EXPLORATORY TEST ON THE PROSCOPIC THEORY KNOWN AS THE "ADVANCED WAVE HYPOTHESIS"

DICK J. BIERMAN++

1. INTRODUCTION

PHYSICAL THEORIES TYPICALLY HAVE SUFFICIENT SYMMETRY
(BETWEEN PAST AND FUTURE) TO SUGGEST THAT PHENOMENA AKIN
TO PRECOGNITION SHOULD OCCUR IN A MANNER QUALITATIVELY,
ALTHOUGH NOT NECESSARY QUANTITATIVELY, SIMILAR TO THE OC-
CURENCE OF RETROCOGNITION.
FOR INSTANCE THE EQUATIONS DESCRIBING THE BEHAVIOUR OF
ELECTROMAGNETIC WAVES DO HAVE A GENERAL SOLUTION WHICH
ALLOWS FOR WAVES TRAVELLING BACKWARDS IN TIME.
FEINBERG[1] SUGGESTS THAT THE POORLY UNDERSTOOD PROCESS
OF SHORT TERM MEMORY IS TIME SYMMETRIC IN A WAY EQUIVALENT
TO E. M. WAVES.
PRECOGNITION MIGHT THEN BE CONSIDERED AS BASICALLY A REMEM-
BRANCE OF THINGS FUTURE.
THIS ASSUMPTION YIELDS AT LEAST TWO HYPOTHESIS WHICH MIGHT
BE FALSFIED BY A QUANTITATIVE EXPERIMENT:
1. A SUBJECT ISN'T ABLE TO PREDICT EVENTS HE WILL NEVER
   BECOME AWARE OFF.
2. THE LONGER THE TIME BETWEEN PREDICTION AND OBSERVATION
   OF THE EVENT THE LESS ACCURATE THE PREDICTION WILL BE.

THE PRESENT EXPLORATORY SERIES DO TEST THESE HYPOTHESIS
BY INTRODUCING TWO CONDITIONS IN A PLAIN NUMBER PRECOG-
NITION EXPERIMENT.
IN THE FIRST CONDITION THE NUMBERS WHICH WERE TO PREDICT WERE
FED BACK VISUALLY TO THE SUBJECT. IN THE SECOND CONDITION
HOWEVER THESE NUMBERS WERE NEVER REVEALED TO THE SUBJECT.

2. METHOD

THE EVENTS TO BE PREDICTED ARE A SERIES OF RANDOM NUMBERS.
THE SUBJECT GIVES HIS PREDICTION BY PUSHING THE CORRESPON-
DING NUMERICAL KEY ON THE KEYBOARD OF A COMPUTER TERMINAL.
IMMEDIATELY A SOFTWARE RANDOM NUMBER GENERATOR IS ACTIVATED
AND A RANDOM NUMBER IS PRODUCED IN THE RANGE (1,5) WITHIN
10 MILLISECONDS.
EACH RUN CONSISTS OF 50 TRIALS.
THE FIRST AND ALL OTHER ODD TRIALS ARE FOLLOWED BY FEEDBACK
OF THE GENERATED NUMBER.
THE SECOND AND ALL OTHER EVEN TRIALS ARE NOT FOLLOWED BY
FEEDBACK HOWEVER. IN FACT NO ONE WILL EVER KNOW WHAT THE GENE-
RATED NUMBER WAS.
AFTER THE RUN HAS ENDED THE EXPERIMENTER LISTS THE DATAFILE
ON THE SCREEN AND THE SUBJECT AND EXPERIMENTER CAN ONLY THEN
OBSERVE THE TOTAL SCORE ON THE "BLIND"(EVEN) TRIALS.

3. SUBJECTS

6 SUBJECTS PARTICIPATED IN THE PRESENT EXPERIMENT.
3 OF THEM WERE PARANORMAL HEALERS, 2 WERE VISITOR'S TO THE
LABORATORY. THEY ALL DID A SINGLE RUN.
ANOTHER 37 RUNS WERE DONE BY THE EXPERIMENTER HIMSELF
ACTING AS A SUBJECT. THESE RUNS WERE DONE AT THE END OF
A DAYLY ROUTINE CONSISTING OF A SERIES OF PK EXPERIMENTS.
WHICH WILL BE REPORTED ELSEWHERE.
IT SHOULD BE MENTIONED THAT THE EXPERIMENTER DID NOT BE-
LIEVE IN THE SUGGESTED "ADVANCED WAVES".

