

The Decline of Precognized Events with the Passage of Time: Evidence from Spontaneous Dreams

NANCY SONDOW¹

ABSTRACT: Ninety-six dreams (from a series of 943 dreams recorded over 50 months) were tentatively termed precognitive by Dunne's (1927) criteria that 2 or more unusual and unexpected events not usually found together occurred in both the dream and the future. More than half the future events precognized occurred within one day of the dream, with a steep regular fall-off of events through increasing time spans. A Pearson correlation between log incidence of events per day and log distance in time from dream yields a coefficient $r = -.9972$. Events corresponding to a subset of dreams with indicators (indicating to whom the future events would happen) occurred throughout the range of time spans showing a similar fall-off.

Memory artifact and coincidence interpretations are discussed as alternate explanations of the data. The similarity in the fall-off from a 3-month period of overlearned dreams and from a 5-month period of unstudied dreams offers evidence against the memory artifact interpretation, which predicts a fall-off only in the latter. Against the coincidence interpretation are the double-event-or-better criterion, the subjective feeling of déjà vu, and the possibility that the associated meaning of the future event incorporation aids in interpreting the dream.

Literature is cited indicating that a fall-off of precognitive information over increasing time spans has been found in both an analysis of published forced-choice experiments and in all similar analyses of spontaneous case collections. A model of branching futures with alternate possible futures precognized is hypothesized to explain both the fall-off through time and the clarity of temporally distant events.

Years ago I read J. W. Dunne's (1927) book, *An Experiment with Time*, which describes the author's recognition of his own precognitive dreams and his informal inquiry into the ubiquity of the phenomenon. He hypothesized that dreams are constructed from elements of one's future as well as one's past and that what he termed *future day residue* is as common in dreams as day residue,² but that emotional resistance to the idea of precognition prevents the recognition of the relationship between dreams and future events.

Several years later, in March of 1979, I began recording my dreams every morning and also began noting a few events that appeared to relate

¹ I am grateful to Dick Bierman, William Braud, Stanley Krippner, Walter Ritter, Charles Tart, and Montague Ullman for helpful comments and suggestions on earlier drafts of this paper. A shorter version of this paper was presented at the 26th annual convention of the Parapsychological Association, Madison, NJ, 1983.

² Freud asserts that "in every dream it is possible to find a point of contact with the experiences of the previous day" (Freud, 1900/1965, p. 239). *Day residue* refers to those events of the previous day that contribute elements to the contents of a dream. Such elements usually appear trivial in themselves unless one examines their associations.

to previously recorded dreams, which I wrote down as possible examples of future day residue. In the middle of June of the same year, I joined Dr. Montague Ullman's dream telepathy group and began recording correspondences between my dreams and the dreams and life events of the other members of the group, as well as those to the future events in my own life.

In this report, I will present some preliminary observations and thoughts on this body of spontaneous material, which covers a 50-month period from March, 1979 through April, 1983. Because my focus will be on the question of precognition, I have limited the analysis of what appear to me to be psychic correspondences to those with unusual and unexpected future events occurring either in my own or someone else's life, and I have excluded all simultaneous dream-to-dream correspondences and all correspondences in which an event in someone else's life occurred before the dream but I had feedback about the event only after the dream.³

Rather than attempt to distinguish different dreams or dream fragments of the same night, I have called all remembered dream content a single "dream" if it occurred in a single night, whether it was a single word or several dream sequences, even if there were awakenings between sequences. This choice of definition is based on practical considerations: I often remember out-of-order fragments and do not know if they occurred in the same rapid eye movement (REM) period or not. The underlying theoretical position I adopt with respect to the formation and function of dreams also justifies this convention; namely, that dreams are meaningful explorations of current concerns (including both unresolved conflict triggered by current events and unintegrated new learning⁴) and that all dream content over a single night is likely to reflect interrelated explorations of such concerns.

Following Dunne, my first criterion for calling a dream precognitive was that at least two different and infrequent elements that are not usually found together must correspond between the dream and the later waking event or events. By this use of a "double event" (or better) to define what I am willing to call precognition, the likelihood of chance correspondence creating false "hits" is greatly diminished. My second criterion was that

³ Proponents of the observational theories of psi may object to this, because these theories postulate that the point of feedback initiates the psychic effect backwards in time, and the data can be reanalyzed in terms of feedback to the dreamer. However, many more dreams would then have to be reclassified as precognitive, and the dream-to-dream correspondences would have to be included as precognitive to feedback, which is not intuitively satisfying.

⁴ See, for instance, Breger, Hunter, and Lane (1971) for examples of the incorporation into dreams of both current situational and experimentally induced stress (conflict triggered by current events). See Roffwarg, Herman, Bowe-Anders, and Tauber (1978) for an illuminating look at the pattern of dream incorporation of experimental long-term perceptual alteration in the waking state (learning new habits of perception when perceptual input is systematically altered over time) as an example of the incorporation of unintegrated new learning.

the future events had to be completely unexpected. Cases that could have involved inference were not included. All dreams in the following analysis were written down before the later corresponding events; thus, there are no cases of events reminding me of a previously forgotten dream.

Out of a total sample of 943 nights in which a dream was recalled, 96 have been classified as precognitive by these criteria, which is a little over 10%. Bender (1966) also reports possible precognition in about 10% of a sample of about 1,300 dreams from a single subject collected over a 10-year period.

I have excluded from the following analysis another 22 dreams that have only a single correspondence to a later unexpected life event, but I will refer again to these "weak" cases. (It should be pointed out that if a dream has precognitive elements, the shorter and less detailed the remembered dream content is, the more likely it will be that only a weak case can be noticed, until the limiting case where only a single word describing dream content is recalled, when only weak cases are possible, using the double-event definition.)

