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VOLUNTARY CONTROL

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ABSTRACT: A new gifted subject, B.D., was tested for a period of six weeks at the Institute for Parapsychology. The tests, though preliminary in nature, were sufficiently controlled to make the high scoring very impressive. There were three kinds of tests carried out under good conditions: (1) ESP card tests using a psychic shuffle technique; (2) tests with mechanical devices, i.e., a sand timer and a dice-rolling machine; (3) tests with electronic devices, i.e., a dart board, the Schmidt fast-PK machine, and the Schmidt four-button machine. In all of these tests the results were highly significant... The most time was spent on the four-button machine. An informal series of about 900 trials yielded a CR of over 10. Another 5,377 trials recorded on tape were characterized by an immediate decline in scoring followed by a slow recovery to almost the scoring rate of the informal tests. The final result was 1,542 hits ($P < 10^{-9}$).

Some theoretical issues raised by B.D.'s self-descriptions and some possible directions for further work are also discussed.—Ed.

For a period of six weeks during February and March 1972, the Institute for Parapsychology was host to a very talented new subject. In addition to high scoring rates on a variety of tasks, there are a number of features of this case which render it of unusual interest, despite the preliminary character of the evidence so far obtained.

SUBJECT'S BACKGROUND

Family

The subject, whom we shall call B.D., is now in his early twenties. His parents were divorced when he was approximately a year and a half old, leaving him principally in the care of his paternal

Ed's Note—Both authors of this paper are Research Fellows at the Institute for Parapsychology.

grandmother. There are strong indications of psi ability throughout the paternal side of the family, and particularly in this grandmother. The grandfather had been a gambler; B.D. recalls being deeply impressed as a preschooler by watching him roll dice for twenty consecutive sevens, in all possible combinations. B.D.'s father apparently also has some ability, although he is reluctant to display or discuss it. The grandmother, however, quite matter-of-factly gave abundant indications of psi in a variety of everyday situations (for example, by going to answer the telephone before it rang, knowing the identity of callers, etc.), and seems chiefly responsible for the creation, at a very early stage, of B.D.'s absolute confidence in the reality of psi abilities. It was in fact only much later that he came to think of his own ability as representing anything at all unusual.

Childhood

B.D. was a sensitive child, physically and psychologically, and highly precocious. He was subject to a variety of infectious disorders as well as insomnia and stuttering, of which traces still remain. In dealing with insomnia he became intimately acquainted with a whole range of states between wakefulness and sleep; he dreams profusely and tends to remain aware of the fact that he is dreaming, often remembering twenty to thirty dream episodes a night. Concurrently with this unusual ability, he developed a powerful capacity for imagination; his major technique in combatting stuttering, for example, was to imagine himself as someone else talking. A probably related feature is the unusual detail of his childhood memories; B.D. claims recall even of a prelinguistic "soliloquy" concerning his parents' divorce. In short, he presents a consistent picture of a cognitive style weighted heavily in the direction of imagery. This is further reflected in the fact that his EEG shows virtually no alpha, except for very short periods after he closes his eyes.

Recent History

B.D. was referred to the Institute by two psychologists at a major Eastern university whom he had consulted after deciding to drop out of law school. This decision had resulted from disaffection

with law coupled with a resurgence of interest in his own psi capacity.

Over the past two years, utilizing drug experiences and instruction received through dreams as well as ordinary conscious exploration and practice, B.D. has developed an unusual amount of psi ability. He expresses it chiefly in social contexts, which are plainly rewarding. It is difficult to assess the relative importance of these various features in shaping his development, although he himself stresses the value of the dreams, which seem to lead him along at an ever-accelerating rate.

B.D.'s principal medium of psi expression currently is "tricks" performed with ordinary playing cards (or occasionally with Tarot cards, 78 per deck). He also reports spontaneous experiences covering most of the traditional categories. For example, he describes precognitive flashes and dreams, sometimes massive in detail; physical effects such as moving objects and occasionally even altering them in some way (lighting candles, exploding a paper bag); encounters with "ghosts"; and so on.

