance and psi, when it is already hard enough to say which of them was in play. Hence statistical formulae are insufficient proof of the hypothesis.

5. There are many unexplained loopholes in the theory; and strange enough to say, Dr. Rhine himself is the first to point them out to the reader. No organic faculty or mental capacity, for example, could be assigned to account for psi-effects which are apparently of an immaterial nature. Nor can any rules be drawn out to explain and regulate the behaviour of these psi-phenomena.

6. Rhine is rather too comprehensive in his approach to parapsychology. He assumes that all can be its subjects and that all can also be good subjects if they are favourable and not sceptical in their attitude

to science emanating from this research from pp. 288-9. After accepting the scientific approbation of Parapsychology as a science, asserting that 'it is far from being a pastime for dilettanti and has become important on, so to put it, three different levels', he gives the practical applications, which are the same as embraced by Rhine. These are briefly the following:

(i) It dismissed *superstition* (e.g. seeing ghosts, etc.) as 'primarily telepathic hallucinations of explicable character and great scientific interest'.

(ii) It has *practical applications* when recognised and assimilated, especially regarding telepathy: 'the bare fact that it does occur and is apparently by no means the prerogative of the privileged few, is bound to be highly relevant to the often-mooted concepts of collective minds and the like and hence psychology of human communities and social groups'.

(iii) It is a denial of *Nineteenth Century materialism*: 'Many psychical phenomena clearly go beyond any explanation that can be offered in terms of the traditional concepts of space and time, matter and energy – this is, indeed, virtually the definition of 'psychical' for this purpose'.

towards the possibility of ESP.[18] This assertion may hold true, but first one has to prove and localize more neatly the capacity from which effects, averaging more or less an equal and similar function in connection with psi experiments, flow.

Given all these serious and unsolved doubts concerning the Rhine Theory we cannot but suspend judgement and wait for further elucidations on the hypothesis. At any rate, we can and should acknowledge the merit of Rhine in giving a spur to the study of these new phenomena of the human psyche, and let us hope that sufficient grounds will be adduced to prove parapsychology's validity as a working hypothesis.[19] But

[18] Rhine, pp. 92-3: 'For example, the studies of Schmeidler at City College, New York, brought out the fact that if students tested in the classroom for ESP capacity were first separated on the basis of their attitude toward the possibility of ESP, the results showed a different level of scoring for those who were favourable (sheep) and for those who were sceptical (goats). The sheep as a group almost invariably averaged higher than the goats. The goats, however, scored below mean chance expectation and did so with a degree of consistency that was impressive. The difference between the sheep and the goats has over the years of testing contributed a phenomenally significant difference between the amassed data of the two groups.

Now it was quite evident that in this work the principle of separation was concerned more with the sign (or direction) of the deviation of the scoring of a given subject than with the amount of ESP measured. The attitude of the subjects allowed a separation of the individuals in the classes on the one hand into one group that tended to score positively and a second group on the other hand that preponderantly scored a negative deviation. The fact is, the goats showed statistical evidence of an ESP effect just as the sheep did'.

[19] M. Fordham, *New Developments in Analytical Research* (London, 1957) pp. 41-2: 'Rhine's experiments have been successful in drawing attention to the peculiar phenomena under consideration and are particularly interesting here because he has used statistics. They have given rise to much uncritical credulity together with increased scepticism as if to balance it. Rhine started from the idea that the phenomena he observed were due to chance (i.e. he started from a Null Hypothesis), and then believed he had shown that they could not thus be explained.

He believed that he had shown that certain individuals can predict the random behaviour of cards or dice with a frequency greater than would be expected if the predictions were based upon chance. Rhine further discovered that the number of correct predictions rose if the subject was credulous, and diminished if he was sceptical about the whole proceeding. This means that there is some connection between the psyche of the subject predicting and the turn of the cards or the fall of the dice. The psyche must be important in his experiments since the objects behaved according to chance — Rhine and his co-workers took much care to ensure this — but the prediction by the subject appeared not to do so. Further, he showed that the conscious attitude of the subject was significant and that the experiments were not influenced by changes in space and time. Rhine does not seem to see that this upsets a casual hypothesis and he thinks in terms of perception and energy (Cfr. Rhine, *The Reach of the Mind*, London, 1948).

as things stand at present, the theory is still unacceptable as a real branch of psychology (still less as a science in itself). For these reasons several authors of psychology skip over the theory without even daring to give it a passing remark in their works.[29]

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Rhine's experiments in fact open a door for those who want to think that his observations reveal the existence of something more than chance, and they conclude that since chance is most improbable there must be a cause. Jung, however, points out that Rhine's results transcend space and time, therefore, they cannot be energic phenomena, and further that causes do not work if space and time are fixed. Therefore the Rhine results are exceedingly peculiar, i.e. they are predictable but no cause can be conceived; they are meaningful phenomena, or in a word fall into a class of events which Jung calls synchronistic'.

[20] Ed. Nowlan, S.J., *Psychologia Experimentalis* (Romae, 1960) p. 18. We are of the same opinion of his in this respect, where in these private notes for his students at the Gregorian University he writes: 'Adhibent methodos scientificas et formulas statisticas bene cognitas ad existentiam harum potestatum stabiliendam. Nihilominus maior pars psychologistarum conclusiones eorum reiiciunt propter, uti dicunt, insufficientem probationem statisticam. Forsitan nonnullum praejudicium contra phaenomena quae non directe mensurari possunt in hac oppositione parapsychologiae operatur. Sed verum est parapsychologiam tractare de potestate quae, si detur, non inveniatur in omni persona neque semper manifestetur in subiecto qui hac potentia gaudeat. Si dantur leges stabiles de operatione huius facultatis, tales leges non cognoscimus. Proinde parapsychologia generatim non habetur ut vera schola psychologiae scientificae, (immo auctores in genere ne mentionem quidem parapsychologiae in suis textibus faciunt!).'