I must stress the point that I am not claiming to "prove" the existence of precognition with the data I am presenting. Although I am personally satisfied that the cases meeting the criteria listed above have a psychic component, I have not attempted to screen out all but the strongest evidence for precognition. For instance, I have not limited the analysis to only those cases that have corroborative witnesses (other than myself) to both the written dreams before the events and to the later events. Rather, I have tried to explore what pattern might emerge from the observation of spontaneous data by allowing as much of it to be included as my criteria allowed. This approach follows the philosophy behind Louisa Rhine's works,⁵ in which testable hypotheses may emerge from observing natural manifestations of the phenomenon, rather than limiting one's theorizing to accommodate only what can be observed under the most rigorous (usually experimental) conditions.

There are two difficulties in the task of precisely defining what constitutes the "elements" of these observed correspondences. The first is the problem of categorization; that is, how does one break up a visual image or set of actions and relationships into "constituent elements"? Through whose cognitive habits of perception and filter of attention shall we look? And how atomized should such a categorization be? Where does one stop? Does one consider a very detailed description of a single image to be a single element or does one count each unusual detail or attribute of the whole as a separate element? The second difficulty in the definition is the problem of frequency; that is, what does one mean by "unusual"? One can count the frequency of a word used to describe a dream image in a given sample of dreams, but how does one ascertain the frequency of the

⁵ See, for instance, L. E. Rhine (1981).

same image in the "real world"? My tacit knowledge of the world and my past experience underlie what I judge to be uncommon in real-life events, and again, my filter of attention and habits of perception define and perhaps limit my view.

EXAMPLES

With the above caveats stated, I will give some examples of how I have interpreted the idea of two or more elements, and I will comment on the problem of how sometimes real-life events that occurred at different times were perceived to be "together." In the following examples, the relevant dream elements are underlined.

Sometimes, correspondences to elements in the dream continued to unfold over a short period of time. For example, on November 12, 1979, I dreamed:

I went to a movie about Saturn, with the cast of Star Wars in the movie. It looked like Central Park in NYC, with green plants on rocky cliffs. I knew Saturn shouldn't be rocky. I was disappointed in the special effects. I tried to suspend belief and get into the fantasy. Then I was in the plot of the movie, on Ganymede. I was in a room with two women. Actually, they had fake bodies, they were creatures that looked like eyes, and the rest of the body was their human disguise. One eye extended a crawling pseudopod from the corner with the tearduct, white with red veins, which elongated and crept across the room to a small vat of milky water and drank some. They were almost out of it, and needed more to live. They were my friends, alternate life-forms. I gave the eye woman a hug, wished her luck finding more of the milky water. I had to catch a rocket to Io. In the dream, both Ganymede and Io were moons of Saturn.

On December 7, 1979, I was startled by the front page of the science section of the New York Times (Science Times) dated December 4, with juxtaposed headlines of two articles: "Tiny Chip Helps Hunt for Moons Of Saturn," "Protective Benefits of Mother's Milk." I experienced an uncanny feeling, the dream popped into my mind, and the juxtaposed headlines clarified the meaning of the dream for me. The day after the dream, on November 13, 1979, I had met for the first time with a lawyer to begin divorce proceedings, and the names of the two moons in the dream were associated in my mind with my two children. In the dream, they were moved from Jupiter (the father) out to Saturn, and I was worried about a possible child custody battle (protective benefits of mother's milk). In the evening I showed a friend the dream and the newspaper. As we were looking at it, one of my sons joined us and showed her a calendar

* Associations to Saturn include both (wedding) rings, and the overthrow of Saturn (who devours his children) by his son, Jupiter. The Greek version of Saturn was Cronos, the God of Time, who eventually "devours" (ends) whatever exists (in this case, a marriage).

from MacDonald's in which he was coloring eye people (just eyes and feet draped with french fries). After I noticed the eye people, the phone rang, and another friend invited me to bring my children and join a group going to the movie Star Trek the following evening. I had already seen the movie and had found it disappointing.

On May 22, 1982, my dream included the following:

I took some bubblegum out of my mouth. It was warm and sweet. I thought I might like to save it, but then I threw it in the garden where there were flowers and vegetables. It became large, and first one, then many chickens jumped into the garden and started pecking and eating the gum. I wondered if they would damage the garden or if the gum would damage them. I continued walking past the garden in the back yard and felt a sharp sting on my leg. There was an insect with sharp spikes like a thistle embedded in the skin. I pulled some of it out. It stung my fingers. I wiped it off my finger. It was sticky. I pulled more spikes out of my leg. My mother was there. She told me those insects were around. I felt there might be others on me, on my clothes, my hair. I wanted my mother to help me take off the jacket I was wearing, which was Jimmy's . . . I had an impulse to sing so we wouldn't be so scared. I think I sang a Judy Collins song . . .

After I woke up, Jimmy, my oldest son, told me he had a splinter in his foot he couldn't remove. I tried to get it out, but only managed to remove part of it. I noticed the correspondence to the dream, in which I was wearing Jimmy's jacket and asked my mother for help. Three days later, I went to a school show that included Jimmy's class. I knew nothing about it, except that as a parent I had received an invitation. In the middle of the performance, the teacher stopped the show and asked one child to give her the gum he was chewing. She added it to a large pile of chewed gum on the stage floor. Then the show resumed. When Jimmy came out, he played the part of a chicken and sang a song. I hadn't known about the show or his role as a chicken. Even though chickens, gum, splinter, and songs are all relatively common, they do not usually occur together. Chickens and songs are also relatively common in my dreams (although live chickens are rare), but splinters are more infrequent, and gum is exceedingly rare. Jimmy is the connecting link through time; it is his splinter, his chicken suit, his song, his class's pile of gum, and in the dream I am wearing Jimmy's jacket.

Sometimes I have interpreted adjectives as elements, where a single image has two or more aspects that do not usually go together. For example, in a dream of January 11, 1980, I see objects for investments that feature tiny gold golf clubs, which I mention several times. Later in the day, I was with Arthur Twitchell, who started talking about a movie star he knew who owned gold golf clubs. Golf clubs are not usually gold, so I counted the adjective as another element.