Although we did not observe any of these more spectacular phenomena, we did collect a substantial number of examples of B.D.'s performances with cards, both before undertaking formal tests in the lab and throughout the visit; he performs with cards almost every day, both for practice and for relaxation and entertainment.

The specimens we have recorded, about 40 in all, are selected from a much larger mass of comparable material, generally for the reason that B.D. himself did not handle the cards, which naturally raises the evidential level. We will present just three examples:

(1) C.C. (a friend of E.K., unknown to B.D.) shuffling the cards. B.D. asks him to draw a card (4 of clubs). Then he instructs C.C. to return it to the deck and shuffle as long as he likes. B.D. predicts that on the first cut the 3 of diamonds will appear as the bottom card, and that after shuffling, the 3 of diamonds and 4 of clubs will be adjacent. Correct (after three shuffles).

(2) B.D. shuffling the cards. B.K. draws a card (6 of diamonds) and returns it to the deck. B.D. gives her the deck to shuffle, and then calls 4 of spades, 9 of clubs, and B.K.'s card in order from the bottom. Correct.

(3) E.K. shuffling deck A; A.M. (a friend of both E.K. and B.D.) shuffling deck B. B.D. instructs E.K. to take the three cards above and two cards below the card in deck A, which a fourth party will now specify in a written message to E.K. Meanwhile, B.D. selects five cards from deck B, without looking at any. Then E.K. and B.D. match hands, and find five out of five correct.

On a good day B.D. will typically reel off a dozen or so card-guessing efforts in a row without a mistake, often after a sort of warm-up period in which he makes numerous errors but appears gradually to converge on the appropriate psychological state. This in fact increases the credibility of the overall performance.

As will perhaps be evident, these card "tricks" are often bewilderingly complex. Although from the point of view of first-hand witnesses they are quite spectacular and convincing, they are for familiar reasons not especially desirable as printable scientific evidence. Before going on to discuss more formal results, however, we pause to note two important general features of the case that quickly became apparent and were sustained in later testing. First is the *generality* of B.D.'s ability. He seems, in doing his card tricks, to draw spontaneously on many dimensions of psi functioning in a complicated mix, the threads of which are often difficult to disentangle. Second is his remarkable *consistency* as a psi performer. He has immense confidence in his own ability, and was never, in our observations, more than temporarily shaken by missing streaks and/or hostile audiences. In fact, he prefers performing for groups.

LABORATORY RESULTS

Despite his ability, B.D. presented formidable difficulties as a subject. He is quite temperamental and not particularly sympathetic with the aims and methods of experimental research, which remind him of the unpleasant world of law school. He is also highly articulate, intelligent, and accustomed to doing things in his own way. Accordingly, productive sessions in the laboratory were typically coupled with varied amounts of argument, sometimes heated, regarding the utility of experiments, the present and future organization of parapsychology, and related subjects. Also, our hopes of capitalizing on his psychological sophistication to gain some

insight into the internal basis of his ability were somewhat frustrated by his truly astonishing capacity for generating and destroying hypotheses about himself and his performances. Nevertheless, in his relatively short time in our laboratory, B.D. produced evidence for psi of an impressive grade and character, as we shall now describe.

We will somewhat arbitrarily classify these results under three headings, according to whether the task environment utilized cards, mechanical devices, or electronic devices.

Cards

B.D. generally resisted the idea of formal tests with playing cards as a kind of prostitution of his art. However, after several weeks of cajoling, we persuaded him to do one series of ESP cards under fairly good conditions with B.K. The technique was similar to that of the "psychic shuffle" (J. B. Rhine, 1938, and Kanthamani, 1972), in which a subject shuffles a deck of cards to match a prearranged target order. In the present case, B.K. first wrote down 50 calls at a time out of sight of B.D. Then B.D. shuffled the deck as long as he liked and they were matched with the calls. In this manner he completed 20 standard runs in three sessions, and obtained in all 164 hits. This gives an average of 8.2 hits per run, whereas 5.00 is expected by chance. The associated CR is 7.16, $P < 10^{-12}$.

