The Night/Day Imagery Paradox of Selected Psychotic Children

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Dreams, whether primal and unintelligible fantasy, or structured, encoded symbolic expression, remain to this day inherently enigmatic phenomena. The process of dreaming has been a controversial subject for ages. Whether the process is related to memory storage, creativity, or sustaining homeostatic mechanisms is not our concern in this paper. We are reporting on our study of three psychotic children in residential treatment whose dreams were found to be static and realistic, while their diurnal fantasy life had a dreamlike quality.

The content of the psychotic child's dream has not been readily accessible because of difficulties in experimental design and in acclimatizing psychotic children to a rigorous EEG dream study. Therefore, our conception of the nocturnal imagery of psychotic children has remained a composite of projections, confabulations, fantasy, and reality. Eliciting "nocturnal imagery" in therapy sessions (the day after) may have therapeutic significance, but these reports obfuscate the actual content of nocturnal imagery. An EEG dream study enables the investigator to control for confabulation with non-REM arousals, to examine the nocturnal EEG of these children, and to have a reliable device for collecting dream reports.

Clinical observations have led us to conclude that a certain population of children, classified as "psychotic," have deficient nocturnal imagery. While quantitative electroencephalographic data on the

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Project sponsored in part by a NIMH Medical Student Fellowship. Special thanks to Paul Adams, M.D. who, while Chairman of Child Psychiatry, provided us with the opportunity to undertake the study, and to Frank Carrera, M.D., the present Chairman, who enabled us to complete the study. Both men have our admiration and deepest respect.

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Stage I REM of psychotic children show no gross differences from those reported on normal children, more refined quantitative data and a mass of qualitative data suggest the possibility that visual imagery, as experienced in dreams, may be stereotyped for the psychotics rather than richly varied, as reported by normal children (Ornitz and Ritvo, 1968; Ornitz et al., 1965a, 1965b, 1969; Gold and Ollendorff, 1973).

**Literature**

Many authors have shown that when schizophrenic or autistic children are compared with normal children and children with non-psychotic behavior disorders, provided the diverse groups are age-matched, there is no significant difference in the proportion of sleeptime spent in dreaming. Ornitz et al. (1969), in a more recent study, confirmed their earlier studies which indicated that no gross EEG sleep abnormality existed when autistic children were compared with a nonautistic control group. In their group of young autistic children, there was an unusually large amount of 10.5-15 c/sec. activity in the EEG and a rapid eye movement activity, although the percentage of sleeptime spent in REM sleep was equivalent to that spent in REM by the normal children. They conclude that this absence of 10.5-15 c/sec. activity in normal children, and its presence in autistic ones, demonstrated that the autistic child's maturational lag for this type of electrical activity is characteristic of REM sleep at early developmental stages. The number of rapid eye movement bursts was not reduced in the autistic children, but their duration was noticeably reduced. This suggested to Ornitz and Ritvo the possibility that the central nervous system influences that initiate eye movement activity are functioning, while the factors that sustain this activity are deficient or inhibited in psychotic children.

The maturation hypothesis was investigated utilizing auditory stimuli. They found that normal child and adult response to the auditory stimulus was inhibited during REM sleep, but that it was not inhibited in normal infant REM sleep. Autistic children, up to the age of 5, like normal infants, do not display a decreased response during REM sleep (Ornitz et al., 1967, 1968).

Dement and Wolpert (1958) suggested that the amount of eye movement during dreams is related to the actual imagery within the dream. If this is in fact the case, then the observed reduction of duration of rapid eye movement bursts in psychotic patients (Ornitz et al., 1969) lends plausibility to the view that psychotic chil-
children have stereotyped or reduced imagery within their dreams (Molinari et al., 1969).

Though Dement’s (1960) suggestion that the dream is the protector of sanity may be too speculative, “the possibility remains that there are qualitative or functional differences in this special biological state of consciousness in psychotic subjects which more refined techniques may reveal. The clinical similarity between the cognitive and perceptual experiences in schizophrenic subjects and normal dreaming suggests that a further search for a relationship between the biological state of dreaming and schizophrenia is justified” (Ornitz et al., 1965a, p. 423f.).

**Subjects**

Three psychotic children (S₁, S₂, S₃) were selected for this study during the period of 1969–71. At the time of their participation, each was a resident in an inpatient treatment center for emotionally disturbed children. Before admission to the Children’s Mental Health Unit (CMHU), the prospective patient is evaluated for a two-day period by a team including a child psychiatrist, neurologist, pediatrician, psychologist, psychometrician, psychiatric social worker, occupational therapist, special education teacher, speech and language therapist, and a resident in child psychiatry. Each specialist tests and interviews the child and the parents to rule out organic etiology before recommending that a child be admitted to the CMHU. Therefore, our subjects were selected from a pool of inpatients who had normal EEG, urine chemistry, endocrine function, and so on. They were “certified” by the neurologist, pediatrician, and child psychiatrist as being emotionally ill.