As another example, I dreamed on June 3, 1980 that I was in the apartment of a decorator named Halston who had a little daughter. On June 19,

1980, my psychiatrist returned from several weeks of vacation and, on reading the dream, told me he had visited the house of the decorator Halston while on vacation. He checked the date, and it had been June 3 (the day I had the dream). I defined looking at the apartment of a decorator as one element, and the specific name, Halston, as another.

But there is also an element of the dream that I will call an indicator, which offers an indication or clue as to whose life the dream will correspond; here it is the little daughter. I had previously dreamed that my psychiatrist had a little daughter, and that detail had given me a feeling that the Halston dream might have to do with him, which I mentioned to him when I gave him a copy of the dreams to read, before learning of the correspondence.

An excerpt from a long dream of July 26, 1979, reads:

There was a tall girl with glasses who was a parachute jumper, going up in a sort of elevator to jump. I got out of her way. She made me think of Marsha.

Several weeks later, after I returned from the Parapsychological Association Convention in California, I heard Marsha relate during group therapy how she had gone up in a plane to parachute jump the previous weekend, but hadn't jumped at the last minute. I showed her my dream and asked her when she had first thought of parachute jumping, because I wondered if I could have had some knowledge of the idea before I had the dream. She told me she had never imagined parachute jumping until she met someone who had given her the idea on August 10, and she had gone up with him to try it on August 19. The dream occurred 24 days before the event, and 10 days before the idea was suggested to Marsha. Parachute jumping is one element, and Marsha is both an element and an indicator.

In the following example, one of the two segments is precognitive, the other occurred before the dream but I learned of it afterwards. Each segment contains several elements that correspond to real events.

I dreamed on January 2, 1980:

I had a small container with some black earth and what seemed to be a piece of a small worm poking out. I wasn't sure. Later, I shook it out in my lap, many large disgusting pale grey worms fell into my lap out of the dirt where they had grown.

Something about Yugoslavia—Pat—pink pastel trees, a beautiful landscape with pink and orange leaves, sort of fluffy like an impressionist painting. I thought of Monet. I went to a sort of patio or veranda with the pink trees in chairs all around.

I had been invited to a party at Pat's house the day before the dream, but I hadn't gone. At the party, someone had brought the game "Dune," which involves giant worms, and conversation had included a discussion of a plant belonging to Pat's brother that had been put outside because the soil was infested with large grey worms. On January 2nd, after I had the

Decline of Precognized Events with Time

dream, Pat had gone to a museum to see impressionist paintings with a friend, because she was writing a paper on Monet, and she had spent a long time looking at a Monet with pink and orange leaves. Ignorant of all this, I coincidentally loaned my mother the book Dune on January 2nd. I learned of both correspondences on January 3rd, when the dream group met.

"Pat" and "Yugoslavia" are both indicators of Pat. I had previously had a precognitive dream (that also concerned a picture Pat had been absorbed in at a museum accompanied by the same friend) in which the indication that the dream was about Pat was only the word "Yugoslavia," which is where Pat's family originates.

I will offer a final example of a dream with what I have judged to be precognitive elements that occurred a week before the event of John Lennon's murder.

On December 1, 1980, I dreamed:

At one point, I was talking with Michael (Jon's brother) about how everyone "accidentally" died, connected to the political situation. Then someone came in and shot me 6 times. I knifed the guy, didn't know where to leave his body so it wouldn't be noticed. On the roof in a corner with some junk? But I didn't want to die. I felt very weak, waited for a doctor. A Filipino woman doctor came in. I didn't trust her. Maybe she was going to infect the bullet wounds so I would "accidentally" die. It wasn't the doctor I expected. I refused to let her take the bullets out, fighting her, kept looking for a doctor with a friend watching. Later, I went into a camper where I lived. Kids came asking for candy, although it was the day after Halloween. . . . I gave them all fists full of candy canes, although some wanted other kinds. I said, no, only candy canes. . . . Then I went to the K.D.U. at Putney for Thanksgiving dinner. A girl (Judy) was sleeping in the back seat of a car. I opened the door and woke her up, told her it was too dangerous. I still had the bullets in me. . . . I sat down and said I was shot 6 times. Two other women in the kitchen talked about sitting and being lazy. A fat man wanted The Sound of Music, which was an apple. I left it next to him. He refused, then took a bite. I thought maybe I should try to get the bullets out with a knife from the kitchen.

On December 8, 1980, John Lennon was shot 5 times. Judy had been talking with me about John Lennon at about the same time he was shot, as we later learned. I had first heard of the Beatles at Putney. Yoko Ono is an oriental woman. The sound of his music was on Apple records.

As a curious aside, I will mention that two of the seven dreams cited above, which were chosen as examples for this paper because of their brevity and ease of presentation, turned out to have more corresponding elements much further into the future.

When this paper was first written, I had excluded the candy cane sequence of the dream last cited because it did not seem relevant to the future correspondences. However, on November 24, 1983, Judy came to my house for Thanksgiving dinner. In the course of conversation, she

mentioned that she was working temporarily in a candy factory. Her job consisted of painting the stripes on candy canes. Someone asked if she made any other kind of candy. She said, No, only candy canes. I didn't notice the correspondences to the dream until the morning of December 8, 1983, when I suddenly remembered the Thanksgiving conversation about painting candy canes, and the candy cane-Thanksgiving-Judy sequence of this dream. I immediately called Judy and told her about the correspondence. She asked me if I knew that it was the anniversary of John Lennon's death.

Although there is a long time span separating events, Judy is the connecting link through time. She was talking with me about John Lennon at the time he was shot, she visited Putney with me several years later, which is where I had first heard of the Beatles, and she came to Thanksgiving dinner when working as a candy cane painter.