4. RESULTS

THE SERIES WERE STOPPED DUE TO EXTERNAL CIRCUMSTANCES.
THE REASON WAS THAT THE ABOVE MENTIONED PK EXPERIMENT
RESULTED IN A TOO LARGE AMOUNT OF DATA .
IT WAS DECIDED TO REWRITE THE COMPUTERPROGRAMS WHICH CON-
TROLLED THESE EXPERIMENTS IN SUCH A WAY THAT THE DATA
COULD BE STORED MORE EFFICIENTLY.
THEREFORE ALL OLD DATA INCLUDING THOSE OF THE PRECOGNITION
EXPERIMENT WERE ANALYSED AND SUBSEQUENTLY REMOVED.
IN TOTAL 42 RUNS OF 50(2*25)TRIALS WERE DONE IN THE PERIOD
OF MAY '76 UNTIL DEC '77.
TOTAL NO. OF HITS ON THE "VISIBLE" TRIALS WAS 204.
THE EXPECTED NO. OF HITS WAS 42*25/5=210 HITS PER CONDITION.
THE DEVIATION OF -6 IS NOT SIGNIFICANT. (CR=-.46)
THE TOTAL NO. OF HITS ON THE "BLIND" TRIALS WAS 235 AGAINST
THE SAME EXPECTATION VALUE OF 210. (DEVIATION=+25; CR=1.93)
ALTHOUGH THESE LATTER TRIALS CONSIDERED ON ITSELF ARE MARGINALLY
SIGNIFICANT(P<.05; ONETAILED), THE DIFFERENCE BETWEEN BOTH CON-
DITIONS IS NOT(CRD=1.69)

5. DISCUSSION

THE PRESENT DATA MIGHT NOT BE CONSIDERED AS CONCLUSIVE
WITH REGARD TO THE SUGGESTED THEORY OF "ADVANCED" WAVES.
HOWEVER THEY DO CERTAINLY NOT SUPPORT THIS THEORY.

IN ANOTHER THEORY(WALKER(2)) THE OBSERVATION OF AN EVENT IS
CONSIDERED AS THE ULTIMATE DECISIVE POINT IN A PARPSYCHOLO-
GICAL EXPERIMENT.
THEN THERE IS NO ESSENTIAL DIFFERENCE BETWEEN THE "VISIBLE"
SERIES AND THE "BLIND" PART OF THE EXPERIMENT:
THE VISIBLE PART CONSISTS OF 42*25 OBSERVATIONS ON THE OUT-
COME OF A RANDOM PROCESS, EACH OUTCOME HAVING A PROBABILITY
OF 20%. WHILE THE BLIND PART CONSISTS OF 42 OBSERVATIONS ON
THE OUTCOME OF A RANDOM PROCESS (NAMELY THE OBSERVATION OF
THE SUMSCORE); EACH OUTCOME HAVING DIFFERENT PROBABILITIES.
IN THIS MODEL THERE IS NO NEED TO DISCRIMINATE BETWEEN PK,
CLAIRVOYANCE, TELEPATHY AND PRECOGNITION.
IT IS ALSO RATHER OBVIOUS THAT THE EXPERIMENTER CAN OFTEN
HAVE TREMENDOUS INFLUENCE ON THE RESULT BEING THE "MAIN
OBSERVER" OF IT.

WALKER SHOWED THAT THIS DESCRIPTION OF PARANORMAL PHENOMENA
IS NOT IN CONFLICT WITH QUANTUM THEORY. ON THE CONTRARY
MIGHT BE INTERPRETED AS AN ELEGANT WAY OUT OF THE LONG CON-
TROVERSY ABOUT THE MEASUREMENT PROBLEM IN QUANTUM MECHANICS.