Mechanical Devices

Sand Timer.—This is an electric timer driven by a rotating hourglass arrangement. The clock measures the time for the sand in the hourglass to fall below the level of a photoelectric beam. A trial consists of one complete revolution of the glass, with two subtrials. The direction of the timer is reversed between subtrials, yielding a signed departure from zero as the output of the trial. Under good conditions B.D. produced a score of 24 hits in 29 trials for a CR of 3.5 and $P = .0002$. Unfortunately, this device (which was his favorite) broke down during testing and was unavailable through most of the visit; these data should be regarded with skepticism pending subsequent confirmation.

Dice Machine.—The dice machine is an oscillating seesaw ar-

rangement with six channels, each containing a single die. Each release of the device rolls six dice simultaneously. A subject tries for one face at a time and for all faces an equal number of times in a complete run to override any biases in the dice. In his only recorded effort, after a brief practice run, B.D. executed 24 releases and produced 44 hits where by chance one would expect 24. This yields $CR = 4.48$, $P < 10^{-6}$.

Electronic Devices

The electronic devices are all driven by the Schmidt random number generator, which utilizes the (theoretically unpredictable) arrival time of electrons from a radioactive source to interrupt an electronic switch rotating at a million steps per second. It is a highly sophisticated randomization device which in extensive tests covering millions of trials has never shown even minor departures from randomness. B.D. recorded performances on very short runs on two such devices and an extended series on the third.

Dart Board.—This is a dart-throwing arrangement in which the bull's-eye is scooped out to reveal a light bulb protected by wire mesh. Upon impact of the dart, the RNG determines whether the light shall be on or off. The subject's task is to force it one way or the other. B.D. did just one run of 144 throws, with 85 hits for a CR of 2.17 and $P < .015$.

Fast PK Machine.—This device, recently developed by Dr. Schmidt, uses a white noise generator in place of the radioactive source, for greater speed. It randomly increments two counters at speeds varying up to 1000 trials per second, while allowing the subject to monitor his performance through graphic and/or audio feedbacks. In exploratory work B.D. combined forces with another subject, K.G.; they did 10 runs of 100 trials each, 3 seconds per run, and produced a score of +41 for a CR of 2.6 and $P < .005$.

Four-Button Machine.—B.D. invested by far the greatest proportion of his time and effort in this device, for which the subject's task is to predict which of four lights the RNG will select next and to register his prediction by pushing the corresponding button. (An alternative explanation is that he *forces* the machine to select that light; the distinction cannot be clearly made.) B.D.'s efforts here fall into two categories, depending on whether or not the perform-

ance was being recorded automatically on paper tape. The two classes of performances were also almost disjoint temporally, with the taped performances coming near the end of his visit, as we tightened up conditions.

Without tape, informally, at B.K.'s house with B.K. and E.K. observing, B.D. produced a *CR* of over 10 in about 900 recorded trials, which represented roughly three-fourths of his total pushes; the remainder were practice and relaxation trials, noted in advance. For this series $P \ll 10^{-10}$. Under good conditions at the Institute, with Helmut Schmidt and J. B. Rhine observing, he produced a complete run of 508 trials with 180 hits, for a *CR* of 5.4, $P < 10^{-7}$. Informally, with E.K. present, he played the machine by sound only (i.e., with the lights off both in the room and on the machine; misses produced a single click, hits a double click). When he tired we turned the lights on and found a score of 163 hits out of 329 trials, his highest score, which yields a *CR* over 10, $P \ll 10^{-10}$.