In the Moons of Saturn dream, I had also excised a scene of the original dream from this report. In it, I saw a little girl with a very round face, large freckles, and short brown hair, who, in the dream, I knew to be the daughter of someone I used to know. Three years later, I was startled to recognize the little girl of the dream, whom I had never met, when her family came to visit. I didn't remember which dream she had appeared in, but I had an uncanny feeling of recognition when I saw her face, and the dream scene of her face popped into my mind. It was only when I went back and reread the dreams, looking for that sequence, that I discovered it had been a section of the Moons of Saturn dream which I had excised as irrelevant to this paper. Again, the image from the future added to my understanding of the meaning of the dream; the theme of a troubled marriage and possible divorce and concern about the emotional well-being of the children was again at play, as well as insight about the results of a different choice than the one I had made 3 years before.

ANALYSIS

In a preliminary analysis, I have looked at the time span between each apparently precognitive dream and the day of later corresponding real events. Because of the difficulty and ambiguity of the task of breaking each component of the correspondences into its constituent elements, I have adopted a crude but unambiguous simplification in counting the number of correspondences through time. If correspondences to several elements from one dream occurred in a sequence over a single day, I have called them a single "event." If a sequence occurred over several different days, I have counted the interval between the dream and each different day on which a related event occurred as a separate event. Thus, one dream may have several temporal intervals to future events on different days, whereas another dream may have correspondences to many different events that occur on a single day, all of which will be lumped

Decline of Precognized Events with Time

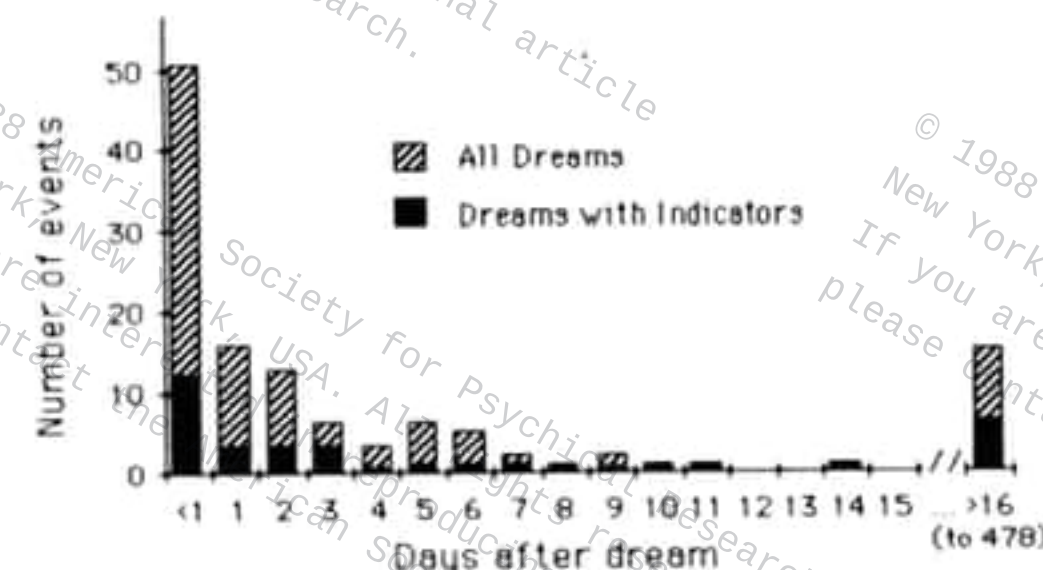


Fig. 1. The distribution of 123 precognized events over temporal distance from dream.

together as a single temporal interval in the count. For instance, the partially removed splinter, chewing gum-chicken-song dream has two intervals: less than 1 day (the splinter) and 3 days (the gum, chicken, and song). The grey worms-Monet trees dream has only one interval (the Monet trees) because I am looking only at future events.

The 96 dreams in this sample of presumptive precognitive dreams thus yield 123 "events" (each consisting of a varied number of correspondences between a specific dream and a later day), which vary in temporal distance after the dream from less than one day to 478 days. As can be seen in Figure 1, 51 (41.5%) of the 123 future events occurred less than one day after the dream (Dunne's phrase "future day residue" seems quite apt), and more than half of the events occurred within one day. The fall-off with time is striking and nonlinear. The shaded areas indicate how many of the events are associated with dreams that have an "indicator" suggesting to whom the dream will pertain.

Figure 2 shows the same data plotted with powers of 2, 5, and 10 on the x-axis. This is equivalent to plotting the data on log paper with log to the base 2, 5, and 10 respectively. As can be seen, dreams with "indicators" (shaded) seem to have events distributed throughout the temporal intervals, and they exhibit the same pattern of fall-off as the total sample.

Table 1 shows the data when the increasing time spans are collapsed by increasing powers of 5. The incidence of precognitions within each time interval is divided by the respective time spans within each interval to find the average incidence per day within each interval. A Pearson product moment correlation between $\log(\text{incidence per day}) + 3$ and $\log(\text{distance in time}) + 1$ yields $r = -.9973$. The constants are added to make all the

The two fragments just described are excluded from the analysis because I am considering only the original 50-month period in which all future correspondences have been compiled. If one wants to add these two very long temporal distances, an additional half year of dreams and future events must also be added.