DIFFERENT QUANTITATIVE RESULTS BETWEEN THE "VISIBLE" AND
"BLIND" PART OF THE EXPERIMENT ARE ACCOUNTED FOR IN WALKER'S
THEORY AS BOTH PROCESSES UNDER OBSERVATION (VISIBLE TRIALS
AND BLIND SUMSCORE)DO HAVE DIFFERENT STATISTICAL PROPERTIES.
(3).
THIS PHENOMENON CAN BE COMPARED WITH RUNSCORING BEING MORE
SIGNIFICANT THAN TRIALSCORING IN DIFFERENT PK EXPERIMENTS.
(4,5)

6. ABSTRACT

A THEORY HAS BEEN TESTED WHICH "EXPLAINS" PRECOGNITION
AS AN 'ADVANCED SOLUTION' OF THE (YET UNKNOWN)EQUATIONS
DESCRIBING SHORT TERM MEMORY.
IN THIS EXPERIMENT 2100 NUMBERS WERE PREDICTED.
IN 50% OF THE TRIALS FEEDBACK WAS GIVEN TO THE SUBJECT.
THE TOTAL RESULT ON THESE TRIALS WAS NOT SIGNIFICANT.
AFTER THE OTHER 50% OF THE TRIALS NO FEEDBACK WAS GIVEN.
THE CHECKING WAS DONE BY A COMPUTER AND ONLY THE TOTAL
SCORE WAS SHOWN TO THE SUBJECT AFTER THE RUN OF 50 TRIALS
HAD ENDED.
THE TOTAL RESULT ON THESE TRIALS WAS MARGINALLY SIGNIFICANT
(CR=1.93, P<.05 ONE TAILED).
THESE RESULTS ARE IN CONTRADICTION WITH THE SUGGESTED
'ADVANCED WAVE'HYPOTHESIS. IT MIGHT HOWEVER BE UNDERSTOOD
IN TERMS OF WALKER'S 'OBSERVATIONAL' THEORY OF PARANORMAL
PHENOMENA.

REFERENCES
----

1. FEINBERG, G.   PRECOGNITION: A MEMORY OF THINGS FUTURE.
                  PROC. INT. CONF. ON QUANTUMPHYSICS AND PARAPSYCHOLOGY, 1974,
                  P. 54, PUBL:PARAPS. FOUND. INC., NEW YORK.

2. WALKER, E. H. FOUNDATIONS OF PARAPHYSICAL AND PARAPSYCHOLOGICAL PHENOME
                  PROC. INT. CONF. ON QUANTUMPHYSICS AND PARAPSYCHOLOGY, 1974,
                  P. 1, PUBL:PARAPS. FOUND. INC., NEW YORK.

3. WALKER, E. H. EFFECT OF TRIAL RATE ON SUBJECT SCORES IN QM RANDOM NUMBER
                  GENERATOR PK TESTS.
                  TO BE PUBLISHED.

4. BIERMAN, D. J. EXPLORATORY PK TESTS WITH A PROGRAMMABLE HIGH SPEED RANDO
HOUTKOOPER, J. M. NUMBER GENERATOR.
                  EUR. J. PARAPSYCHOLOGY, 1, 1975, P. 3

5. SCHMIDT, H.   PK TESTS WITH A HIGH SPEED RANDOM NUMBER GENERATOR.
                  J. PARAPSYCHOLOGY, 37, 1973, P. 105

++ PRESENT ADRESS:
   PSYCHOLOGICAL LABORATORY, UNIVERSITY OF AMSTERDAM,
   WEESPERPLEIN 8, AMSTERDAM, THE NETHERLANDS.