Connecting the punch tape produced an immediate and drastic decline in B.D.'s scoring rate and caused him great irritation. We had several abortive attempts at recording, which he quickly abandoned in rage and/or disgust. He insisted vehemently that the obstacle resided in the extra machinery, until circumstances conspired to make it evident that the difficulty was internal to himself. Thereafter, he resolved to defeat the machine, and over a period of eight days after his first sustained effort on March 10, in which he punched at exactly 27% (vs. his off-punch baseline of about 33-1/3%), he progressively *raised* his scoring to almost his regular rate. It is also important to note that he punched steadily at a rate of about one push per second throughout this series. Table 1 gives the series, which, except for short practice runs and off-the-record games, is a complete record of his work between March 10 and March 18. (Although we do not have a complete record of the unofficial performances, they appeared to be at about the same level, or even slightly better, possibly reflecting the psychological advantage of reduced pressure to perform.)

Critics often like to suggest that tightening conditions necessarily produces decline effects, because all supposed "effects" are merely slippage in the recording system. Here we have a clear case

Table 1
FOUR-BUTTON SERIES ON TAPE

Date	Pushes	Hits	% Hits
March 10.....	1,100	297	27.0
March 11, afternoon.....	700	197	28.1
March 11, evening.....	1,077	308	28.6
March 13.....	500	138	27.6
March 14.....	550	164	29.8
March 15.....	450	133	29.5
March 18, afternoon.....	500	151	30.2
March 18, evening.....	500	154	30.8
Total.....	5,377	1,542	28.7

$CR = 6.24, P < 10^{-9}$ (one-tailed).

of a decline produced by tightening conditions, but with an unusual twist. The obstacle was demonstrably psychological, and B.D., with his immense self-confidence and persistence, was able to work his way through it. In most cases we simply do not see this kind of recovery.

Table 2 summarizes the basic test results, ordered in terms of PQ , a measure of per-trial efficiency (Schmidt, 1970), [$PQ = 1000 (CR)^2/N$]. Note that per-trial psi efficiency is almost inversely related to the number of trials, suggesting an inefficient allocation of testing effort. This is somewhat misleading, however, as the high- PQ devices tended to cost a great deal more in terms of psychological effort per trial on the parts of both B.D. himself and the experimenters.

INCIDENTAL OBSERVATIONS

In addition to the formal test results, this first encounter with B.D. produced a number of interesting and suggestive side observations, which we hope to pursue experimentally during subsequent visits. These fall into two broad categories.

B.D.'s Effects on Other Persons

It was noted by several observers that B.D. seems to have striking psi-facilitation effects on persons in his neighborhood. The effects appear in several ways. For example, many of the card tests require other people to supply critical pieces of information, such as the name of a card or its distance from some other card. Re-

Table 2
TEST RESULTS AND PER-TRIAL EFFICIENCY

Device	N	p	Hits	Proportion of Hits	CR	P	PQ
Fast PK.	1,000	.50	541	.541	2.6	<.005	6.8
4-Button.	5,377	.25	154	.287	6.2	10^{-9}	7.2
Darts.	144	.50	85	.590	2.2	<.015	33.6
ESP Cards.	500	.20	164	.328	7.2	< 10^{-12}	103
Dice.	144	.167	44	.306	4.5	< 10^{-6}	142
Sand Timer.	29	.50	24	.828	3.5	.0002	420

cipients of such requests are usually dumbfounded but somehow manage to produce the right information. Again, otherwise "non-psychic" individuals may begin to call cards correctly, make cuts, etc., during a good session. Finally, we were able to do a small amount of testing on two roommates of B.D. whom he claims to have trained over the past year and a half, and both gave significant evidence of psi, though not at B.D.'s level. It is, of course, possible that they had the ability to begin with, and that B.D. had not influenced them, although both deny this and attribute their success to B.D.'s teaching.

These tentative observations should be confirmed and extended. It seems likely that several different kinds of effects are at work, which may be difficult to distinguish experimentally. For example, B.D. may occasionally "plant" information directly; or he may in some manner directly stimulate the other person's own latent psi capacity; or he may work indirectly through the other's motivational system by simply providing a convincing demonstration that psi is possible and worth attempting seriously. In evaluating the suggestion that B.D. can actually *teach* psi, it will be necessary to factor out these B.D.-dependent contributions; the residuum, if there is one, would be the beginning of a vital contribution to the field (Beloff, 1967). Our impression is that there may be such a residuum, keyed to just a few basic notions about techniques. This leads immediately to our second category of incidental observations.