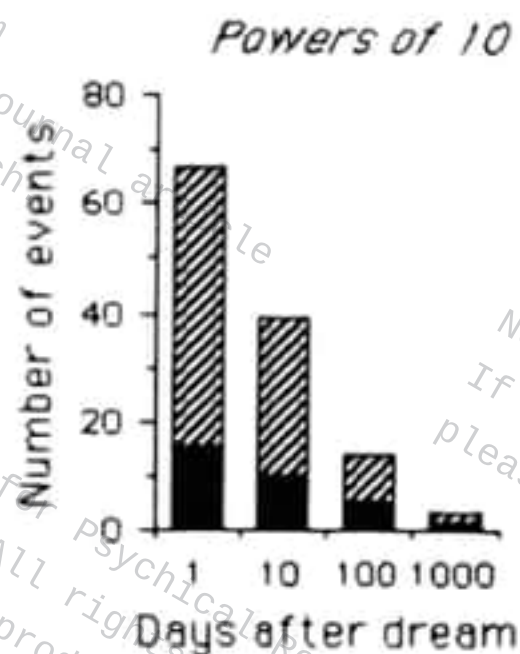
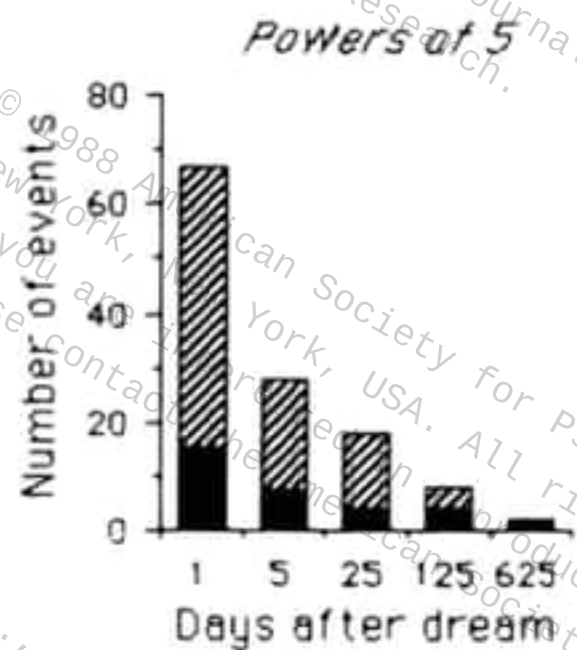
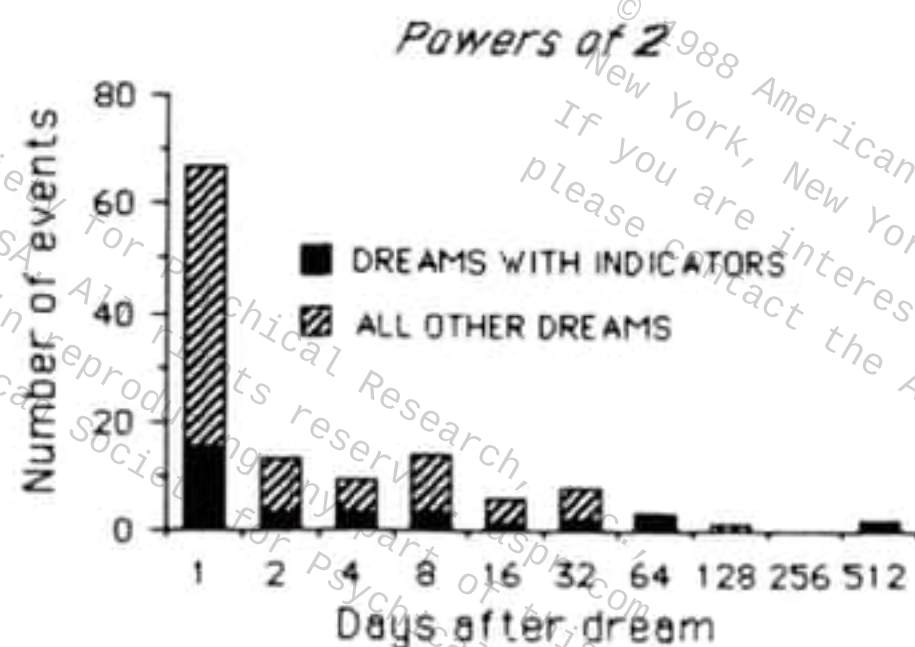


Fig. 2. Distribution of precognitive events over increasing time spans.

signs positive before correlating. It should be pointed out that one would get the same r without adding the constants. Breaking the time intervals into powers of 5 is arbitrary. Correlations of $\log(\text{incidence per day})$ and $\log(\text{distance in time})$ can be similarly computed for other cuts of the time interval, with similar results. For instance, cutting the consecutive time spans into increasing powers of 10 as in Table 2 yields $r = -.9972$.

When Orme (1974) analyzed 148 spontaneous precognitive dreams pooled from four different sources in the literature (Barker, 1967; Dunne, 1927; Lyttelton, 1937; and Saltmarsh, 1938), he found a similar sharp fall-off with temporal distance, where the product moment correlation coefficient between the log incidence per day and log distance in time equals $-.9640$.

He found a similar fall-off in 33 cases of telepathy reported by Stevenson (1970) when they were classified in terms of time span between impression and confirmation. When these were added to his data pool, the correlation between the log of incidence per day and the log of distance in time became $-.9906$.

Alternate Interpretations

Two objections may be raised to the meaningfulness of this analysis of spontaneous precognitive dream material. The first, which Dunne himself argues, is that many unusual dream images could be matched to a corresponding life situation if one waited long enough. To avoid spurious correspondences, he suggested limiting the temporal distance to 2 days when looking for future day residue, unless the correspondences are extremely compelling. I will call this objection the coincidence interpretation.

The other objection is what I will call the memory-artifact interpretation, which argues that the further in the future after a dream, the less likely that events that may seem to correspond to elements of the dream will be noticed in connection with the dream, due to the artifact of memory decay of dream details over time. The memory-artifact interpretation does not address the question of whether the later corresponding events are actually incorporated precognitively into the dreams or whether the perceived connections are spurious and exist only in the eye of the beholder.