Observer or Experimenter effect?
A fake replication

Dick.J.Bierman

1.Introduction

During the last few years the experimenter effect has become one
of the most used notions in Parapsychological literature. (See
Kennedy et al(1976) for a comprehensive review). Very often how-
ever it is not quite clear what is meant by this effect.Sometimes
the author is argueing about psychological effects of the
experimenters′s attitude towards the subjects or the effect of
gentle handling of animals etc. Sometimes references are made to
the famous observations of Rosenthal (196:) who showed that
experimenter′s expectancy while manipulated will result in dif-
ferent measurements. He assumed that these effects were mainly
caused by misobservations and unintentional cues from the
experimenter.The far most interesting aspect of the experimenters
effect is the parapsychological interpretation. In some way or
another the experimenter in that latter interpretation is assumed
to use his psi abilities to influence the results.
Walker (1974) proposed a model for psi phenomena in which the
process of bringing the outcome of an event into conciousness (or
observation) is essential in the description of the psi
phenomenon.Any psi experiment can be considered to be a process
with different possible outcomes. (The experiment might yield
different scoring rates etc.). The concious observation of this
outcome destroys all the possibilities except the one which actu-
ally is observed. It is obvious that the experimenter which is
often the main observer with regard to the results might play an
important role.However the real focus in his model is the ob-
server who collapses all the possible states into the one which
is observed. (We will follow for the moment this line of think-
ing and forget the difficulties which arise from the fact that
the variables wich are assumed to govern this measurement process
are bound to be time and space independant ; see Houtkooper or
Hartwell(1977)).A nice example of the observers effect is found
in the experiment of xxxxxxxxx in which the data obtained in a
GESP test was randomly distributed over two different checkers.
Both obtained opposite significant results.Remark that the check-
er , in the Walker interpretation, is the ′collapser′ of all pos-
sible outcomes. Another example emerged from the discussions
about the randomness of the Rand random tables.(See J. of Parap-
sychology xxxxx).People who seeked to demonstrate the non random-
ness did find indeed significant deviations in those tables while
others using the same procedure did not find any anamolies.
In 1976 two studies on psi ′learning′ in rats were done. In the
first one of Sandford the rats showed an incline in scoring while
in the replication study of Davis a decline was observed.Davis

discussed these opposite findings in terms of an experimentereffect and proposed to repeat the experiment with new experimenters with manipulated expectancies.It is not quite clear from his discussion wether a Rosenthal type of experimenter- or a observers psi-effect was assumed to be responsible for the results.It should be remarked that if the latter is the case those damned rats are not necessary at all.
In the present replication of the psi 'learning' in rats experiment therefore the rats were replaced by a RNG. The data resulting from this fake replication were arbitrarely split into two parts and without being observed by the experimenter send to Davis and Sandford respectively.It was hypothesized that the part of the data which were send to Sandford would show an incline effect and the part of the data send to Davis would show a decline effect assuming that both had kept the same expectancies as they had in 1976. The present experiment can be ssen as a Pandora's Box type of experiment as was proposed by Walker (1976).

2.Procedure

In the spring of 1977 the program which simulated the replication was run twice.The unobserved data of the first time were send to Davis while the data of the second time were send to Sandford.Both were asked to have a close look at these raw data which were given in a similar table as they had used to represent their own experimental data.
The data which were send to D. were returned within a few weeks.However some delay ocurred in the response of S.Finally his data came back via Davis who did even some statistical evaluation on the latter data. To be more concrete: the data send to D. were first observed by D. and secondly by the present author while the data send to S. were first observed by S. , secondly by D. and thirdly by the present author.

3.Results

The data collapsed over runs,'rats' and 'days' are given in Table
1.

TABLE I
SCORING ON HALVES OF RUN COLLAPSED OVER RUNS and 'ANIMALS'

data	RUN	HITS	MISSES	TOTAL	%HIT	Z
D.	1st half	1058	8942	10000	10.58	1.93
D.	2nd half	1025	8975	10000	10.25	0.83
S.	1st half	1056	8944	10000	10.56	1.87
S.	2nd half	1016	8984	10000	10.16	0.53
both	1st half	2114	17886	20000	10.57	2.68**
	2nd half	2041	17959	20000	10.20	0.97
	both halves	4155	35845	40000	10.39	2.58**