B.D.'s Basic Techniques

In detail, B.D.'s approaches to psi tasks show wide diversity. Even within a single task, for example, he may switch styles con-

stantly, and his inventiveness in constructing new approaches is almost unbounded. Nevertheless, this diversity seems to us a relatively superficial aspect of his ability and to mask an underlying coherence in what he does; its function appears principally motivational, i.e., it keeps his interest alive.

The reliance on imagery of various kinds is very nearly a common denominator for all dimensions of his ability. This is especially true for ESP tasks, with which he is most familiar, but it also seems to hold true for PK, with the difference that in the latter case he exerts more control over the flow of imagery. As mentioned earlier, B.D. is highly imagery-prone anyway; thus his psi capacity is neatly integrated with his overall cognitive orientation. This suggests the following interesting hypothesis.

If we take the term *ESP* seriously, we are assuming in effect that there is some sort of nonsensory input channel through which signals can enter the organism. Such signals presumably compete with other inputs for the cognitive resources of the organism. In general, the machinery of the sensory system tends to be relatively fixed, and the machinery of the "higher" cognitive subsystems relatively variable, over individuals. Therefore, it makes sense to suppose that individual differences in ESP ability may be tied to differences in the organization of these higher functions. In particular, some kinds of organization may put ESP signals on a relatively favorable competitive footing. What B.D. may be showing us is that ESP signals readily assume a pseudo-visual form; i.e., that they easily mimic some stage in the processing of visual (or other sensory) information and that individuals whose cognitive organization is highly sensitive to such information may be relatively ESP-prone. This idea seems to make sense in terms of what we already know about conditions *within* individuals that favor psi. For example, recall the predominance of dreams and hypnagogic states in L. E. Rhine's (1953) survey of spontaneous cases; more generally, most favorable alterations of consciousness seem to emphasize more "primitive" sensory functions as against the highly schematized rational thinking of everyday waking life.¹ What we

¹ It seems likely that such effects are at least partly to be understood in terms of a gross information-theory model of ESP. If we assume that ESP signals are very weak relative to the ongoing activities of the system—i.e., that the

are suggesting is simply that differences along this dimension should also be explored as contributors to stable differences *between* individuals. Individual differences along a dimension of capacity for imagery are known to be dramatic and stable; a natural first step would be to compare divergent groups for ESP ability. Again, since creative persons are known to have greater capacity for controlled access to more "primitive" modes of cognitive function, we would expect them to perform better than unselected subjects.

In effect, what we are asking for is a clarification of the notion of an "ESP stimulus." Cognitive psychologists and physiologists have shown that the analysis of ordinary sensory stimuli begins right at the receptor surfaces and deepens by stages as information passes toward the brain. Where, if at all, do ESP "signals" interact with this complex processing system? There are many avenues of approach to the question, of which we will enumerate a few:

(1) Imagine an experiment of the following sort: Suppose we take an animal like the cat, whose visual system has been fairly systematically explored. It is technically feasible to record responses to visual stimuli at each level of the system (Hubel and Wiesel, 1962). Now suppose, in addition, that we train an animal prepared for such recording to respond with divergent autonomic responses to two visual stimuli that produce clearly marked activity in our recording sites. The critical stage now follows—what happens when we transform the experiment into an ESP test, by exposing the stimuli in the next room? The occurrence of psi, if any, would be marked by the autonomic response, and the question of interest is the correlated pattern of activity in the visual system.