Table 1
RELATIONSHIP BETWEEN INCIDENCE OF FUTURE CORRESPONDING EVENTS AND TIME
INTERVAL BETWEEN DREAM AND FUTURE EVENTS (50 MONTHS)

Time interval (days)	0-1	2-5	6-25	26-125	126-625
Time span (days)	1	4	20	100	500
Incidence of events	67	28	18	8	2
Incidence per day	67	7	0.9	0.08	0.004
Log (incidence per day) + 3	4.8261	3.8451	2.9542	1.9031	0.6021
Log (distance in time) + 1	1.0000	1.6990	2.3979	3.0970	3.7959

These two objections predict opposite effects. The coincidence interpretation predicts that the longer the total time span observed, the more the dreams in the beginning of the series will eventually be labeled as "precognitive" by chance correspondences alone. Given the implicit assumption that the correspondences are an intellectual exercise in finding similarity, and not the result of precognition, coincidence should produce, on the average, a constant number of apparent corresponding later events in sequential equal spans of time after the dreams and an increase in the number of dreams labeled precognitive when looking through increasing future time spans.

On the other hand, the memory-artifact interpretation predicts a fall-off with time that is nothing more than an artifact of memory decay. One might argue that both these objections may be operating to produce the observed data and that there is no evidence for precognition; that is, that most of the dreams are soon forgotten and most of the spurious correspondences are noticed while the dreams are still recent, yet a few dreams are remembered until, eventually, a chance resemblance occurs in later life events.

Responses to Alternate Explanations

There are a number of responses to these objections. The first is the quality of the correspondences, which I have tried to illustrate with some examples, where many of the dreams exceed the criteria of two different elements that do not usually go together that either describe specific attributes or details or form a sequence of later events that are linked by a common thread. As either the number or the unusualness of corresponding elements increases, it becomes increasingly unlikely to find them occurring together by chance, whether in the near or distant future.

This response could be further strengthened by further tightening the criteria for calling a dream precognitive. For instance, one could further limit the sample by requiring that three or more independent elements, with at least one having a frequency of less than two in the total dream pool, be the criteria for calling a dream precognitive. In the present analysis, the subsample of dreams with "indicators" can be considered a tightening of the criteria for calling correspondences precognitive.

Another argument against these objections is the subjective feeling of recognition combining both an impression of déjà vu and experience of the uncanny* that almost always accompanied my perception of the later event. The memory of the dream would be triggered by the unusual combination of elements in a later event, and more events would sometimes continue to follow and further substantiate the correspondence. For example, the juxtaposition of the Moons of Saturn and Benefits of Mother's

* This is an emotional feeling akin to thrill or fright, reminiscent of the phrase "My hair stood on end," or Jung's use of the word "numinous."

Milk headlines in the Science Times section of the *New York Times*, which startled me and gave me an uncanny feeling, was later followed by eye people and an invitation to Star Trek that occurred at a moment when I was actually showing a friend the first correspondences.

The responses just mentioned address the coincidence interpretation. A third response to this interpretation, which has been touched upon briefly above, I will mention in the form of a question: Namely, do the future correspondences add to one's understanding of what the dream was about in the same way that associations to day residue incorporated in a dream can aid in more fully interpreting the dream? That is, are correspondences to future events metaphorically meaningful in the context of the dream in the same way that elements incorporated from the past seem to be metaphorically meaningful symbols chosen to express the dream concerns? Do the future events incorporated help illuminate the meaning of the dream? If the answer is affirmative, random and meaningless coincidence is a harder hypothesis to maintain.

A response to the memory-artifact argument, which, after all, could account for both my data and Orme's, is to ask what happens to the pattern of apparent precognitions in dreams that are not forgotten because they are often reread through a future time span and studied for possible precognitive correspondences to recent events. If the fall-off with temporal distance from the dream is an artifact of memory decay, it shouldn't occur during a period when memory is repeatedly refreshed and there is no decay. This experiment could easily be done.

I have a preliminary approximation to such an experiment that occurred accidentally in my data. When I first joined the dream group and started typing my dreams, there was a flurry of striking correspondences between my dreams and the dreams and life events of others within the group. The correspondences were fascinating to me, and I began to carry all the typed dreams with me, reread all of them quite often, show various people the correspondences, and generally study and become very familiar with the typed dreams.

After 3 months, I had noticed 23 precognitions and was struck by the variation in the time span between dreams and events. I decided to look at the time span, and write a list of precognitive dreams, corresponding events, and time intervals between them, which just filled up a page. I hadn't seen Orme's article, and I had no expectation as to what I would find.

I put the page aside and didn't examine the data until almost 4 years later. The fall-off with temporal distance for the overlearned dreams of the 3-month period was almost exactly the same as for the full 50-month period. A Pearson product moment correlation between the log incidence per day and log distance in time from the dream⁹ yields a coefficient $r =$

⁹ These calculations are based on cutting the consecutive time spans by increasing powers of 10 and averaging the incidence per day within each cut. Different cuts will yield slightly different values.

Table 2
NUMBER OF PRECOGNIZED EVENTS IN INCREASING TIME INTERVALS FOR OVERLEARNED,
UNTYPED, AND ALL DREAMS

Days between precognitive dream and event	0-1	2-10	11-100	101-1000
Overlearned dreams (3 months)	11	7	4	1
Untyped dreams (5 months)	7	6	0	1
Untyped dreams (5 months) ^a	(9)	(6)	(0)	(1)
All dreams (50 months)	67	39	14	3

^a With weak cases included

-.9969 for the overlearned dreams, and the slope of the linear regression (-.69) is close to -.75, the slope of the regression line for the entire 50-month period.

If the fall-off is due to memory decay, when memory decay is controlled, the fall-off should disappear. Because the fall-off remained virtually unchanged in the period in which dream details were not forgotten, the memory-artifact hypothesis is not supported. This should be replicated as a formal experiment.