** $p < .01$ o.t.

The percentual scoring is graphically represented in fig. 1 to-
gether with the scoring rates which were obtained in the real
experiment of D. and of S. in 1976.(Davise and Sandforde)

```
!
!
!
+  11%
!
!
!
!
!------------------------------------------------ chance scoring
!
!
!
!
+  9%              i                    i

       1st half run      2nd half run
```
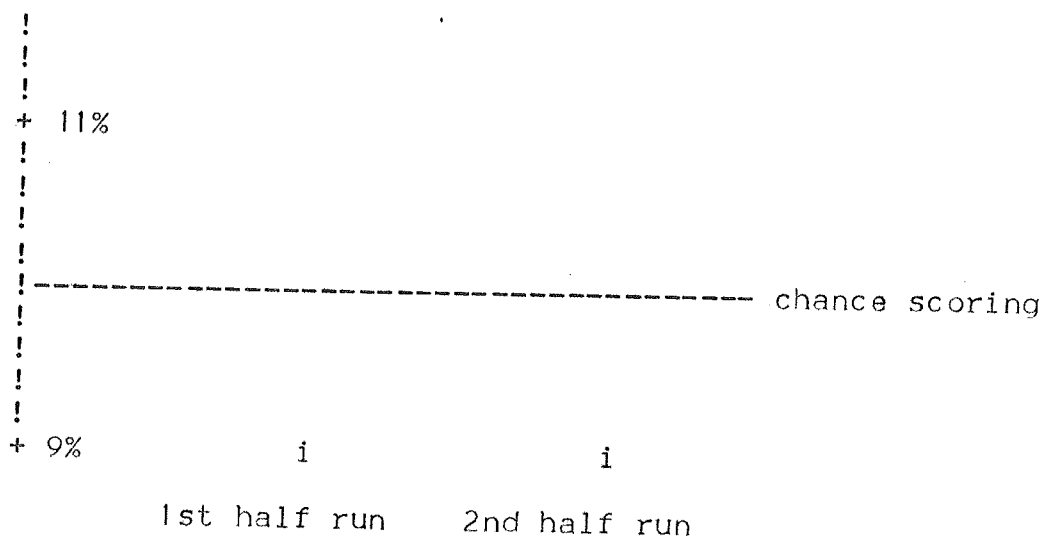
fig.1

It can be seen that the data which were send to Davis do show a
non significant decline as was the case in his own experiment.
However the data send to Sandford do show the same decline in
strong contrast with the data of Sandfords own
experiment.Therefore the hypothesis based upon the observers
expectancy effect is not confirmed.However it should be noted
that our pseudorats do score significantly above chance where the
real rats failed to obtain any over all scoring.

4.The pseudorats

The pseudorat is constructed by a hardware electronic noise gen-
erator which is sampled by the computer's A/D converter for every
trial.   The resultant value is converted to the interval (0,9)
and compared with the target value.This target value is incre-
mented after each trial to eliminate first order non randomness.
(If the target value becomes 10 it is reset to 0 ; this procedure
simulates a RNG with a hit probability of p=1/10).As a control
the program was changed in such a way that instead of 40000 tri-
als, 3200000 trial were done.The total no. of hits in this con-
trol run was 320405.(z=.8 ;n.s.).It must be concluded that the
over all deviation obtained in the fake replication of the psi
'learning' experiment can not be attributed to a non randomness
of the pseudorat.

5.Discussion

The interpretation of the present results is rather difficult.
Does it support the observational theories and the observational
interpretation of the experimenter effect?What actually happened
is that the RNG that simulated the rats has behaved in a over all
non random way.The author was aware of the experiment on the
moment that the simulation was started.So there might have been a
direct PK from the part of the author (experimenter).The similar-
ity of the results independent of the actual observers does sup-
port this interpretation. It should be remarked that the author
has very strong emotional feelings against experiments which show
some positive and negative extra chance but no over all scoring.
(This was the case in the real Davis as well as in the Sandford
experiment).On the other hand the results might have been contam-
inated by the fact that Davis was second observer of the data
send to Sandford. If we try to fit the present findings in the
observational models we can not avoid a discussion on the effect
of more observers and thus of the divergence problem.This problem
arises fromm the fact that in the observational models any ob-
server of the experimental results might influence them ,includ-
ing all future observers. Schmidt (1975) pointed out that this