Though resembling the remainder of the CMHU inpatients, each subject demonstrated the following characteristics. He (1) was diagnosed as “psychotic but not necessarily schizophrenic” after a psychiatric interview and psychological testing; (2) used language to communicate; (3) had a rich fantasy life as determined by interviews, observation, and videotape sessions; (4) demonstrated qualitative evidence of abnormal dream behavior (each of our subjects, over a six-week course of random nocturnal arousals, reported stagnant dream imagery and an object preference); and (5) had a history of maternal and/or environmental deprivation extending from birth to at least his 4th birthday.

In summary, our subjects’ differentiating characteristics were also criteria for selection for this study. Absolute prerequisites included: a negative neurological and neurochemical picture; a psy-
psychiatric and psychological testing consistent with childhood psychosis; spontaneous verbalization; a normal Peabody Picture; and qualitative evidence of rich diurnal and impoverished nocturnal imagery.

**Procedure**

We attempted to observe each child on a 24-hour basis to collect his nocturnal and diurnal imagery. The procedure for the retrieval of dream material in psychotic subjects has been described previously in great detail (Gold and Ollendorff, 1973). This rather tedious method was successful in eliciting dream reports which were not polluted with confabulation (see Table 1). The success of this method in eliciting dream reports demonstrates the qualitative similarities between psychotic and normal sleep/dream cycles.

Arousal would consist of a slight nudge, the standard question, “What were you just dreaming about?” to elicit a few follow-up associations and pertinent questions. If the subject responded negatively to the first question, the investigator would respond, “But the machine said you were dreaming.” The subject would then reconsider and report a dream, or reply, as S did in one control arousal, “I don’t think so . . . you are just testing me.” We also asked the subjects to draw their dreams. Concomitantly, we repeatedly observed and tested the subjects during the daytime. We videotaped or observed the subjects when alone in their rooms, while taking projective tests (which we used to elicit their daytime imagery), in school, and during play. We also spent an hour with each subject before his dinner to discuss his or her activities—and reveries—of that day.

We elicited our subjects’ daytime imagery with the Robertson

1 They had a Peabody Picture Test which closely (+/−2 years) approximated the child’s chronological age and spontaneous verbal behavior.

2 The investigator adopted a randomized schedule of control arousals, no arousals, and dream arousals (whether first dream period, second, etc.). The definition of the first cycle was from the onset of sleep to the end of the first eye movement period. The second cycle was from the end of the first eye movement period to the end of the second.
Auditory Projective Test (RAPT). (This test was given to each subject six times over the course of six months and consists of ten primitive sounds which serve as stimuli for visual imagery.) The subjects were asked to close their eyes and concentrate. After hearing the sound, they were then asked to draw and explain the imagery they experienced. This test has been given to 50 normal children to serve as a basis for comparison. By the time a normal child reaches the age of 5, he responds to the 10 RAPT sound stimuli with $10 \pm 1$ different verbal and supportive pictorial responses. The wealth of imagination of the normal 5-year-old is attested to by the finding that weekly testing rarely produces stereotyped responses.

We utilized audio- and videotapes of each child's spontaneous verbal behavior (usually when alone in his room or classroom) to provide a basis for evaluating the child's daytime fantasies. Interviews, after the event, also provided useful information about these phenomena which are difficult to quantify. We observed and verified hallucination reports from $S_1$ with an $N = 12$, $S_2$ $N = 18$, $S_3$ $N = 13$.

On six occasions, we read each child a story 15 minutes before his or her bedtime. The content of these stories was then correlated with the content of the reported nocturnal imagery in order to investigate the association between daytime experience and nocturnal imagery incorporation frequency (see Table 2).

<table>
<thead>
<tr>
<th></th>
<th>Arousals</th>
<th>Control Arousal</th>
<th>Dream Reports</th>
<th>Incorporation Frequency</th>
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<tbody>
<tr>
<td>$S_1$</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>$S_2$</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>1</td>
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<tr>
<td>$S_3$</td>
<td>6</td>
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**DISCUSSION**

The apparent reduction of dream activity is readily discernible in Table 3. Dreams had consistently less movement, fantasy, and imagery than diurnal activity. At times, the subjects seemingly confused the auditorily evoked images with the reality of the testing situation. In response to one auditory stimulus, $S_2$ replied, "Are they going to cut me? I don’t want to be cut up in pieces . . . not with a scissor." The same subject had similar spontaneous verbal behavior: "Don't do it. Please don't chop me up. Don't let them cut me up." While there is evidence of a self-mutilation theme in these
The suspension of reality, which normally occurs in dreams, was rarely present in our subjects' dreams. They might report, as S1 did, that "I saw a spoon beating me on the head," in response to a diurnal inquiry about an apparent hallucination, but their dreams were reality-oriented with a clear separation between the self and the object. This apparent schism is presented in Figure 1 with a typical example of the reports and drawings of S1, S2, and S3. The drawings alone elucidate the active diurnal imagery and the stagnant reality-oriented nocturnal imagery.