I also examined two periods during the 50 months when the memory-artifact interpretation would predict the strongest fall-off effect. For several months before I joined the dream group, I wrote down my dreams but didn't type them and gave my only copies to my psychiatrist every week, so I had no opportunity to reread them (until I asked that they be returned 4 years later). There is also a period from November 5, 1981 to January 12, 1982 when I stopped typing my dreams and didn't look at them after writing them down in the morning. I pooled these periods and found the fall-off to be about the same—even slightly weaker rather than stronger—as for both the entire period and for the overlearned dreams, as can be seen in Table 2. For these periods of unstudied dreams, there are proportionally fewer future correspondences for all temporal distances, which may, indeed, be due to forgetting or lack of attention, but the correspondences are not proportionally more numerous in the immediate future for the unstudied than for the overlearned dreams, as would be predicted by the memory-artifact hypothesis. In fact, if I add the 22 "weak" cases, where only a single unusual future correspondence was observed, the fall-off for the period of unstudied dreams appears almost identical to that of the overlearned dreams.¹⁰ The memory-artifact hypothesis does not seem to be supported in either of these two preliminary analyses.

¹⁰ In the period of overlearned dreams, there are no weak cases. In the unstudied dreams, the "weak" cases all occur within one day of the dream. Because I did not review the unstudied dreams after initially recording them in a half-asleep state, nor did I add more remembered details while typing, my poorer memory of the details of the unstudied dreams may have caused me to miss both correspondences that would have elevated the "weak" cases into cases that satisfied my criteria and correspondences to events on subsequent days.

Dalton (1974) calls attention to the results of several other "spontaneous-experimental" dream precognition collections published in the 1930s and 1940s in English and Dutch journals in which dreams were systematically recorded and future correspondences noted over a subsequent period of time. He also reconsiders Dunne's original experiment without pooling the spontaneous cases mentioned elsewhere in his book. He notes that the same steep exponential fall-off with time found by Orme occurs in every series of cases considered. The present results, with at least a partial control of the memory-artifact counterhypothesis, are no exception.

Tart (1983) found a significant and striking difference between real-time and precognitive information rates in a survey of published forced-choice studies with significant psi-hitting. He also found a significant (post hoc) difference in information rate between the precognitive data with temporal distance of more than 5 minutes versus data with 5 minutes or less, favoring the shorter interval. The memory-artifact argument does not apply to these data.

DISCUSSION

Thus, there is converging evidence to suggest that there may be a rapid fall-off through time of precognitive information that is more than artifactual. However, although such a fall-off might imply some intrinsic difficulty or even limiting factor for ESP information traveling through time, one must consider that there are also reported cases of relatively large temporal distance with accurate detail. Dunne (1927), for instance, describes a dream he had as a boy that contained specific trivial details of an event 20 years later (pp. 79-81). In the present collection, distant as well as close correspondences were detected by matching odd details occurring in both the dream and later event. It is the frequency, but not the accuracy or specificity of detail, that seems to fall off through distance into the future. As the length of time increases, there are fewer cases, but they do not seem to be more fuzzy or indistinct. Any model of time that accounts for the fall-off should also account for the clarity of the more distant events.

One possible model of time that would predict such a fall-off of frequency rather than accuracy would be to envision future time as a branching tree, rather than a straight line, with decision points leading to different diverging possible future paths. One can ask whether decision points might be choices of conscious will or points where "randomness" has a determining function.

If one makes the assumption that aspects of various different possible futures lying along different branching paths may be precognized before a future decision point is reached, then the possibility of feedback that a potential future event was precognized depends on the sequence of deci-

sions leading to the time path that contains that potential future event. We would simply never get feedback about potential future events precognized that never manifest because we find ourselves in a different future. If we make the simplifying assumption, for a moment, that all possible futures have an equal likelihood of being glimpsed,¹¹ the likelihood of getting to the future one precognized would fall off with the number of decision points through a span of time, falling off as a power of the number of branches at the decision points. The more branchings at each decision point, the steeper the fall-off would be. It would appear to an observer traveling on a single path through the branching time tree that the number of future events precognized fell off rapidly with increasing time between dreams and events, but a few very distant events would eventually actualize on the traveler's time path with the same clarity as the more numerous ones closer in time before potential futures diverged.

To test any model of precognition experimentally one should, of course, try to maximize the likelihood of eliciting precognition, for example, by inducing an altered state of consciousness using selected subjects, and controlling the psychological belief variable with double-blind designs to avoid a spurious fall-off.

However, if the variable to look at is not simply temporal distance between impression and target generation, but the number of branches of possible future paths through time, then systematically varying only the time interval with a single decision always determining the target might be irrelevant.

As a first crude approach to testing the idea of branching futures, one might also want to try varying the number of decisions leading to target generation, in a tree-like sequence, where each decision point in the sequence was dependent on the result of a previous decision, and targets were designated by the sequence of decisions. Thus, the variable would be different-sized trees of decisions, from a straight stick, to a Y, etc. Different branches could lead to different mutually exclusive kinds of target pools. Ideally, targets should exist only in the future. For instance, future newspaper articles might be specified by decisions concerning which newspaper, which page, which column, etc., where the shorter sequences

¹¹ This strong assumption is not necessary. Alternate future glimpses of varying probabilities would also lead to a fall-off. In fact, the strong assumption of equal likelihoods would lead to an interesting limitation. Because the more branches there are at each branching point, the steeper the fall-off would become, a very large number of branches at each point would cause the number of events to fall close to zero almost immediately at the first branching, leading to a vanishingly small tail, which is not what is empirically observed. Thus, with the equal probability assumption, it would follow from the existence of the fall-off that there are relatively few branches at each point, and surprisingly few points where the future might diverge, compared to the uncountably large number one might imagine there should be if every uncertain dancing elementary particle could lead the macro-structure to alternate futures.

would have fixed default specifications in some of the places longer sequences had decisions.¹²

There are models other than branching time that might fit the data. For instance, one can imagine that some impediments or barriers prevent more and more glimpses of the future from "getting through" as time spans increase. This would produce an equivalent fall-off of frequency but not accuracy through time, but it adds questions about the possible nature of the barriers.