6.Abstract

In this article an experiment is reported which is a replication
of two earlier studies of Sandford and Davis on psi 'learning' in
rats.These latter experiments yielded contradictory results which
might be explained in terms of an experimenter effect.
It was hypothesized that this experimenter effect should be iden-
tified with the observer effect as suggested by the recent
theories of Walker and Schmidt.In these theory any effect is
'caused' by the observation of the result.Or in a not quite ade-
quate term: by the PK or retro-PK of the observer. To test such
a hypothesis the rats are not essential at all. Therfore they
were in the present experiment replaced by a RNG.A total of 40000
trials were run using this pseudorat. The results of 20000 tri-
als were (unobserved by the author) send to Davis while the
results of the other 20000 were send to Sandford.It was expected
that these results should be contradictory in the same way as was
reported after the two real experiments. This was not the
case.However an over all deviation of 155 hits were
obtained.(z=+2.58;p<.01).This unexpected result is discussed in
terms of the observational theories.

7.Acknowledgements

References

Kennedy,J.
Tadonioni,J.   Experimenter effects in parapsychological
                  Research.
Rosenthal,   J.Parapsychology,1976,40,1-33.
Walker,E.H.   :::
                  Foundations of paraphysical an parapsychological
                  Phenomena.
                  Proc. of an International conf. on Quantum
                  physics and parapsychology,1974,Parapsych.Found.
                  Inc.,New York.
Houtkooper,J.M.   A comment on Schmidt's mathematical model of
                  Psi.   E.J.P,1977,2,no.1,15-18.
Hartwell,J.W.   A bound for the observational theories of psi.
                  E.J.P.,1977,2,no.1,19-24.
Sandford,J.   The effects of feed back and motivation on the

Davis,J.W.   ESP performance of rats.
                  J.Parapsychology,1976,40,55-56(abstract)
                  Psi "learning" in rats: an attempted replication.
                  J.Parapsychology,1976,40,288-295.
Walker,E.H.   Quantum mechanics/Psi Phenomena.The theory and
                  suggestions for new experiments.
                  J.of res. in psi phen.,1976,1,no.1,38-52.
Schmidt,H.   Toward a Mathematical theory of Psi.
                  J.A.S.P.R.,1975,64,301-319.
Walker,E.H.   Comparison of some theoretical predictions of
                  Schmidt's mathematical theory and Walker's
                  Quantum mechanical theory of Psi.
                  J. of res. in psi phen.,1977,2,no.1,54-70.

De relaties tussen psychokinese en fysiologische variabelen bij een begaafde proefpersoon

door J.M.Houtkooper en I.P.F De Diana

De fysiologische variabelen die verband houden met PK-prestatie werden bestudeerd in een experiment met een begaafde proefpersoon, Matthew Manning.Hij probeerde in dit experiment (in april '75 in Amsterdam) een zogenaamde random getallen generator te beinvloeden,terwijl zijn fysiologische toestand geregistreerd werd, nl. het elektrocardiogram (ECG) ,het electroencephalogram (EEG) en de ademhaling.De totaal skore in dit PK experiment was niet signifikant.Als we echter de 16 experimentele runs bekijken,blijkt dat er een verband is tussen een kombinatie van fysiologische variabelen en de PK scores.De PK scores kunnen apart berekend worden over pogingen waarbij wel of geen feedback gegeven is.(de zog. zichtbare en onzichtbare trials). Het verband dat gevonden wordt met de onzichtbare trials,is ook aanwezig bij de zichtbare trials.Dit duidt op een zekere consistentie van dit verband.Verder is het aspekt van de reaktie van de proefpersoon op de testsituatie onderzocht. De veranderingen in de fysiologische toestand die vooral optreden aan het begin van de experimentele runs,liggen in dezelfde lijn als het verband met de scores.

De fysiologische verandering wordt vooral gekenmerkt door een regelmatiger hartslag (verlaagde variabiliteit) en een verlaagde totale aktiviteit in het EEG.Hierbij treedt dan meer 'beinvloed-ing' in de doelrichting op.De tegenovergestelde toestand lijkt niet tot geen beinvloeding te leiden, wat men wellicht zou denken , maar tot een beinvloeding tegengesteld aan de doelrichting.

In het artikel wordt ingegaan op de methodologische problemen die zich voordoen bij dit onderzoek,waarbij een fysiologische toestand gezocht (en gevonden) wordt die iets voorspelt over het optreden van Psychokinese.