Of 160 auditorily evoked images and the 33 hallucinations reported by our subjects, none was without some action or movement. These reports were consistent with the known verbal behavior of our subjects and their proclivity for verbalization. For example, S1, in response to a single auditory stimulus, reported as many as eight images. On the other hand, of the 54 dreams collected, 43.5 percent were devoid of apparent movement of object(s) or person(s). The dreams, as seen in Table 3, were markedly deficient in images, as compared with diurnal activity. Even when the dream report was active, the content was object- and reality-oriented (e.g., S1, "a lady sewing a dress"; S2, "I'm in my room eating"; S3, "I'm playing with M. . . . We were running.").

Our subjects' dreams seemingly were devoid of those qualities normally associated with dreaming. When our subjects' dreams were compared with those of the normal children in the studies of Foulkes et al. (1967, 1969), they exhibited the following prominent dissonant characteristics: (1) inertness; (2) paucity of peer interac-

<table>
<thead>
<tr>
<th>Auditorily Evoked Imagery (subjects auditory stimulus)</th>
<th>Hallucination Reports (subjects event)</th>
<th>Dreams (subjects dream)</th>
<th>Dream Object Quotient (inanimate object dream subjects)</th>
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<tbody>
<tr>
<td>S1 (10 yof)</td>
<td></td>
<td></td>
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<tr>
<td>5.32</td>
<td>2.58</td>
<td>1.79</td>
<td>.529</td>
</tr>
<tr>
<td>S2 (11 yof)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.33</td>
<td>2.50</td>
<td>1.50</td>
<td>.417</td>
</tr>
<tr>
<td>S3 (11 yon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.08*</td>
<td>4.13</td>
<td>1.51</td>
<td>.554</td>
</tr>
</tbody>
</table>

* N = 40 for this S, as two testing sessions were abruptly terminated when S3 complained of "too many pictures."
FIGURE 1

**Dream Imagery**

**S1**
(10 yr ?)

“*The Sun*”

**Auditory Evoked Imagery**

He’s having a brain test about fuck to keep him from saying it.

**S2**
(11 yr ?)

“*It’s a black circle*”

My head is filled with water, it’s a waterfall, there are water bubbles in my head.

**S3**
(11 yr ?)

“A man… an ordinary man.”

I see a submarine getting ready to bomb a destroyer… up periscope… BOMB.
tions; (3) absence of wish fulfillment; (4) decreased plots of social adjustment; (5) object or animal preference; and (6) infrequent incorporation of daytime events into nocturnal imagery. In summary, our subjects’ dream material was unlike that of both the preschool and preadolescent groups studied by Foulkes et al. (1969).

There was, in our three subjects, evidence that an imagery reversal had taken place (see Table 3). Nocturnal imagery was hyperrealistic and/or static, while daytime imagery had a dreamlike quality in which reality was readily suspended. A smaller cast of characters, less imagination, and a discernible diminution of activity characterized their dreamlife when compared to daytime activity.

When alone and unstimulated, S3 customarily started up a conversation with Bitsy or some other imaginary friend who has been to the moon or visited Taj Mahal and other interesting places. The children who populate his diurnal fantasies do fascinating things. They own Rolls Royce cars, Nikon cameras, or penthouse apartments. This kind of imagination, in transcending the mundane, seems to be selectively absent in the subject’s dreams. Even his most imaginative and dreamlike nocturnal imagery (e.g., “I’m stepping on a fly”) lacked the richness and depth of his daytime imagery.

It would appear that the dream device which somehow blends the past, the present, and projects into the future was not working adequately in these children. With this in mind, we wonder if their attempts at hallucinations during the daytime may have adaptive and survival value.

We hypothesize that these children may have REM-like periods during the daytime. Interviews revealed that two of the three subjects experienced periods of rapid flow of pictures which they could not inhibit. Attempts at charting a 90-minute (REM-like) cycle during the daytime were not productive. This was due in part to the rigorous inpatient regimen in which each subject was involved and to our inability to find a behavior which “signaled” the onset of a daytime dreamlike period.

Figure II is our conception of the 24-hour imagery pattern we found in these three psychotic children. It represents our attempts to synthesize the overwhelming mass of data we have collected over the past three years. The drawings indicate the paucity of dreamlike nocturnal imagery and the rich diurnal fantasy life which characterized our subjects’ existence. The dotted line in the nocturnal imagery represents what we consider attempts at “normal dreams.”

With this in mind, we have begun to treat these children by try-
ing to help them incorporate their diurnal fantasies into dreams. We shall discuss the mechanics of this therapy at a later date when we have more thoroughly examined its effectiveness.

**Summary**

Three psychotic inpatients who used language to communicate were studied in an exploratory, semicontrolled project. When they were awakened on a systematic schedule, they showed reduced nocturnal imagery and a significant number of stagnant dreams. The subjects' dream content was found to be different from that of normal children of the same sex and age by another investigator and from that found in our subjects' daytime imagery. Further EEG dream studies, with investigation of daytime imagery, are necessary to determine if the nocturnal imagery of other psychotic children is sporadically inert, and if these children comprise a special population of chronically dream-deprived individuals heretofore categorized within the broad class of psychotic children. The role of maternal and/or environmental deprivation in this process should also be investigated.
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