Another possible interpretation of the fall-off is a psychological one, that is, that the near future is more important to us and thus more often scanned in precognitive dreams than the more distant future. One can argue that the absence of obvious meaning to most of the future events precognized might be analogous to the lack of obvious meaning of most of the elements from the past incorporated in a dream. The meaning could be attached to the associations rather than to the manifest content as Freud argues is the case with day residue. Against this interpretation are the relative rarity of precognitions of life events of great personal importance,¹³ the events of other people's lives precognized that held no more interest to me when they were in the near future than when they were in the far future, and Tart's examination of forced-choice experiments in which meaningless sequences of symbols should not have been more interesting if they were generated within 5 minutes than if they were generated later.

I will note that in this sample, the distribution of both dreams called precognitive and events precognized appears uneven across the 4 years, and a rough scan suggests that there tend to be periods of clustering of both such dreams and events. Some possible candidate variables that appear to me to relate to the periods these precognitive dreams and events seem to cluster include periods of high emotional intensity, points of change (in life circumstances or personality structure), points of decision, or points where an unresolved conflict is activated.

Interested readers are urged to try Dunne's experiment for themselves, giving a fair amount of time (at least 6 months, preferably several years)

¹² A possible problem with this approach arises, however, if one's decisions are influenced by goal-directed PK and if PK is independent of complexity. The possibility of testing the model then hinges on determining what kind of decision is least likely to be influenced by PK, if it is possible to find limits to PK.

¹³ Priestley (1964) concludes from several hundred examples of precognitive dreams called from over a thousand letters sent to him after a television request that about 90% were evenly split between the trivial and the terrible, but almost none reflected people's main interests and concerns, for instance, love or work. He suggests that the terrible and trivial events precognized may be more determined and available to glimpse precognitively, whereas there may be a more impenetrable confusion of possibilities in the areas of personal concern where there is more chance of acting to create various futures.

to systematic recording of their dreams to take into consideration the possibility of a clustering effect. Writing as much detail of the dream as can possibly be remembered, no matter how peripheral to the action, may also be helpful in detecting the phenomenon, because it is the odd, unusual, often peripheral details that usually give weight to a correspondence, rather than a sketch of the main action, characters, or dominant themes of a dream.

Dunne emphasizes the unconscious resistance one meets in oneself when such a correspondence is recognized: it immediately seems too far-fetched, too weak to consider, not worth writing down. He suggests the exercise of fooling oneself, imagining it is the day before the dream that the events in question occurred, and seeing how easy or hard it is to accept the idea that the event was incorporated into the dream. What seems too far-fetched to consider as a correspondence from the future often becomes a patently obvious dream incorporation if it is thought to be from the day before. It is the unconscious fear of the notion of precognition itself that can make the perception of correspondence unacceptable.

I have presented converging evidence from my own collection of spontaneous cases, from Orme's examination of spontaneous cases in the literature, from Dalton's analysis of published Dunne-inspired experiments, and from Tart's analysis of significant forced-choice experiments, all of which suggests a nonartificial steep and regular fall-off in the number of precognized events as the time from the precognition increases. I have suggested an experiment that can easily be done with spontaneous material to examine the memory-artifact hypothesis. I have offered a speculative and simple local model of time that could produce the pattern of the observed data, and I have attempted to sketch an approach that might try to test the model. I hope that others will examine the phenomenon in their own dreams without emotional resistance to the possibility of precognition preventing the recognition of a relationship that may exist between dreams and future events. If the phenomenon is indeed ubiquitous, and the fall-off nonartificial, I hope these speculations may, at least, stimulate further thought.

REFERENCES

- BARKER, J. C. (1967). Premonitions of the Aberfan disaster. *Journal of the Society for Psychical Research*, 44, 169-180.
- BENDER, H. (1966). The Gotenhafen case of correspondence between dreams and future events: A study of motivation. *International Journal of Neuropsychiatry*, 2, 398-407.
- BREGER, V., HUNTER, I., & LANE, R. W. (1971). The effect of stress on dreams. *Psychological Issues*, 7 (3, Monograph 27), 1-213.
- DALTON, G. F. (1974). Letter to the editor. *Journal of the Society for Psychical Research*, 47, 526-527.

Decline of Precognized Events with Time

- DUNNE, J. W. (1927). *An Experiment with Time*. New York: Macmillan.
- FREUD, S. (1965). *The Interpretation of Dreams* (L. Strachey, Trans.). New York: Avon Books. (Original work published 1900)
- LYTTLETON, E. (1937). *Some Cases of Prediction: A Study*. London: G. Bell.
- ORME, J. E. (1974). Precognition and time. *Journal of the Society for Psychical Research*, 47, 351-365.
- PRIESTLEY, J. B. (1964). *Man and Time*. Garden City, NY: Doubleday.
- RHINE, L. E. (1981). *The Invisible Picture*. Jefferson, NC: McFarland.
- ROFFWARG, H. P., HERMAN, J. H., BOWE-ANDERS, C., & TAUBER, E. S. (1978). The effects of sustained alterations of waking visual input on dream content: A preliminary report. In A. M. Arkin, J. S. Antrobus, & S. J. Ellman (Eds.), *The Mind in Sleep: Psychology and Psychophysiology* (pp. 295-349). Hillsdale, NJ: Lawrence Erlbaum Associates.
- SALTMARSH, H. F. (1938). *Foreknowledge*. London: G. Bell.
- STEVENSON, I. (1970). *Telepathic Impressions: A Review and Report of Thirty-Five New Cases*. Charlottesville: University Press of Virginia.
- TART, C. T. (1983). Information acquisition rates in forced-choice ESP experiments: Precognition does not work as well as present-time ESP. *Journal of the American Society for Psychical Research*, 77, 293-310.

789 West End Avenue, 5D
New York, New York 10025