(2) We might be able to get information of the same sort in a less drastic way by attempting to correlate variations in amount and character of ESP function with naturally occurring sensory deficits in humans. For example, there are many types of blindness, physiologically, corresponding to different stages in the processing of visual information. Securing an appropriate sample of subjects might prove to be quite difficult for more than exploratory purposes, since some cases would very likely be quite rare, and ideally we

signal-to-noise ratio is very low—we would expect alterations that reduce noise to favor ESP. Still it appears plausible to suspect that these alterations may favor ESP in more specific ways, as suggested.

would want the group to be at least fairly well matched on other relevant variables.

(3) Cognitive psychologists have amassed a considerable amount of data on informational properties of the sensory systems, which opens a vast area for parapsychological research. The general question is this: To what extent do ESP signals act like the corresponding sensory signals? Do the same kinds of confusions occur? Are there parallel ways of encoding stimuli to enhance perspicuity? Evidence so far obtained on variations of physical stimulus properties suggests that psi may use mechanisms quite separate, at least in part, from the ordinary ones. (See Rao, 1966, Chapter 3.) A subject like B.D., with his relatively high and stable scoring rates, may make further exploration along these lines both feasible and fruitful.

To return to our main theme, the most fundamental element in B.D.'s technique by his own account, is the process he calls "degoization," by which he means putting himself in a state of intense, alert, passivity, waiting for the information to present itself, whatever it may be relative to his own desires or expectations. This idea produces echoes from a number of directions. There is a great deal of overlap with other subjective accounts of deliberate psi-technique. (For a survey, see White, 1964.) It also connects with the current wave of interest in alpha/theta states and meditation. We are interested in exploring the physiology of hitting states; B.D. himself, however, may not be a good subject for such studies, partly because he is hyperactive physically, which makes recording difficult, and partly because he seems to flick in and out of the receptive state with the same high switching frequency that characterizes all his other activities.

It should be stressed that the foregoing remarks are all quite tentative and meant only to suggest some possible directions for further investigation.

CONCLUSIONS

To recapitulate, the salient features of this case are the following: a high *level* of performance on a *variety* of psi tasks; and a strong *consistency* of performance over time, including a well-

documented recovery from what looked like a severe decline on one of the tasks.

The suggestion that naturally emerges is that the traditional elusiveness and instability of psi may not be inherent in psi itself, regarded as a process by which information gets into the organism, but rather in psychological/cognitive factors which govern the processing of that information. (See also J.B. Rhine, 1964).

Furthermore, as we reorient ourselves to this broad problem of the internal psychological factors that control the expression of psi, it is worth reminding ourselves that the self-observation of an articulate and intelligent subject such as B.D. can play a useful, even vital, role in picking out possibly fruitful lines of research, even though not in itself constituting reliable evidence.

REFERENCES

- BELOFF, J. Can paranormal abilities be learned? *Journal of the American Society for Psychical Research*, 1967, **61**, 120-29.
- HUBEL, D. H., and WIESEL, T. N. Receptive fields, binocular interaction, and functional architecture in the cat's visual cortex. *Journal of Physiology*, 1962, **160**, 106-54.
- KANTHAMANI, B. K. "Complex psi" in a gifted subject. (Unpublished paper presented at the 1972 Parapsychological Association Convention.)
- RAO, K. R. *Experimental Parapsychology*. Springfield, Ill.: Charles C Thomas, 1966.
- RHINE, J. B. Special motivation in some exceptional ESP performances. *Journal of Parapsychology*, 1964, **28**, 42-50.
- RHINE, J. B., ET AL. Experiments bearing on the precognition hypothesis: II. The role of ESP in the shuffling of cards. *Journal of Parapsychology*, 1938, **2**, 119-31.
- RHINE, L. E. Subjective forms of spontaneous psi experiences. *Journal of Parapsychology*, 1953, **17**, 77-114.
- SCHMIDT, H. The psi quotient (*PQ*): an efficiency measure for psi tests. *Journal of Parapsychology*, 1970, **34**, 210-14.
- WHITE, R. A. Old and new methods of response in ESP experiments. *Journal of the American Society for Psychical Research*, 1964, **58**, 21-56.